PROJECT MANUAL

FOR

TURNOCK STREET QUAD PLEX

712 Turnock Street
South Bend, Indiana

MARCH 7, 2025

BID PACKAGES 1 - 26

Prepared for:

South Bend Heritage

Prepared by:

ALLIANCE
ARCHITECTS
929 Lincolnway East, Suite 200
South Bend, IN 46601

For Bids Due
APRIL 1, 2025

TABLE OF CONTENTS

INVITATION TO BID

Notice is hereby given that South Bend Heritage will receive sealed bids for Bid Packages for the construction of a new quad plex apartment building and associated sitework.

FOR THE PROJECT:	**TURNOCK STREET QUAD PLEX** **712 Turnock Street** **South Bend, IN 46617**
	BID PACKAGES 1 – 26
BY THE OWNER:	SOUTH BEND HERITAGE FOUNDATION 803 Lincoln Way West South Bend, IN 46616
BID OPENING:	**2:00 p.m. EST on April 1, 2025**
	Bids received after that time will be returned unopened.
	The sealed Bids will be privately opened.
DOCUMENT AVAILABILITY:	March 7, 2025
CONTRACT TIME:	Shall not exceed 300 calendar days from Owner Notice to Proceed.

All work for the complete construction of the project will be under multiple prime contracts with the Construction Manager/General Contractor (CM/GC), based on bids received and on combinations awarded. The Construction Manager will manage the construction of the project.

The Owner reserves the right to accept or reject any bid (or combination of bids) and to waive any irregularities in bidding. No bidder may withdraw his bid for a period of sixty (60) calendar days after the date set for bid opening.

Construction shall be in full accordance with the Bidding and Contract Documents which are on file with the Owner and may also be examined by prospective bidders at the following locations:

OFFICES OF THE ARCHITECT:

ALLIANCE ARCHITECTS
929 Lincolnway East, Suite 200
South Bend, IN 46601

OFFICES OF THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR (CM/GC):

SOUTH BEND HERITAGE
803 Lincoln Way West
South Bend, IN 46616

PLAN ROOMS: MACIAF
3215-A Sugar Maple Business Court
South Bend, Indiana 46628

The Contract Documents are on file and available for public inspection during regular working hours at the offices of the CM/GC, South Bend Heritage, 803 Lincoln Way West, South Bend, IN 46616. Contact: Jason Sommer, Telephone (574) 289-1066 (Ext. 1211) and MACIAF, 3215-A Sugar Maple Business Court, South Bend, IN 46628. Additionally, the **Contract Documents will be available for inspection or purchase at ARC Document Solutions (ARC), located at 1303 Northside Blvd., South Bend, IN 46615, http://www.e-arc.com (574) 287-2944, toll free (800) 783-7231**. There will be a non-refundable charge of the cost for reproduction as set by ARC for every set of documents for all bidders.

Bidders must direct all questions in writing during the bidding period to South Bend Heritage, Jason Sommer; jasons@sbheritage.org.

The successful bidders will submit their Federal Identification Number to the CM/GC, prior to signing the contract. In the absence of an F.I.N., they must submit their Social Security Number.

An out-of-state contractor will be obligated to show proof that they are registered with the Indiana Secretary of State to conduct business in the State of Indiana.

END OF SECTION

PROCUREMENT SCOPE

A. GENERAL

1. RELATED DOCUMENTS

a. Project includes total construction of a quad plex apartment building, all in accordance with plans and specifications prepared by Alliance Architects dated 1/31/2025. Refer to Specifications Section B.1. Summary of Work, b. Project Description.

b. **Invitation to Bid.** The requirements set forth in Division 1. GENERAL REQUIREMENTS shall apply to all contractors and/or subcontractors.

2. SCOPE

a. Each contactor is responsible to familiarize themselves with the entire contents of the Construction Documents and their respective bid packages. Specifications and Drawings listed under each bid package are for reference and may not include every aspect of the bid package.

3. WORK COVERED BY CONTRACT DOCUMENTS

a. **GENERAL**
   1) All work for the complete construction of this project will be under multiple prime contracts with the South Bend Heritage Construction Manager/GC.
   2) Each contractor is responsible for their own cutting and patching where necessary.

b. **BID PACKAGE 1 – EARTHWORK**
   1) Installation of erosion control measures.
   2) Site preparation work.
   3) Earthwork including site excavation, special excavations, compaction, rough grading and finish grading.
   4) Placement and compaction of all engineered fill.
   5) Placement, finish grade and compaction of all subbase materials for walks, exterior slabs and pavements.
   6) Installation of water service and sanitary sewer from city mains to building area.
   7) Installation of storm drainage system, structures and piping.

c. **BID PACKAGE 2 – BUILDING CONCRETE**
   1) Construction of concrete footings and foundation walls.
   2) Application of damp-proofing and insulation.
   3) Construction of concrete basement slab and crawlspace and mud slabs, including front and rear porches and stoops.
   4) Placement, finish grade and compaction of floor slab course, including granular filled radon system pit.
   5) Excavation, backfill and subgrade compaction for building footprints.

d. **BID PACKAGE 2A – TERMITE CONTROL (BY OWNER)**
   1) Termite control for building foundation and under slab areas

e. **BID PACKAGE 3 – ASPHALT PAVING**

1) Placement of all asphalt paving for parking and drives.
2) Painting of all pavement markings and stripes.
3) Provide and install handicap parking signs and wheel stops.

f. **BID PACKAGE 4 – SITE CONCRETE**

1) Construction of all concrete walks, curbs and exterior slabs.
2) Construction of accessible curb ramps.

g. **BID PACKAGE 5 – METALS**

1) Provide all structural steel, miscellaneous metals, and stair railings.
2) Installation by others.

h. **BID PACKAGE 6 – GENERAL TRADES 1: FRAMING/ ROUGH CARPENTRY**

1) Construction of wood framed walls, floors, and roof trusses.
2) Construction of exterior walls and installation of insulated sheathing and taped joints.
3) Construction of wood framed stairs.
4) Installation of sill seals at exterior walls.
5) Installation of all exterior wall windows and perimeter flashing tape.
6) Installation of temporary enclosures and protection.
7) Provide and install all exterior joint sealants.
8) Provide and install all wood blocking, including as needed for planned firestopping assemblies.
9) Construction of all wood floor and roof sheathing.
10) Provide and install flooring underlayment.
11) Construct project construction sign. Sign board to be provided by Owner.
12) Construction of plywood insulation protection at attic access openings.
13) Install exterior doors.

i. **BID PACKAGE 7 – GENERAL TRADES II: FINISH CARPENTRY AND ARCHITECTURAL WOODWORK**

1) Provide all finish carpentry.
2) Installation of all interior doors/frames, access doors, attic access doors, door hardware.
3) Installation of casework and countertops.
4) Installation of all toilet room, bathroom accessories.
5) Provide and install joint sealants.
6) Installation of Specialties, mailboxes, unit address numbers.
7) Installation of interior window sills.
8) Installation of steel stair railings.
9) Installation of window blinds.
10) Installation of exterior stair handrail.
11) Install or set in place all appliances, including splash guard at each range.
12) Install closet shelving.

j. **BID PACKAGE 8 – INSULATION**

1) Provide and install all building insulation including perimeter walls, interior walls, ceilings, and attic.
2) Provide interior sound batt insulation.

k. **BID PACKAGE 9 – ROOFING**

1) Provide and install fiberglass-based asphalt shingle roof.

2) Provide and install roof flashing, roof/wall flashing, and pre-finished trim.
3) Provide and install all roof accessories.
4) Provide and install all metal roofing and trims.

l. **BID PACKAGE 9A – GUTTERS AND DOWNSPOUTS**
1) Provide and install all gutters and downspouts.
2) Extension of storm drain piping from roof building roof drains to storm sewer system, including cleanout.
3) Provide and install splash blocks at downspouts.

m. **BID PACKAGE 10 – SIDING AND TRIM**
1) Provide and install vinyl siding, including vinyl accessories and PVC trims and columns.
2) Provide and install all preformed soffit systems and fascias.
3) Construction of exterior plywood mounting blocks at electrical meters and plywood phone/data panels.
4) Provide and install all thin set brick veneer.

n. **BID PACKAGE 11 – WINDOWS (OWNER)**
1) Provide all window units.
2) Installation by others.

o. **BID PACKAGE 12 – DOORS AND HARDWARE (OWNER)**
1) Provide all steel doors/frames.
2) Provide all wood doors/frames.
3) Provide all access panels and attic access doors.
4) Provide all door hardware.
5) Installation by others.

p. **BID PACKAGE 13 – GYPSUM DRYWALL**
1) Provide and install gypsum wallboard systems.
2) Provide and install sound board or resilient channel on walls and at ceilings.

q. **BID PACKAGE 14 – RESILIENT FLOORING**
1) Provide and install all resilient flooring, wall base and trim accessories, (excludes carpeted areas).

r. **BID PACKAGE 15 – CARPET**
1) Provide and install all carpet systems including vinyl wall base and trim accessories.

s. **BID PACKAGE 16 – PAINTING**
1) Provide and install all paint systems.

t. **BID PACKAGE 17 – SPECIALTIES (OWNER)**
1) Provide corner guards.
2) Provide fire extinguishers and cabinets.
3) Provide postal specialties.
4) Provide window blinds.
5) Installation by others (See Bid Package 9 - General Trades II - Finish Carpentry).

u. **BID PACKAGE 18 – RESIDENTIAL APPLIANCES (OWNER)**
1) Provide all kitchen appliances for Apartment Units.
2) Provide all Laundry Room washer appliances.

3) Installation by others.

v. **BID PACKAGE 19 – CASEWORK (OWNER)**
1) Provide all pre-manufactured casework.
2) Installation by others.

w. **BID PACKAGE 20 – FIRE SPRINKLER SYSTEM**
1) Provide and install complete automatic fire sprinkler system.
2) Provide and install firestopping.
3) Provide and install fire department connection, flow and tamper switches.

x. **BID PACKAGE 21 – MECHANICAL**
1) Provide and install all plumbing systems from stub 5 feet outside of building including domestic water, fire service water, sanitary, sewer and gas.
2) Provide and install all heating, ventilating and air conditioning systems.
3) Provide and install firestopping.
4) Install residential appliances with water connections.
5) Provide and install passive radon system piping from below slab to above the roof.
6) Provide and install all combustion and flue piping and terminations.

y. **BID PACKAGE 22 – ELECTRICAL**
1) Provide and install all electrical systems for building and site. (temporary power)
2) Provide and install firestopping.
3) Install appliances with electrical connection (cord with cord-connected appliances).

z. **BID PACKAGE 23 – SPECIAL SYSTEMS**
1) Provide and install complete fire alarm, intercom system, and access control systems.

aa. **BID PACKAGE 24 – SITE IMPROVEMENTS**
1) Construct screen walls and trash enclosure screen walls, and bollards.
2) Provide and install fencing.

bb. **BID PACKAGE 25 – LANDSCAPING**
1) Provide and install plant materials.
2) Provide and install lawns, including all open lawns.

cc. **BID PACKAGE 26 – IRRIGATION**
1) Installation of irrigation system.
2) Installation of drip irrigation system.

4. PRIME CONTRACTS

b. The multiple prime contracts are defined by Bid Packages which designate one or more various disciplines of work. These Bid Packages are being packaged to maintain job scheduling. Due to this fast-track method, time is of the essence in performance of this work.

c. A construction progress schedule, which defines milestone progress for this project, will be issued with each Contract. This schedule will be preliminary and is meant to define

the project goals. A more detailed schedule will be developed after contracts are awarded.

c. The Bid Package Subdivisions (BPS) being considered under this Bid Package are as follows:

a)

BPS	Description
1	EATHWORK
2	BUILDING CONCRETE
2A	TERMITE CONTROL
3	ASPHALT PAVING
4	SITE CONCRETE
5	METALS
6	GENERAL TRADES I – FRAMING/ROUGH CARPENTRY
7	GENERAL TRADES II – FINISH CARPENTRY AND ARCHITECTURAL WOODWORK
8	INSULATION
9	ROOFING
9A	GUTTERS AND DOWNSPOUTS
10	VINYL AND POLYMER SIDING
11	WINDOWS
12	DOORS AND HARDWARE
13	GYPSUM DRYWALL
14	RESILIENT FLOORING
15	CARPET
16	PAINTING
17	SPECIALTIES
18	RESIDENTIAL APPLIANCES
19	CASEWORK
20	FIRE SPRINKLER SYSTEM
21	MECHANICAL
22	ELECTRICAL
23	SPECIAL SYSTEMS
24	SITE IMPROVEMENTS
25	LANDSCAPING
26	IRRIGATION

d. Future Bid Packages will be added under subsequent phases of construction documents, which will, in total, define the overall scope of this project.

5. OWNER REQUIREMENTS AND USE OF PREMISES

a. It is the intention of the Owner to award contracts to the successful Bid Package Sub-Division Contractors who submit the lowest and/or best bid. Any bidder, at his/her option may submit a combined bid made from any combination of individual bid package sub-divisions. A separate bid must be submitted for each bid package sub-division and applicable alternates in addition to the combined bid. Combined bids will not be considered unless the bidder also submits separate bids on each bid package sub-division and alternates contained in the combined bid. Voluntary alternates will be considered provided the bidder first submits a bid based on specified work.

b. Abusive language, music radios, actions or disrespectful behavior by any workers directed to Construction Manager/GC's employees, visitors, or others while working on the project grounds is subject to immediate removal and dismissal.

c. Designated smoking areas, parking areas, and construction trailer staging areas will be as directed by the Construction Manager/GC. No parking or loitering will be permitted on access roads or mobilization areas. Fire lanes shall be kept clear at all times to maintain access to the completed buildings and fire department connections.

e. No materials may be stored within the building. Contractors shall be responsible for scheduling on time delivery of their materials or provide their own storage trailers on site, located as directed by the Construction Manager/GC.

6. LICENSE REQUIREMENTS

a. All contractors shall be licensed as required by Local and State agencies. Contractors shall verify these requirements with the respective governing agencies.

B. PRODUCTS (Not used)

C. BID PACKAGE SUBDIVISION DESCRIPTION

1) All products listed will be furnished and installed unless otherwise noted. All Contractors shall be responsible for layout for their scope of work.

2) Refer to Drawings and Specifications referenced the Related Documents section above.

END OF SECTION

SPECIFICATIONS

TURNOCK STREET QUAD PLEX
South Bend Heritage
712 Turnock Street
South Bend, Indiana

March 7, 2025

A. DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS

1. This Specification, originally dated January 11, 2025, or as later revised, supersedes and replaces all prior specifications for this project.

2. Bids will be due on **Tuesday, April 1, 2025** at the SBH offices by 2:00 p.m. (Received via mail, faxed, emailed, or dropped off by this time.) SBH offices are located at 803 Lincoln Way West, South Bend, IN 46616. Bids are to the attention of Jason Sommers at 574.289.1066, ext 1211.

3. Throughout this document, South Bend Heritage Foundation, SBH and SBHF shall all be interpreted as “Owner”.

4. Bids not utilizing the attached Bid Form will not be accepted. Additional materials may be submitted. Voluntary alternates submitted in addition to the primary bid documents will be considered. One bid form per bid package.

5. Bidder References: Provide names and contact information for three prior clients in which your company demonstrated an ability to deliver a project under a demanding schedule or otherwise met your client's schedule expectations. One criterion for determining bidder responsiveness will be a demonstrated ability to deliver projects on schedule.

6. Bidder Registration: All bidders must notify SBH of their intention to bid by Tuesday, March 25, 2025. Project notices and addenda notices will be emailed to registered bidders only. Contractors who received an RFP invitation to bid emailed from SBH are considered pre-registered.

7. Full and complete Contractor markup on any positive value change orders to be disclosed on the Bid Form.

8. Bid the work according to these documents and all addenda. If you or your subs have questions about elements of the work, please contact SBH. If information is lacking, SBH will issue new guidelines (Addendums) to all Bidders. References to work by subcontractor shall refer to all divisions of work unless specifically assigned to a particular subcontractor by the bid package description contained in the RFP.

9. Voluntary Alternates:

   a. Bidders may submit voluntary alternates. Voluntary alternates will only be considered if bidder has first provided a bid for the work as specified. List voluntary alternates on a separate form or additional copy of the bid form. Number and clearly describe the scope of each voluntary alternate.

   b. SBH will also consider a voluntary alternate in which two or more separate bid packages are linked for a combined bid amount different than the sum of the separate bid amounts.

10. Approved Equal (Substitutions): No substitutions of specified products are permitted without written approval from SBH.

11. Contract between General Contractor and Subcontractor: The successful bidders will be expected to execute AIA Document A401, latest edition, Standard Form of Agreement Between Contractor and Subcontractor or an equivalent SBH agreement. Review copies of this agreement are available from SBH.

12. Applications for Payment:

    a. Draw requests will be made from the Contractor to the Owner at no less than 30-day intervals utilizing AIA G702 and G703 forms. Payment will be made only for work in place at time of the application for payment. Materials purchased and stored may be billed if covered against loss by a certificate of insurance acceptable to SBH.

    b. Monthly applications are due to SBHF on the 25th of each month. Payment may be expected from SBH in not less than 30 days or more than 45 days.

13. Notice to Proceed: No billable work or commitments of any sort are to begin on the project until after the Contractor has received a written notice to proceed from the Owner. Notice to proceed will be issued to all contractors at the same time at least one (1) week prior to the start of construction.

14. Schedule for Construction: See Division 1.

15. Retainage: Contract will be executed with 5% retainage on each subcontractor draw. Retainage will be released upon Substantial Completion of the Contract minus an amount ascribed to specific punch list items until those items are completed and as otherwise described in AIA A201.

16. Insurance: Certificates of insurance will be required prior to start of the Work. Refer to attached minimum limits of liability. South Bend Heritage Foundation, Inc. shall be named as additional insured under the Contractors' Comprehensive General Liability Policy.

17. MBE and WBE:

    a. South Bend Heritage is committed to minority and women's business enterprise participation in this project.

    b. As a requirement for bidding on this project, all bidders shall provide written documentation evidencing the bidder's good faith efforts to further South Bend Heritage Foundation's desire to facilitate local worker and MBE/WBE participation in this project. Such documentation shall include a listing of all MBE/WBE's contacted including: (1) the name and address of the MBE/WBE; (2) the type of contact made (i.e. telephone, written solicitation, etc.); (3) the date of the contact; (4) the nature or type of services or goods requested; and (5) the result of the contact.

    c. Responsive bidders shall include this written evidence of their good faith efforts including copies of outreach and copies of email exchanges inviting and receiving quotes or other responses from MBE/WBE firms or other documentation of efforts to encourage and secure competitive quotes from MBE/WBE and local businesses to be included in the benefits of building this project. Written documentation of letters of introduction, invitations to forging majority/minority strategic alliances for capacity building including but not limited to mentoring, extensions of assistance on payroll, insurance, bonding, line of credit, technical skills or business skills will be accepted as further evidence of good faith effort.

    d. All bidders are actively encouraged to reach out to the MBE/WBE firms in St. Joseph County and make real good faith efforts to forge constructive and lasting business partnerships.

18. Copies of the winning bid forms will be available from the Owner after the Contract is awarded and construction has commenced.

B. DIVISION 1 - GENERAL

1. Summary of the Work:

   a. Refer to the individual bid package descriptions in a separate document. These bid packages are not specifications. They merely divide the work into biddable portions and refer to the Specifications. The scope of work described in each bid package does not limit the Contractors' responsibility to understand the entire project and the required coordination of their work with other trades.

   b. Project Description: Project consists of complete construction of one quad plex apartment building in South Bend, Indiana. Project includes site development of the sites to include parking, curbs and walks, signage, grading and landscaping, all as shown on the Project Drawings by Alliance Architects.

2. Printed Documents: To order prints of the Drawings (full or half size) and associated RFP documents, contact ARC (previously South Bend Drafting Supply), 1303 Northside Blvd., South Bend IN, 574-287-2944. Interested bidders are responsible for purchasing and picking up bid packages from ARC.

3. Coordination and Precedence of the Contract Documents: The documents included in the Contract are intended to be complementary and to describe a complete work. In case of a difference between Drawings and Specifications, the Specifications shall govern.

4. Means and Methods: The Drawings are meant to indicate the general scope of the bid package as related to the site plan, floor/roof plans, and elevations, and are not intended to be fully detailed construction documents. Contractor is responsible for all construction means and methods. This wood frame commercial structure and all parts thereof, shall be designed and constructed in strict compliance with the Indiana Building Code 2014 (IBC), (IBC 2012 referenced) to safely support all loads without exceeding the allowable stresses for materials of construction in structural members and connections. This includes concrete foundation walls/footings, floor, wall and roof framing, beams, lintels, and wind/lateral loading. The building structural design shown on the Drawings is a guide for Bid Package 6 bidders. Variations from the design shown shall be approved by the Owner and Architect.

5. South Bend Heritage reserves the right to reject any or all bids, and to waive any irregularities in bidding and to make an award in the best interest of the South Bend Heritage Foundation and the City of South Bend.

6. Minor Changes: The subcontractor will advise the Owner of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time.

7. Requests for Information (RFI): The subcontractor may submit a request for information to SBH to seek clarifications or resolution to questions that arise during the course of the Work that are not covered in the Construction Documents. The SBH will respond within five (5) days.

8. Architects Supplemental Instructions (ASI): The Architect or SBH may issue supplemental instructions which include a detailed description of a clarification or proposed change with supplementary or revised Drawings and Specifications. If the ASI results in a change to the Contract Sum and/or Contract Time, the Contractor will prepare and submit an estimate within ten (10) days.

9. Potential Change Orders (PCO) Change Orders (CO): The subcontractor may propose a change by submitting a PCO request for change to the SBH, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation.

10. Permits:

    a. The *Utility Verification Form* from the SB DOPW will be coordinated and paid for by the Owner.

    b. The occupancy permit (if required); plumbing permit fee shall be paid by the subcontractor; water main taps and stop valves to be installed by the plumbing subcontractor.

    c. The sewer inspection fee, if required, to be paid by the subcontractor. Sewer lateral shall be installed to each building site by the plumbing subcontractor.

    d. The sewer excavation fee to be paid by contractor installing the lateral only if required by the SB DOPW. It is the Contractor's responsibility to determine if this fee applies for the base bid condition.

11. Schedule: Construction is expected to begin approximately Spring 2025. Notice to Proceed will be issued to all contractors at least one (1) week prior to start date. Subcontractors may not begin work until satisfaction of all pre-construction requirements. The Schedule is of the essence for this project. Refer to the schedules for each bid package as outlined in the bid package descriptions. Schedules are provided for bidding and general coordination purposes. Contractors will be notified by SBH if adjustments to the schedule are made.

12. Adverse Weather: N/A.

13. Bidder References: Provide names and contact information for three (3) prior clients in which your company demonstrated an ability to deliver a project under a demanding schedule or otherwise met your client's schedule expectations. One criterion for determining bidder responsiveness will be a demonstrated ability to deliver projects on schedule.

14. Meetings and Coordination:

    a. Standard Pre-Construction Meeting: Date and agenda to be determined.

    b. The following shall be provided by each subcontractor in advance of the meeting:

        - Draft schedule of values on AIA G702/G703.

    c. SBH is responsible for the coordination of schedules, submittals, and the Work to assure efficient and orderly sequence of installation of interdependent construction elements.

15. Energy Code Compliance: This project will meet the energy code using the performance path.

16. Submittals and/or Shop Drawings:

    a. Submittals from Contractors to Architect or Owner and SBH are required for the following:

        - Roof truss and floor framing package showing primary structural calculations and loading.
        - Panelized wall system if used and other primary structural elements. Identify portions of walls to be shear walls.
        - Windows - fabricator submittal / shop drawings / energy standard compliance.
        - Exterior doors - manufacturer submittal including assembly U-values and glazed door SHGC values.
        - Interior doors - manufacturer submittal.
        - Door hardware - manufacturer submittal.
        - Gypsum wallboard.
        - Sound board.
        - Cabinetry layout - vendor drawing based on field verified dimensions.

- All exterior finish materials and colors, including colored flashing - material sample with color applied.
- Exterior railings.
- Roofing shingle and underlayment - physical sample from manufacturers.
- All interior finish trim materials and colors - finish manufacturer samples.
- Floor finishes - carpet, pad, vinyl, underlayment.
- HVAC heat/cooling load calculations. Manual J.
- All HVAC equipment - manufacturer submittals.
- All plumbing equipment and fixtures - manufacturer submittals. Include left- or right-hand versions.
- All required close-out documents and OEM manuals.
- Electrical service equipment and electrical panels.

b. Submit three (3) copies of paperwork and one (1) physical sample (if required above) for approval. SBH will respond within three (3) days with approval, conditional approval, or rejection for revision and re-submittal. PDF emailed submittals in lieu of paper submittals are acceptable. Email submittals to Jason Sommer at jasons@sbheritage.org.

17. Schedule of Alternates: None.

18. Allowances: None.

19. Construction Facilities:

a. SBH shall maintain at least one (1) complete full-size and bound set of Drawings and Specifications at the job site for all subcontractors to reference and make as-built notations.

b. Subcontractor to install temporary electric service. AEP accounts for temporary power is the responsibility of SBH.

c. Dumpsters provided and paid by SBH.

d. Port-a-potty shall be provided and maintained on site by SBH.

20. On-Site Storage: To the greatest extent possible, this project will operate with "just in time" delivery of all materials. Staging of materials on site outside of the period scheduled for that trade is not permitted unless pre-arranged with SBH and in Contractor-provided storage container. Storage of material for current use in structures already completed is not permitted. Staging of materials for more than one group at a time is not permitted unless pre-arranged with SBH and in contractor-provided storage container.

21. Safety: It is SBH's responsibility to maintain and enforce an environment of safe work practices at the job site.

22. Cutting, Notching, and Drilling: Structural floor members shall not be cut, bored or notched in excess of the limitations specified in the joist manufacturer's instructions.

23. Field Measurements: Each Contractor or Subcontractor shall obtain his own lines and/or grades and be responsible for the same.

24. Adjustment to Building Conditions: Contractor must obtain written consent of the Architect for any changes. Any change necessary to pass immoveable obstructions shall be made by the Contractor without additional cost.

25. Anchor Bolts, Sleeves, Etc.: Shall be set by each subcontractor requiring their use. Sleeves to be sealed by same as required by Local and State Codes.

26. Drawings: Drawings are not to be scaled; written dimensions will govern in all cases.

27. Lifting Devices and Hoisting Facilities: Shall be provided by each subcontractor. Proper bracing and safety equipment is required.

28. Job Site Debris and Cleaning: Premises will be left each day by each subcontractor broom clean and free of construction debris. SBH is responsible to enforce a clean and tidy job site.

29. Temporary Controls:

    a. Construction materials shall be stored off the ground and covered to avoid absorption of moisture and damage.

    b. Mechanical ducts shall be sealed during construction.

    c. Temporary Enclosures and Protection: To be provided by framing subcontractor unless noted otherwise. Give one (1) key each to Architect and Owner for all locks on doors.

30. Construction Sign: Subcontractor to furnish and erect an 8'-0" x 8'-0" construction sign at the site. The design and layout will be provided by the Architect.

31. Construction Waste Management:

    a. All dumpsters by SBH.

    b. Job site to be maintained in a clean and orderly condition. Each contractor is generally responsible for depositing debris generated by their work into the SBH provided dumpster.

32. Contract Closeout:

    a. As defined in Construction Agreement.

    b. Punch List Procedures: Contractors shall walk through each unit with SBH to determine the punch list and which items shall be monetized on the final punch list.

    c. Operation and maintenance manuals of all systems shall be required.

    d. Record Drawings: At the completion of the project, each subcontractor shall submit one (1) complete set of "as built" drawings, which highlights in red all changes which deviate from original contract documents.

C. DIVISION 2 - EXISTING CONDITIONS

1. Geotechnical Report: Soils information to be provided by SBH for the project.

D. DIVISION 3 - CONCRETE

1. All concrete shall be installed in accordance with ACI 318 of the American Concrete Institute with latest revisions.

2. Portland Cement: ASTM C150 Type 1 cement.

3. All exterior concrete for walks, step, and pads shall be a minimum 4,000 psi, maximum 4" slump, 4-7% air entrainment with limestone aggregate. Concrete placed in the City right-of-way shall be in accordance with South Bend Department of Public Works specifications. With course aggregate of 1-1/2" maximum size, either clean, hard washed, screened limestone or gravel free of dust and excess lime materials.

4. All footing and foundation wall concrete shall be minimum 3,000 psi, maximum 4" slump.

5. Fine aggregate shall consist of natural sand free of dust, lumps or flaky particles, shale, alkali, organic matter, loam or other deleterious material.

6. Establish the top of foundation wall above at finish grade noted on Project Drawings.

7. Foundation walls to be 8" thick on unreinforced concrete as shown on the Project Drawings.

8. Reinforcing Steel: All reinforcing steel shall comply with ASTM E614 with a 305 deformation. Reinforcement shall be unpainted, uncoated and free from excessive rust, loose scale or other coating character which will reduce or destroy the bond.

9. Reinforcing Fibers: Provide reinforcing fibers in all concrete slab-on-grade construction within the building. Fibers shall be polypropylene fibrillated fibers as manufactured by S1 Concrete Systems, Chattanooga, Tennessee or Architect approved equal.

10. Welded Wire Fabric: Welded wire fabric shall conform to ASTM A185.

11. Foundation Anchors: Provide 1/2" diameter x 10" long Simpson Titen HD HDG within 12" of the corner and either side of door openings. Space bolts a maximum 6' o.c. at exterior walls (U.N.O.) and 1/2" diameter x 5" long Simpson Titen HD HDG at 7'0" o.c. maximum at interior bearing walls.

12. Where noted on the Project Drawings, install 4" Schedule 40 PVC pipe with “T” stubbed through slab for passive radon system. Locate as noted on Project Drawings. Provide 4' x 4' x 10" deep pit with pea gravel in lieu of granular subgrade material noted above. Center pit on radon pipe location.

13. Drain Tile: Install drain tile along footer and where downspouts are noted to be connected to storm drainage system on the Project Drawings. Drain to be 4" diameter HDPE flex perforated pipe and fabric sleeve.

14. Underslab Plumbing: All trenching for underslab plumbing shall be backfilled with compacted granular material.

15. Slab-on-Grade Installation: Prior to placing concrete floor slabs, inspect vapor barrier for proper connection to foundation wall and seal at all pipe penetrations. Repair as required.

16. Vapor Barrier: Refer to Division 7.

17. Porch deck and steps to be poured concrete. Refer to plans.

18. Slabs-on-Grade: Sawcut control joints 25% of slab depth and spaced as shown on Project Drawings to coordinate with interior wall locations. Slope to drain.

19. Concrete Walks, Curbs, Etc.: Concrete shall be leveled off and troweled sufficiently to bring mortar to the surface then wood float finish. Provide expansion joints 3/8" thick pre-formed material (on 40' maximum centers and/or where shown on Project Drawings). Score walk transversely at intervals not exceeding with the walk. Walk cross-slope shall be maximum 2%.

20. Curing: Freshly placed concrete shall be protected from pre-mature drying and excessively hot or cold temperatures. It shall be maintained in a moist condition and at a constant temperature for a least seven (7) days after placement. Use methods as approved by the Architect.

21. Soils Check: All footing trenches, slab fill must be checked and approved an approved soils engineer prior to placing any concrete. Such checks will be at the Contractor’s expense, and it will be the sole responsibility of the Contractor to notify the soils engineer at such times as the inspection is required.

22. Concrete Replacement: In the event concrete is placed which does not meet or exceed the strength requirements as herein specified, all such concrete shall be removed and replaced with concrete of the specified strength. This removal and replacement shall be at the Contractor’s expense.

23. Cast-in-Place Concrete Finishes: Interior floor slabs shall receive steel trowel finish. Exterior concrete slabs, walks, stoops, etc., shall have a broom finish.

E. DIVISION 4 - MASONRY

1 General:

a. Section Includes:
1) Thin Brick.
2) Mortar and Grout.
3) Accessories.

b. Submittals:
1) Product Data: Provide data for thin brick units, mortar, grout, and adhesive.
2) Samples: Submit four samples of thin brick units to illustrate color, texture, and extremes of color range.

2. Products:

a. Thin Brick:

1) Manufacturers:
a) Endicott Clay Products Co.: www.endicott.com.
b) General Shale Brick: www.generalshale.com.
c) Meridian Brick LLC; Athens Architectural Series: www.meridianbrick.com.

2) Thin Brick: ASTM C1088.
a) Type: TBX.
b) Size: Manufacturer's standard Modular.
c) Thickness: 5/8 inch (16 mm).
d) Tolerances: 1/16 inch (1.6 mm).
e) Protective Coating: Wax.

b. Mortar and Grout Materials:
1) Polymer-Modified thin Set Mortar: ASTM C109
a) Manufacturers:
(1) Custom Building Products; VersaBond Professional Thin Set Mortar: www.custombuildingproducts.com/#sle.
2) Portland Cement: ASTM C150/C150M, Type I; color as required to produce approved color sample.
3) Hydrated Lime: ASTM C207, Type S.
4) Grout Aggregate: ASTM C404.
5) Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.
a) Color(s): To match Architect's sample(s) when incorporated into specified mix design(s).
6) Water: Clean and potable.
7) Moisture-Resistant Admixture: Water repellent compound designed to reduce capillarity.

c. Flashings:

1) Stainless Steel: ASTM A666, Type 304, soft temper; 26 gauge, 0.0187 inch (0.45 mm) thick; finish 2B to 2D.
2) Flashing Sealant/Adhesives: Silicone, polyurethane, or silyl-terminated polyether/ polyurethane, or other type required or recommended by flashing manufacturer; type capable of adhering to type of flashing used.

d. Lath:
   1) Diamond Mesh Metal Lath: ASTM C847, galvanized; self-furring.

e. Accessories:
   1) Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.
   2) Air and Water-Resistive Barrier: Single component, fluid applied, vapor permeable; waterproofing, crack isolation, and air barrier membrane where applied to exterior wall surfaces.
      a) Manufacturers:
         (1) LATICRETE International, Inc; LATICRETE MVIS Air & Water Barrier: www.laticrete.com/#sle.
         (2) Sika Corporation; WeatherTech WeatherBlock VB AB: www.parexusa.com/#sle.

3, Execution:

a. Examination: Verify that field conditions are acceptable and are ready to receive thin brick veneer.

b. Installation:
   1) Exterior Applications: Comply with TCNA (HB) Method W201, W202, or W244E.
   2) Install interior lath and furring in accordance with ASTM C841.
   3) Install lath and furring for Portland cement plaster in accordance with ASTM C1063.
   4) Install rainscreen drainage material and metal lath with accessories over sheathing material and water-resistive barrier with fastening system in accordance with ASTM C1063 into wood or metal studs. Install drainage material with filter fabric mortar screen to exterior.
   5) Lath Installation:
      a) Apply metal lath taut, with long dimension perpendicular to supports.
      b) Lap ends minimum 1 inch (25 mm). Secure end laps with tie wire where they occur between supports.
      c) Continuously reinforce internal angles with corner mesh, except where the metal lath returns 3 inches (75 mm) from corner to form the angle reinforcement; fasten at perimeter edges only.
      d) Place corner bead at external wall corners; fasten at outer edges of lath only.
      e) Place 4 inch (100 mm) wide strips of metal lath centered over junctions of dissimilar backing materials. Secure rigidly in place.
      f) Place additional strip mesh diagonally at corners of lathed openings. Secure rigidly in place.

c. Coursing:
   1) Establish lines, levels, and coursing indicated. Protect from displacement.
   2) Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
   3) Brick Units:
      a) Bond: Running.
      b) Coursing: Three units and three mortar joints to equal 8 inches (200 mm).
      c) Mortar Joints: Concave.

d. Masonry Flashings:
   1) Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
      a) Extend flashings full width at such interruptions at least 6 inches (152 mm), minimum, to form watertight pan.
   2) Lap end joints of flashings at least 6 inches (152 mm), minimum, and seal watertight with flashing sealant/adhesive.

e. Cleaning:
   1) Remove excess mortar and mortar smears as work progresses.
   2) Replace defective mortar. Match adjacent work.
   3) Clean soiled surfaces with cleaning solution.

F. DIVISION 5 - METALS

1. Fasteners and Connections: Per Drawings and Specifications.

2. Roof Truss/Wall Clips: Shall be Simpson STC Clips. Utilize at non-bearing interior walls.

3. Steel rebar and reinforcing mesh to meet or exceed IBC requirements.

4. Aluminum flashing per Drawings. .027" minimum thickness, prefinished where visible on the exterior of the building.

5. Exterior Stair Rail: 1-1/4" Schedule 40, A316 stainless steel. Submit shop drawings.

G. DIVISION 6 - WOOD AND PLASTICS

1. Rough Carpentry:

   a. Framing and Rough Carpentry:
      1) All lumber shall be grade-stamped by an agency certified by the Board of Review of the American Lumber Standards Committee as of 1991. Lumber shall be graded as follows:
      2) Interior and Exterior Load Bearing and Non-Load Bearing 2 x 4 Wall Framing (Less Than 8' Long): Stud Grade "SPF" (Spruce/Pine/Fir) with moisture content not exceeding 19%. Studs installed vertically shall be finger jointed.
      3) Interior and Exterior Load Bearing and Non-Load Bearing Wall Framing 2 x 6 and Larger and 2 x 4 8' or Longer: No. 2 or Better "SPF" (Spruce/Pine/Fir) with moisture content not exceeding 19%. Studs installed vertically shall be finger jointed.
      4) Wall Plates, Blocking and Furring: No. 1/2 "SPF" (Spruce/Pine/Fir) with moisture content not exceeding 19%.
      5) Structural Framing Members (Rafters, Joists, Rim Boards, Wall Framing Members, Headers and Beams Over 10' long, etc.): So. Pine. No. 2. Refer to Drawings for requirements of structural members noted which may differ from those specified herein. In case of discrepancies, the larger specified value will govern.

   b. Engineered Framing Materials:
      1) Laminated Veneer Lumber (LVL): Microllam LVL by Weyerhaeuser Trus Joist Engineered Wood Products or equal (Fb = 2,600 psi, E = 2.0 x 10^6, Fv = 285 psi, minimums).
      2) Parallel Strand Lumber (PSL): Shall be Parallam as manufactured by Weyerhaeuser Corporation or Architect approved equal. Properties of PSL shall be: E = 2.0 x 106 PSI, Fb = 2,900 PSI, Fv = 290 PSI. Sizes shall be as noted on Drawings.
      3) I Joists: RFPI joists, LVL flange, I-Joists by Roseburg Forest Products or approved equal.
      4) Rim Board: 1-1/8" thick Rigid Rim OSB by Roseburg Forest Products.

   c. Panelization and stick-framing are both acceptable base bid approaches. Please note your chosen approach on the bid form. Install post-installed foundation anchors within 12" of each corner, either side of doors, and max. 6' OC unless noted otherwise.

   d. Engineered Sheet Wall Panels: Simpson Strongwall © High-Strength Wood Shear Wall.
      1) Provide panels with dimensions and connecting hardware as shown on the drawings.
      2) At multi-story installations, install Simpson WSWH-TSSXXKT and 1" threaded rod as shown on the drawings.

3) Extend 1" threaded rod down to the mass footing and install standard strength WSWH-AB anchors.
4) Provide shop drawings for approval.

e. Floor Sheathing: APA 48/24, 3/4" or 23/32" sheathing and single-floor rated T & G sheathing, PS 1 EXT. Floor sheathing with butt joint construction shall be installed with joint spacing of 1/8" or less. All joints greater than 1/8" shall be filled so as to provide a solid substrate for installation of lightweight concrete.

f. Roof Sheathing: ½" APA rated sheathing, Exposure 1 with span rating 24/16. Nail with 8d nails at 6" o.c. on edges and 12" o.c. intermediate. Provide roof sheathing clips at joints that are parallel to the roof framing.

g. Composite Insulating Wall Sheathing: Oriented-Strand-Board, Exposure 1 Sheathing, 7/16" thick with factory-laminated, water-resistive barrier exterior facer, and with rigid foam plastic insulating board laminated to interior face.
1) Provide Huber Engineered Woods, LLC, zip system "R" sheathing.
2) Span Rating and Performance Category of Sheathing Layer: Not less than 24/16; 7/16 Performance Category.
3) Thickness: 1-1/2".
4) Thermal Resistivity: R Value 6.6 deg F x h x sq.ft./BTU x in. x 75 deg F.
5) Edge Profile: Square edge.

6) Exterior Facer: Medium-density; phenolic-impregnated polymer-modified sheet material meeting requirements for ASTM D779 Grade D weather-resistive barrier in accordance with ICC AC38 and AC310, with fastener spacing symbols in exterior facer for 16" in center spacing, with the following characteristics.
a) Water Resistance of Coatings, ASTM S2247: Pass 14-day exposure test.
b) Moisture Vapor Transmission, ASTM E96: Not less than 12 perms.
c) Water Penetration, ASTM E331: Pass at 2.86 lbf/dt.
d) Wind Driven Rain, TAS-100: Pass.
e) Accelerated Weathering, ASTM G154: Pass.
7) Fasteners:
a) Fasteners, General: Size and type complying with manufacturer's written instructions for project conditions and requirements of authorities having jurisdiction. Power-driven fastening to be done using a nailing collar.
b) Corrosion Resistance: Hot-dipped zinc coating, ASTM A153/A153M.
c) Nails, Brads and Staples: ICC AC116 and ICC AC201.
d) Power Driven Fasteners: ICC-ES-1539 or NER-272.
e) Wood Screws: ASME B 18.6.1.
8) Sheathing Joint and Penetration Treatment Material:
a) Self-Adhering Stem and Flashing Tape: Pressure-sensitive, self-adhering, cold-applied, seam tape consisting of polyolefin film with acrylic adhesive, meeting ICC AC148.
(1) Basis of Design Products: Provide Huber Engineered Woods; Zip System Tape.
(a) Thickness: 0.012".
9) Insulating Composite Wall Sheathing Installation:
a) Install sheathing panels in accordance with manufacturer's written instructions, requirements of applicable Evaluation Reports, and requirements of authorities having jurisdiction.
b) Air and Moisture Barrier: Coordinate sheathing installation with flashing and joint sealant installation and with adjacent building air and moisture barrier components to provide complete, continuous air and moisture barrier.
c) Do not bridge expansion joints; allow joint spacing equal to spacing of structural supports. Install cut panel edges adjacent to uncut panels with remaining sheathing reveal or to outside corner.
d) Install panels with laminated facer to exterior.
e) Stagger end joints of adjacent panel runs.

f) Attach sheathing panels securely to substrate with manufacturer-approved fasteners in compliance with the following:
(1) IBC: Table 2304.9.1 Fastening Schedule.
)2) Fastener spacing shall be in accordance with the structural drawings.

g) Apply seam tape at all panel seams, penetrations, and facer defects or cracks to form continuous weathertight surface.
(1) Apply tape according to manufacturer's written instructions and requirements of ICC-ES applicable to tape application.

h) Any panels installed with over-drive fasteners shall be replaced at the cost of the installer.

h. Wall Sheathing: ½" APA rated sheathing, PS1, Exposure 1 with span rating 24/16. Nail with 8d nails at 6" o.c. edge and 12" o.c. intermediate unless noted otherwise.

i. Shear Wall Sheathing (Interior Use): Shall be 3/8" plywood or OSB APA 24/16 sheathing rated exposure 1 with butt joints.

j. Provide 4' x 4', 3/4" fire-resistant plywood at electrical panels. See elevations for size, and coordinate with electrical equipment being supplied.

k. Draftstop Sheathing: Thermo-Ply Standard Structural Grade Sheathing by OX Industries.

l. Subfloor and structural adhesive shall be Climate GP as manufactured by Climate 8135 Coxs Drive, Suite 8, Portage, MI 49002.

m. All trusses for all structures to be designed with energy heel height noted on the Drawings.

n. Wood Preservatives: All wood in contact with concrete or masonry, except interior wall plates, shall be pressure treated. Retention to be 0.40 minimum.

o. Provide and install 2x blocking. Inspect Drawings for all cabinetry, shelves, handrails, towel bars, toilet paper holder, grab bars, mirrors, shower rods, etc., and provide 2x blocking as required. 2x blocking to be provided in all ground floor unit bathrooms to allow future addition toilet grab bars per Fair Housing Act. Shower units shall have integral backing for grab bars and shower seats per Fair Housing Guidelines and the ADA.

Provide blocking to secure fiberglass shower edges and additional framing as required to secure any interior walls for lateral stability.

2. Shop Fabricated Wood Trusses:

a. Shop Drawings and Structural Calculations:
1) Furnish complete shop drawings and erection drawings showing all components.
2) The shop drawings shall include a copy of the structural design calculations stamped and certified by an Architect or Engineer registered in the State of Indiana.
3) The fabricator shall be responsible for the design of all members.
a) Design in accordance with all applicable state and local building codes and regulations.
b) Design members for all dead, live and suspended loads as noted on the Drawings.
c) Coordinate with the Architect for connections and details.
d) Sizes of prefabricated members shown on the Drawings are for architectural purposes and are not to be construed to mean they are sized for structural adequacy.
e) Fabricator must immediately notify Architect if sizes shown are insufficient to meet the design criteria.

4) Shop drawings shall also include bracing and bridging and installation instructions. Obtain Architect's approval prior to fabricating any materials or proceeding with the work.

b. Design Requirements:
1) All members shall be designed in accordance with live and dead loads as shown on the Drawings using allowable properties for the materials in accordance with AITC Specification No. 117 for dry conditions of use.
2) Deflection Criteria:
a) Floor Trusses ($E = 1.9 \times 10^6$ psi minimum)
Maximum live load deflection = L/480
Maximum total deflection = L/360
Maximum live load deflection over doors and windows = 1/2"
b) Roof Trusses
Maximum live load deflection = L/360
Maximum total deflection = L/240
Maximum live load deflection over doors and windows = 1/2"

c. Standards:
1) Wood Trusses: Truss girders and roof trusses shall be as shown on the Drawings.
2) Units are to be manufactured in strict accordance with the manufacturer's printed details and as approved by the TPI design specifications for metal plate connected wood trusses and NFPA NDS.

3. Wood I-Joists and Rim Board:

a. Code Approvals: All products shall be designed and manufactured to the standards set forth in the ICC Evaluation Service, Inc. Report ESR-1251 and ESR-1210.

b. Products:
1) See product noted above.
2) Wood I-joists shall be designed to fit the dimensions and loads as shown on the Drawings.

c. Shop Drawings:
1) Submit shop drawings showing layout and detail necessary for determining fit and placement in the building.
2) Fabrication shall not proceed until Architect or Engineer has approved all submittals.

d. Materials:
1) Flange members, web members, and adhesives shall conform to provisions of the ICC-ES ESR-1251.
2) OSB Rim Board shall comply with ESR 1210

e. Identification: Each joist and rim board shall be identified by a stamp indicating the series and ICC-ES Report, number, manufacturer's name, plant number and the independent inspection agency's logo.

f. Installation:
1) Contractor shall give notification to the Architect and manufacturer prior to installation of Trus Joist products to review and discuss product installation guidelines.
2) Performance Standards: Products shall be proven by testing and evaluation in accordance with the provisions of ASTM D5055.
3) Fire Rating/Sound Ratings: Fire and sound ratings are to be established in accordance with assemblies as detailed in ICC ES ESR-1251 or the *Directory of Listed Products*, published by Intertek Testing Services.

4) Warranty: The products delivered shall be free from manufacturing errors or defects in workmanship and material. The products, when correctly installed and maintained, shall be warranted to perform as designed for the normal and expected life of the building.

4. Soffits: See Drawings for 2x framed soffits and lowered ceiling locations.

5. Finish Carpentry:

a. Countertops:
1) Plastic Laminate: Formica or equal (matte finish) with B-D Interior APA plywood or particle board backing. Provide post formed back splashes and applied end splashes at counter tops. Minimize countertop seams to greatest extent possible. Submit sample for Owner approval.
2) Bathroom Countertops: Shall be Swanstone Ellipse vanity tops, 22" deep with matching side splash. Where fit between walls, trim sides equally to maintain sink centerline.
3) Provide mounting blocks for range hood as required at wall cabinet over range.

b. Window Sills: Shall be imitation marble with 3/4" overhang.

c. Medicine Cabinet/Mirror in Full Bathrooms: Provide Jensen model #615 cabinets with woodgrain surface and a separate mirror.

d. Install the following accessories shown on enlarged plans in each bathroom:
1) 1x towel bars (24") in full bathrooms with 1x towel bar (18") or one (1) towel hook. See Drawings for designation and type.
2) 1x toilet paper holder.
3) 24 x 36 mirror. Mount 40" max. a.f.f. at ground floor units.
4) Shower curtain rod at each tub/shower unit. Single, straight rod with screw attachment. 72" a.f.f.
5) At accessible units, 1x 36" grab bar and 1 x 42" grab bar at water closet.
6) At accessible tub/shower units, provide 1 x 42" bar and 2 x 24" bars.

Color of bathroom accessories to be brushed nickel. Provide shop drawings, product data and samples for Owner or Architect approval.

e. Interior Trim:
1) Interior door casing, trim is 11/16" x 3.5" colonial factory PFJ. "Picture frame" each door opening. At windows, install casing trim apron at sill.
2) Except where vinyl base is noted, baseboard is 9/16" x 5.25" colonial base factory PFJ. Cope all inside corners.
3) 1/2" x 3/4" base-shoe at all non-carpeted floor edges where wood base is installed.
4) 1x skirt trim at all stairways. Painted.
5) Interior doors are pre-hung and primed. Refer to Division 8.

f. Shelves:
1) All linen and closet shelves to be 1 x 12 solid wood or prefinished melamine material.
2) All laundry room shelves to be 12" deep wire system.
3) Cleats and metal shelf support brackets secured to framing. Brackets 48" OC maximum.
4) Hanging rods to be 1-1/4" dia. wooden dowel.

g. Stairs:
1) From Ground Floor to Second Floor shall be finished as follows:
a) Half wall cap where occurs - 5/4 oak, Stain/polyurethane finish. Eased edges.
b) Stair treads and risers to be carpeted.

2) From Ground Floor to Basment:
   a) Wood stairs and risers stringers to be painted. Treads to receive vinyl treads.

h. Railings:
   1) Interior Stair Rail: 1-3/4" unfinished solid red oak wall rail. Return to wall as required.
      a) Mounting Bracket: 2-3/4 x 2-3/4" matte black prefinished wrought iron handrail bracket as manufactured by L.J. Smith Stair Systems.
   2) Exterior Stair Rail: See Division 5 for material.
   3) Guardrail: Structural steel tube, ASTM A500, Grade B electric resistance welded tubing.
      a) Railings: 2" x 1-1/2" x 14-ga.
      b) Verticals: 2" x 1-1/2" x 14-ga.
      c) Ballusters: 3/4" x 3/4" cold rolled steel bar, ASTM A108.

i. Wood Brackets: 4 x 6 timber, southern yellow pine.

6. Vented Soffits (Eave and Rake Areas): Perforated aluminum panel. Color per schedule

7. Front Porch Soffit: Beaded wood panels. Stained.

8. Exterior Trim:

a. Manufacturer: Azek Exteriors, the Azek Company, 1330 West Fulton Street, Suite 350, Chicago, IL 60607.

b. Rake End Trim: Azek 5/4 x 5-1/2" Trim Board (smooth).

c. Frieze Board with Crown:
   1) Azek 5/4 x 10 Trim Board (smooth).
   2) Azek Ram's Crown (AZM-6934).

d. Corner Trim:
   1) Azek 5/4 x 7-1/4" wide.
   2) Azek 5/4 x 3-1/2" wide.

e. Window Trim:
   1) Head:
      a) Azek 4/4 x 2 Cap, over.
      b) Azek 5/4 x 6 Trim Board (smooth).
   2) Jamb: Azek 5/4 x 4 Trim Board (smooth).
   3) Sill: Azek Historic Sill (AZM-6930).

f. Band Board Trim: Azek 5/4 x 7-1/4" (smooth).

g. Skirt Board:
   1) Azek Water Table (AZM-6935).
   2) Azek 5/4 x 10 Trim Board (smooth).

g. Column Wraps:
   1) Column Shaft: Azek 3/4" sheets.
   2) Column Base: Azek 5/4 x 6", one piece skirtboard.
   3) Capital Trim: Azek base cap AZM-164.
   4) Capital Trim/Cap: Azek Ramscrown AZM-5934.

Paint all cut ends prior to installation.

H. DIVISION 7 - THERMAL AND MOISTURE PROTECTION

1. Exterior Siding:

   a. Vinyl Clapboard Siding: Certainteed Monogram .046 double 5" vinyl siding and associated accessory trims, starter strips, J-channel, and incidental materials as otherwise selected for a complete job, smooth finish. Color to be selected by Architect.
      1) CertainTeed Vinyl Mounting Blocks: Dryer vent, exhaust vent, kitchen hood vent, lighting, etc. Match siding color. Submit appropriate mounting block to Architect for review.

   b. Vinyl Shingle Siding: CertainTeed Cedar Impressions Triple 5" Straight Edge Sawmill Shingles, or equivalent, polymer based, to comply with ASTM D7254. Color to be selected by Architect from manufacturer's standard colors.

   c. Board and Batten: CertainTeed Single 8" Vertical Board and Batten, vinyl, rough cedar finish. Color to be selected by Architect from manufacturer's standard colors.

2. Vapor Barrier: Under slab; Stego Wrap Vapor Barrier (15 mil) by Stego Industries, LLC. Extend vapor barrier to perimeter of slab. Seal vapor barrier to foundation wall.

3. Cellulose Insulation (Attic): See Drawings for insulation types, R-values, and locations. Loose blown attics to be R38.

4. Insulation Baffle: Owens Corning Raft-R-Mate 22-1/2" x 48" Attic Insulation Rafter Baffle.

5. Fiberglass Batt Insulation (Walls): R15 at stud wall with kraft paper vapor barrier. At Contractor's option, provide cellulose insulation, minimum R15.

6. Fiberglass Batt Insulation: R38 with kraft paper vapor barrier.

7. Refer to Division 8 for attic access door.

8. Low Expansion Foam: At windows and doors perimeters. Foam bead to be continuous.

9. Dimensional Fiberglass Asphalt Roof Shingles and Underlayment:

   a. Acceptable Manufacturers: Owen Corning® Oakridge II (30yr); GAF Timberline "Natural Shadow"; approved equal.

   b. Colors per schedule are chosen from the GAF line. Assume similar colors for other manufacturers. Submittal required.

   c. Include matching starter strip, ridge cap.

   d. Install per manufacturer specifications over underlayment per Drawings.

   See Drawings for roof deck details including minimum .027 pre-finished flashing/drips/fascia; continuous ridge vent; and self adhered ice/water shield. Install ice/water shield at roof eaves only.

10. Ice and Water Membrane:

    a. At eaves and as otherwise required by code.

    b. Acceptable Manufacturers: GAF "Stormguard"; Owens Corning "Weatherlock Flex Flexible"; approved equal.

11. Fascia Drip Edge: "D-Style", 0.032" aluminum, Kynar finish shingle roof drip edge as manufactured by K & M Sheet Metal. Color by Architect.

12. Roof Ridge Vent:

    a. Continuous ridge vent.

    b. Acceptable Manufacturers: Cor-A-Vent; GAF Cobra; or approved equal.

13. Aluminum Gutters and Downspouts: Provide continuous gutters and downspouts, with prefinished aluminum and 1/8" per foot slope minimum. Fasten according to manufacturer's recommendation. Provide splash guards at all down spouts. Provide product data and samples for Owner or Architect approval.

14. Sill Sealer: Provide Conservation Technology structural gaskets BG63 at wall plates on foundation walls.

15. Sealant:

    a. Continuous draftstop bead between the subfloor and the bottom exterior wall plate at upper floor walls.

    b. Set all ext. door thresholds in continuous bead of sealant. One (1) 10-oz. tube per door.

    c. Set all windows sills in continuous bead of sealant. Alternately, windows may be shimmed up to allow for low expansion foam below sill by insulation contractor. Verify window RO. Coordinate with WRB installation specifications.

    d. Where noted elsewhere in Specifications.

    e. Wallboard gap around bath fans installed into ceilings shared with attic.

    f. At attic access doors per manufacturer’s spec.

    g. At mechanical penetrations between unconditioned spaces and conditioned spaces or wall cavities.

    Acceptable Sealant Manufacturers: Dow Corning 795; Tremco Spectrum 2; approved equal.

16. Sealant/Caulk - Other Locations:

    a. Sealant at tub/flooring edge and stool perimeter noted under Division 15.
    b. Exposed caulk/sealants at painted trim per Division 9.

    Caulk used at interior and exterior exposed painted surfaces may be acrylic latex. Paintable. Acceptable manufacturer: DAP Alex Plus acrylic latex caulk plus silicone 35 year; approved equal

17. Fire resistant caulking to be 3M Fire Barrier Sealant system or approved equal.

18. Gypsum Wallboard Adhesive: Continuous bead:

    a. Between the bottom plate and the drywall; and
    b. Between the top plate and the drywall; and
    c. Around window and door RO's.

19. Window Sill Adhesive:

    a. “Nail Power Premium Quality Construction Panel Adhesive” as manufactured by:
        1) Magic Seal Corporation.
        2) Or Architect-approved equal.

I. DIVISION 8 - OPENINGS

1. General: Provide shop drawings, product data and samples for Owner or Architect approval. Refer to Door and Window Schedules for additional information.

2. Interior Doors:

   a. Interior Door Frame: Pre-hung pine jambs, eased edge stop, and satin nickel hinges. Door panel and frames to be pre-finished.

   b. Unit Entry Doors, Storage Room Doors, and Common Area Doors: 1-3/4" fire-rated, solid core wood doors with molded face panels, 2-panel arch top, as manufactured by Masonite.

   c. Unit Interior Doors: 1-3/8" thick, hollow core wood door with molded face panels, 2-panel arch top as manufactured by Masonite. Doors less than 6'-8" in height to be flush panel.

   d. Interior Vestibule Door: To be the same as the rear entry door without a threshold. Glazing to be 1/4" tempered glass.

   e. Undercut all interior doors 1/2"-5/8" a.f.f.

3. Exterior Entry Doors (General):

   a. Rear Entry Door: Therma-Tru, Smooth Star half-lite, 2-panel, fiberglass; swing: as noted per Drawings; finish: painted. Sill to be thermal low profile saddle type. No brick-mould trim. Provide exterior casing trim to match windows. Flashing per Division 7. Glazing to be tempered insulating glass.

   b. Front Entry Door: 1-3/4", as manufactured by Smooth-Star, 2-Panel, Craftsman Therma-Tru Doors. Color to be selected from manufacturer's standard colors. Sill to be thermal barrier low profile saddle type. Mill finish aluminum. Bottom rail is to be 10" minimum.

   c. Temporary Entry Doors: Install temporary door panel into installed frames at front and rear entry door locations. Provide keyed construction lock. Provide SBH with keys for distribution to contractors.

4. Door Hardware:

   a. General:
      1) Refer to "General and Special Conditions", and "Instructions to Bidders", Division 1 of Specifications. Requirements of these sections and the Project Drawings shall govern work in this section.
      2) Summary:
         a) Section Includes: Furnish all items of Finish Hardware specified, scheduled, shown or required herein except those items specifically excluded from this section of the Specification.
         b) Related Work:
            (1) Division 1 - General Requirements.
            (2) Division 6 - Rough Carpentry.
            (3) Division 6 - Finish Carpentry: Installation of Finish Hardware.
            (4) Division 8 - Doors.
            (5) Division 26 - Electrical.
         c) Specific Omissions: Hardware for the following is specified or indicated elsewhere, unless specifically listed in the hardware sets:
            (1) Cabinet Hardware.
            (2) Access doors and panels.

3) Submittals:

a) Hardware Schedule:

(1) Submit number of Hardware Schedules as directed in Division 1.

(2) Follow guidelines established in Door & Hardware Institute Handbook (DHI) Sequence and Format for the Hardware Schedule unless noted otherwise.

(3) Schedule will include the following:

(a) Door Index including opening numbers and the assigned Finish Hardware set.

(b) Preface sheet listing category only and manufacturer's names of items being furnished as follows:

CATEGORY	SPECIFIED	SCHEDULED
Hinges	Manufacturer A	Manufacturer B
Lock sets	Manufacturer X	Manufacturer X
Kick Plates	Open	Manufacturer Z

(c) Opening Description: Single or pair, number, room locations, hand, active leaf, degree of swing, size, door material, frame material, and UL listing.

(d) Hardware Description: Quantity, category, product number, fasteners, and finish.

(e) Headings that refer to the specified Hardware Set Numbers.

(f) Scheduling Sequence shown in Hardware Sets.

(g) Product data of each hardware item, and shop drawings where required, for special conditions and specialty hardware.

(h) Electrified Hardware system operation description.

(i) "Vertical" scheduling format only. "Horizontal" schedules will be returned "Not Approved."

(j) Typed Copy.

(k) Double-Spacing.

(l) 8-1/2" x 11" sheets.

(m) U.S. Standard Finish symbols or BHMA Finish symbols.

b) Product Data:

(1) Submit, in booklet form Manufacturers Catalog cut sheets of scheduled hardware.

(2) Submit product data with hardware schedule.

c) Key Schedule:

(1) Submit detailed schedule indicating clearly how the Owner's final keying instructions have been followed.

(2) Submit as a separate schedule.

d) Samples:

(1) Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample, if required, of each type of exposed hardware unit, finished as required and tagged with full description for coordination with schedule.

(2) Samples will be returned to the supplier. Units, which are acceptable and remain undamaged through submittal, review and field comparison procedures, may, after final check of operation, be used in the work, within limitations of keying coordination requirements.

e) Operations and Maintenance Manuals: Provide operations and maintenance manuals for each type of door hardware.

4) Quality Assurance:
   a) Requirements of Regulatory Agencies:
      (1) Furnish finish hardware to comply with the requirements of laws, codes, ordinances, and regulations of the governmental authorities having jurisdiction where such requirements exceed the requirements of the Specifications.
      (2) Furnish finish hardware to comply with the requirements of the regulations for public building accommodations for physically handicapped persons of the governmental authority having jurisdiction and to comply with Americans with Disabilities Act.
      (3) Provide hardware for fire rated openings in compliance with NFPA 80 and state and local building code requirements. 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.
   b) Pre-Installation Meeting:
      (1) Before hardware installation, Contractor shall request a hardware installation meeting be conducted on the installation of hardware; specifically that of locksets, closers, exit devices, overhead stops and coordinators. Manufacturer's representatives of the above products, in conjunction with the hardware supplier for the project, shall conduct the meeting. Meeting to be held at job site and attended by installers of hardware for aluminum, hollow metal and wood doors. Meeting to address proper coordination and installation of hardware, per finish hardware schedule for this specific project, by using installation manuals, hardware schedule, templates, physical product samples and installation videos.
      (2) When any electrical or pneumatic hardware is specified this meeting shall also include the following trades/installers: Electrical, Security, Alarm systems and Architect.
      (3) Convene one week or more prior to commencing work of this section.
      (4) The Hardware Supplier shall include the cost of this meeting in his proposal.
   c) Manufacturer: Obtain each type of hardware (latch and locksets, hinges, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements.
   d) Fire-Rated Door Assemblies:
      (1) Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
      (2) Positive Pressure Test: After 5 minutes into the test, the neutral pressure level in furnace shall be established at 40" or less above the sill.
      (3) Hardware: At door assemblies where fire rating is required, provide all hardware required for fire-rated assembly, whether or not noted in the associated door hardware set for a complete fire-rated assembly, including but not limited to closers, smoke seals, latchsets, egress hardware, etc.
5) Product Delivery, Storage, and Handling:
   a) Inventory door hardware on receipt.
   b) Label each item of hardware with the appropriate door number and Hardware Schedule heading number, and deliver to the installer so designated by the contractor.
   c) Provide secure lock-up for door hardware delivered to Project site.

6) Warranties:
   a) Refer to Division 1 for warranty requirements.
   b) During the warranty period, replace defective work, including labor, materials and other costs incidental to the work. Replace work found to be defective as defined in the General Conditions.
7) Maintenance and Service: Furnish a complete set of specialized tools for the Owner's continued adjustment, maintenance, and removal/replacement of door hardware.

b. Products:
1) Manufacturers:
   a) Furnish each category with the products of only one manufacturer unless specified otherwise; this requirement is mandatory whether various manufacturers are listed or not.
   b) Provide the products of manufacturer designated or if more than one manufacturer is listed, the comparable product of one of the other manufacturers listed. Where only one manufacturer or product is listed, it is understood that this is the owner's Building Standard and "no substitution" is allowed.
   c) The first manufacturer listed for each product is the manufacture used in the hardware sets.
2. Materials:
   a) Screws and Fasteners:
      (1) Furnish fasteners of the proper type, size, quantity and finish. Use machine screws and expansion shields for attaching hardware to concrete or masonry, and wall grip inserts at hollow wall construction. Furnish machine screws for attachment to reinforced hollow metal doors and frames and reinforced aluminum doors and frames. Furnish full thread wood screws for attachment to solid wood doors and frames. "TEK" type screws are not acceptable.
      (2) Sex bolts will not be permitted on reinforced metal doors or wood doors where blocking is specified.
   b) Hinges:
      (1) Quantity: Provide the following, unless otherwise indicated:
         (a) Two Hinges: For doors with heights up to 60".
         (b) Three Hinges: For doors with heights 61" to 90".
         (c) Four Hinges: For doors with heights 91" to 120".
         (d) For doors with heights more than 120", provide 4 hinges, plus 1 hinge for every 30" of door height greater than 120".
      (2) Hinge Sizes: Provide the following, unless otherwise indicated:
         (a) 3-1/2" High: For doors inside apartments.
         (b) 4-1/2" High: For all doors with widths of 36" or less.
         (c) 5" High: For all doors with widths greater than 36".
      (3) Hinge Base Metal Thickness: Provide the following, unless otherwise indicated:
         (a) Medium Weight Doors with Medium Frequency: 0.134" thick.
         (b) Heavy Weight Doors with High Frequency: 0.180" thick.
      (4) Hinge Base Metal: Unless otherwise indicated, provide the following:
         (a) Exterior Hinges: Stainless steel, with stainless-steel pin.
         (b) Interior Hinges: Steel, with steel pin.
         (c) Hinges for Fire-Rated Assemblies: Steel, with steel pin.
      (5) Hinge Options: Where indicated in door hardware sets or on Drawings:
         (a) Nonremovable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for out-swinging exterior doors and out-swinging corridor doors with locks.

(b) Corners: Square.
(c) Width of Hinges: Shall be sufficient to clear all trim.

(6) Fasteners: Provide Phillips flat-head screws comply with the following:
(a) Machine Screws: For metal doors and frames. Install into drilled and tapped holes.
(b) Wood Screws: For wood doors and frames.
(c) Threaded-to-the-Head Wood Screws: For fire-rated wood doors.
(d) Finish screw heads to match surface of hinges.

(7) Manufacturers:
(a) Ives; an Allegion Company (IVE).
(b) Bommer Industries, Inc. (BOM).
(c) Hager Companies (HAG).

c) Locks and Latches:

(1) Bored Locks, Heavy Duty:
(a) Bored locks shall be designed to meet BHMA A156.2, Grade 2 test standards and certified by an independent testing laboratory, unless noted otherwise.
(b) Provide 2-3/4" backset.
(c) Provide strikes with extended lips where required to protect trim from being marred by latch bolt. Provide strike lips that do not project more than 1/8" beyond doorframe trim at single doors and have 7/8" lip to center at pairs of 1-3/4" doors.
(d) Manufacturers:
(I) Falcon, W Series (FAL).
(ii) Schlage; an Allegion Company, ALX Series (SCH).
(iii) Best; a Stanley Black and Decker Company, 7KC Series (BES).
(iv) Sargent; an ASSA Abloy Company, 6500 Line Series (SAR).
(e) Lockset Trim:
(I) Falcon Avalon Trim (A).
(ii) Schlage, Sparta.
(iii) Best, 14K.
(iv) Sargent, LP.

(2) Interior Dwelling Unit Latchsets:
(a) Shall meet ANSI/BHMA Grade 2 or 3 standards certified by an independent testing laboratory.
(b) Provide 2-3/8" backset and 2-1/2" nominal rose.
(c) Provide 1" x 2-1/4" face plates and 2-1/4" full lip strikes with square corner.
(d) Manufacturers:
(I) Kwikset (KWI)
(ii) Schlage (SCH)
(e) Lockset Trim:
(I) Kwikset, Delta, Satin Nickel.
(ii) Schlage, Broadway, Satin Nickel.

(3) Auxiliary Locks:
(a) Deadbolts:
(I) Provide deadbolt series conforming to ANSI A156 and function as specified.
(ii) Provide deadbolts with standard 2-3/4" backset. Provide deadbolt with full 1" throw, constructed of steel alloy or as otherwise noted.
(iii) Provide manufacturer's standard strike.

(iv) Manufacturers:
1. Falcon, an Allegion Company, D200 Series (FAL).
2. Schlage, an Allegion Company, B600 Series (SCH).
3. Best, a Stanley Black and Decker Company, T Series (BES).
4. Sargent, an ASSA Abloy Company, 480 Series (SAR).

d) Surface Door Closers:
(1) All Surface Door Closers shall be designed to meet BHMA A156.4, Grade 1 test standards and certified by an independent testing laboratory.
(2) Door closers shall have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder. Cylinder body shall be 1-1/2" in diameter, and double heat treated pinion shall be 11/16" in diameter with double D slab drive arm connection.
(3) Hydraulic fluid shall be of a type requiring no seasonal closer adjustment for temperatures ranging from 120 F to -30 F.
(4) Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed, and backcheck.
(5) All closers shall have solid forged steel main arms (and forged forearms for parallel arm closers).
(6) All surface mounted mechanical closers shall be certified to exceed ten million (10,000,000) full load cycles by a recognized independent testing laboratory.
(7) Closers will have Powder coating finish certified to exceed 100 hours salt spray testing by ETL, an independent testing laboratory used by BHMA for ANSI certification.
(8) Refer to door and frame details and furnish accessories such as drop plates, panel adapters, spacers and supports as required to correctly install door closers. State degree of door swing in the hardware schedule.
(9) Provide type of arm required for closer to be located on non-public side of door, unless otherwise indicated.
(10) Manufacturers (Common Area Doors):
(a) Falcon; SC71 Series (FAL).
(b) LCN; an Allegion Company, 4011/4111 Series (LCN).
(c) Sargent; an ASSA Abloy Company, 281 Series (SAR).

e) Protection Plates:
(1) Kick Plates: Furnish beveled on 4 edges, countersink fasteners, .050" thick x 8" high x 1-1/2" less door width for the push side on single doors and 1" less door width for the push side on pairs. Adjust width on pairs accordingly for other conflicting hardware (astragals, mullions, etc).
(2) Armor Plates: Furnish beveled on 4 edges, countersink fasteners, .050" thick x 35" high x 1-1/2" less door width for the push side on single doors and 1" less door width for the push side on pairs. Adjust width on pairs accordingly for other conflicting hardware (astragals, mullions, etc).
(3) Manufacturers:
(a) Ives; an Allegion Company, 8400 Series and 8402 Series for rated openings for plates over 16" high (IVE).
(b) Equal products of any BHMA manufacturer.

f) Door Stops:
(1) Wall Bumpers:
(a) Wrought, approximately 2-1/2" diameter, convex or concave rubber center (as noted in sets), concealed fasteners.
(i) Ives; an Allegion Company, WS406/WS407 (IVE).
(ii) Equal products of any BHMA manufacturer.
(2) Baseboard Stop:
(a) Flexible with rubber tip.
(b) 3" Projection:
(i) Ives; an Allegion Company, 060 (IVE).
(ii) Equal products of any BHMA manufacturer.
(3) Hinge Pin Stop:
(a) Accommodates 1/4" and 5/16" diameter hinge pins.
(b) Adjust door swing from 85 to 125 .
(i) Ives; an Allegion Company, 73 (IVE).
(ii) Equal products of any BHMA manufacturer.

g) Thresholds and Gasketing:
(1) Thresholds:
(a) 1/2" high, 5" wide. Cope at jambs.
(b) Furnish full wall opening width when frames are recessed.
(c) Cope in front of mullions if thresholds project beyond door faces.
(d) Furnish with non-ferrous Stainless Steel Screws and Lead Anchors.
(I) Zero. (ZER).
(ii) National Guard Products Inc. as listed in sets (NGP).
(iii) Equal of Reese or Pemko (PEM).
(2) Door Sweeps:
a) Surface Sweeps:
(I) Zero (ZER).
(ii) National Guard Products Inc., as listed in the sets (NGP).
(iii) Equal of Reese or Pemko (PEM).
(3) Perimeter Gasketing:
(a) Apply to head and jamb stops.
(b) Solid Bar Stock All Sides:
(I) Zero (ZER).
(ii) National Guard Products Inc., 700SA (NGP).
(iii) Equal of Reese or Pemko (PEM).
(5) Smoke Seals:
(a) Perimeter Seal/Gasketing:
(I) Zero (ZER).
(ii) National Guard Products Inc., 2525 (NGP).
(iii) Equal of Reese or Pemko (PEM).

h) Electrified Hardware:
(1) Power Supplies: (Provide for future electric strikes.)
(a) Universal 120-240 VAC input, low voltage DC regulated and filtered, fused primary input, NEMA 1 enclosure, high voltage protective cover, 12/24 VDC output field selectable with jumper, single polarized connector for distribution board.
(b) Provide amperes greater than that of loads.
(c) Manufacturers:
(I) Von Duprin; an Allegion Company, PS Series (VON).
(ii) Securitron; an ASSA Abloy Company, BPS Series (SEC).

l) Miscellaneous Hardware:
(1) Door Viewer:
(a) Permit 190 angle observance.
(b) Furnish Fire Rated type for UL listed doors.
(I) Ives; an Allegion Company, U698 (IVE).
(ii) Equal product of any BHMA manufacturer.
(2) Lock Protector:
(a) Lock protector shall eliminate gap between door and frame. No exposed fasteners on face of unit.
(I) Ives; an Allegion Company, LG10 (IVE).
(ii) Equal products of any BHMA manufacturer.
(3) Silencers:
(a) Provide silencers for all interior doors without gasketing.
(I) Ives; an Allegion Company, SR Series (IVE).
(ii) Equal product of any BHMA manufacturer.
(4) Drip Caps:
(a) Size Drip Cap: Door width plus 4".
(I) National Guard Products Inc., 16A (NGP).
(ii) Equal of Zero, Reese, or Pemko (PEM).
(5) Door Knockers:
(a) Manufacturers:
(I) Ives; an Allegion Company, 02-3125 (IVE).
(ii) Equal product of any BHMA manufacturer.
(6) Roller Latches:
(a) Body: 1" wide x 3-3/8" long x 1-11/16" deep.
(b) Strike: 1-11/16" x 2-1/4" long full lip.
(c) Nylon Roller:
(I) Ives; an Allegion Company, SR Series (IVE).
(ii) Equal product of any BHMA manufacturer.
(7) Door Knocker/Viewer: Permit 180 angle observation.

j) Furnish items not categorized in the above descriptions but specified by manufacturer's names in Hardware Sets.

3) Finishes at Common Areas: Satin Chrome, US26D/BHMA 626. Provide finish for each item as indicated in sets.

4) Cylinders and Keying:
a) All cylinders for this project shall be furnished and installed by the Contractor and will be supplied by one supplier regardless of door type and location. Provide small format interchangeable (SFIC) cores.
b) The Finish Hardware supplier will meet with Architect and/or Owner to finalize keying requirements and obtain keying instructions in writing including the delivery of final keys and cores.
c) Provide disposable or keyed construction cores for use during construction period as specified in sets. Permanent cores will be furnished to the Owner's Representative by the Contractor prior to occupancy. The Owner or Owner's Security Agent in conjunction with the supplying distributor shall remove construction cores and install final cores.
(1) Construction Key Quantities:
(a) 2 each Construction Control Keys.
(b) 25 each Construction Operating Keys
d) Permanent cylinders shall be keyed by a certified keying center or factory, combined in sets or subsets, master keyed or great grand master keyed, as directed by Owner. Permanent keys and cylinders shall be marked with the applicable blind code for identification. These visual key control marks or codes will not include the actual key cuts. Permanent keys will also be stamped "Patented" and "DO NOT DUPLICATE". Keys and cylinder identification stamping to be approved by Architect and Owner.

e) Equip locks and cylinders with restricted, patent protected, small format interchangeable core cylinders with nickel silver blocking pin to check for patented feature on keys. Provide a minimum of six pins with nickel silver bottom pins. Cylinders must allow for multiplex master keying, combined to Owner's instructions.

f) Deliver all permanent keys, key blanks and other security keys as determined in keying meeting.

g) Key Material: Provide manufacturer's standard embossed keys of nickel silver to ensure durability.

h) Provide the following keys to the property at construction turnover:

(1) Great Grand/Grand Master key (to open all doors - 1 each to be placed in each Knox Box for Fire Department).

(2) 4 each Master/Submaster Keys (per each submaster group).

(3) 2 each Control Keys.

(4) Resident Keys:

(a) 4 TOTAL unit keys per unit (3 each issued, 1 each, placed in key cabinet).

(b) 2 TOTAL mailbox keys per unit, 1 each issued, 1 each labeled together with unit keys.

(5) If not listed above, 3 each keys per core.

(6) Special Keys/Keying (Confirm at Key Meeting): Manager's key (to open all doors except apartment units).

i) Manufacturers: Shall comply with the manufacturer's requirements for specified hardware. Core finish shall match door hardware.

5) Key Control:

a) Key Cabinet:

(1) Provide a key control system including envelopes, labels, tags with self-locking key clips, receipt forms, 3 way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of the number of locks required for the project.

(2) Provide complete cross-index system set up by hardware supplier or Lockset Manufacturers' representative or Lockset Manufacturers authorized Service Center. Place keys on markers and hooks in the cabinet as determined by the final key schedule. Provide hinged panel type cabinet for wall mounting. Provide one each wall mounted key cabinet. Provide loan record system. Locate at Manager's Office. Confirm location with Owner.

(3) Manufacturers: Telkee.

b) Rapid Entry System:

(1) Provide one (1) at building front entry.

(2) Manufacturers: Knox Vault 4400 Series.

6) Templates and Hardware Location:

a) Furnish hardware made to template. Supply required templates and hardware locations to the door and frame manufacturers.

b) Furnish metal template to frame/door supplier for continuous hinge.

c. Execution

1) Installation:

a) General:

(1) Install hardware according to manufacturer's 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.

(2) Provide blocking/reinforcement for all wall mounted Hardware.

(3) Reinforced hollow metal doors and frames and reinforced aluminum door and frames will be drilled and tapped for machine screws.

(4) Solid Wood Doors and Frames: Full thread wood screws. Drill pilot holes before inserting screws.

(5) Install weather-strip gasket prior to parallel arm closer bracket, rim exit device or any stop mounted hardware. Gasket to provide a continuous seal around perimeter of door opening. Allow for gasket when installing finish hardware. Door closers will require special templating. Exit devices will require adjustment in backset.

b) Locations:

(1) Dimensions are from finish floor to center line of items.

(2) Include this list in Hardware Schedule.

CATEGORY	DIMENSION
Hinges	Door Manufacturer's Standard
Flush Bolt Levers	72" and 12"
Levers	Door Manufacturer's Standard
Exit Device Touchbar	Per Template
Deadbolt	48"
Roller Latch	At Head (Pairs)
Wire Pulls	42"
Wall Bumpers	Suitable for Lock Lever, Exit Trim, or Pull
Astragals	Pull side of active leaf
Lock Protectors	Pull side of door
Knocker/Door Viewer	60" typical and 43" (at second viewer – HC units)

c) Final Adjustment:

(1) The general contractor shall provide the services of a representative to inspect material furnished and its installation and adjustment, and to instruct the Owner's personnel in adjustment, care and maintenance of hardware.

(2) Locksets, closers and exit devices shall be inspected by the factory representative 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 non-compliance. The original report shall be forwarded to the Architect with copies to the Contractor, hardware supplier, hardware installer and building owner.

2) Hardware Sets:

Hardware Group #1

For use at exterior building entry.

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1-1/2	PR	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	ENTRY / OFFICE LOCK	ND53PD RHO	626	FAL
1	EA	SURFACE CLOSER	SC71A SS	689	FAL
1	EA	KICK PLATE	8400 8" X 2" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
1	SET	GASKETING	429AA-S	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	655A	A	ZER

Hardware Group #2

For use at interior vestibule door.

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1-1/2	PR	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	SURFACE CLOSER	SC71A SS	689	FAL
2	EA	KICK PLATE	8400 8" X 2" LDW B-CS	630	IVE
1	SET	GASKETING	429AA-S	AA	ZER

Hardware Group #3

For use at interior mechanical room doors.

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	PR	HINGE	5BB1HW 4 X 4	652	IVE
1	EA	SPRING HINGE	3SP1	652	IVE
1	EA	ENTRY / OFFICE LOCK	ND53PD RHO	626	FAL
1	SET	GASKETING	429AA-S	AA	ZER

Hardware Group #R1

For use on unit entry and remote storage doors.

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	SPRING HINGE	3SP1 4 X 4	652	IVE
1	EA	HINGE	5BB1 4 X 4	652	IVE
1	EA	PASSAGE SET	F10F ELA	626	SCH
1	EA	SGL CYL DEADBOLT	B60N 12-321 10-116	626	SCH
1	EA	DOOR STOP	060 OR 70 AS REQ'D	652	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	VIEWER (AT UNIT ENTRY ONLY)	U700 [PROVIDE 2 @ ACCESSIBLE UNITS]	626	IVE

Hardware Group #R2

For use at interior dwelling unit bedroom and bath doors.

Provide each SGL door(s) with the following:

Qty.		Description	Catalog No.	Finish	Mfr.
3	EA	HINGES	1020-619	619	SCH
1	EA	PRIVACY	F40 BRW “BROADWAY”	619	SCH
1	EA	WALL STOP	61	619	SCH

* See Drawings for privacy function. Provide privacy sets at door tags that include “P”.

Hardware Group #R3

For use at pairs of interior dwelling unit closet doors.

Provide each pair of door(s) with the following:

Qty.		Description	Catalog No.	Finish	Mfr.
6	EA	HINGES	1020-619	619	SCH
2	EA	DUMMY TRIM	F170 ACC 619 RH	619	SCH
2	EA	WALL STOP OR HINGE PIN WALL STOP	61 OR 70-605	619	SCH
2	EA	BALL CATCHES	CL21A	619	IVE

Hardware Group #R4

For use at interior dwelling unit mechanical doors.

Provide each pair of door(s) with the following:

Qty.		Description	Catalog No.	Finish	Mfr.
2	EA	HINGES	1020-619	619	SCH
1	EA	DUMMY TRIM	F170 ACC 619 RH	619	SCH
1	EA	BALL CATCHES	CL21A	619	IVE
1	EA	WALL STOP OR HINGE PIN WALL STOP	61 OR 70-605	619	SCH

Hardware Group #R5

For use at interior dwelling unit closet doors.

Provide each SGL door with the following:

Qty.		Description	Catalog No.	Finish	Mfr.
3	EA	HINGES	1020-619	619	SCH
1	EA	PASSAGE SET	F10 ACC 619	619	SCH
1	EA	WALL STOP OR HINGE PIN WALL STOP	61 OR 70-605	619	SCH

5. Access Door (At Attic and Ground Space):

   a. 24" x 48" fire-rated, air-tight, insulated attic access door. Provide optional cylinder keyed lock.

   b. Acceptable Manufacturers: Acudor or approved equal. Install per manufacturer specifications with sealants per Division 7.

6. Windows:

   a. Provide window opening control device complying with ASTM F2090 to all windows where sill is below 36" a.f.f. (reference I.B.C. Section 1013.8 Window Sills).

   b. Confirm bedroom window egress dimensions and area comply with the code.

J. DIVISION 9 - FINISHES

1. Gypsum Board:

   a. 1/2" thick board on all walls, ceilings, and stair ceilings leading to the second floor; 1/2" thick water resistant board on all walls and ceilings at tub/shower locations.

   b. 5/8", Type “X” gypsum board. Fire code “C” at fire-rated partitions, walls and ceilings where indicated on Drawings.

   c. Walls to be finished smooth. Uniform light knockdown texture on ceilings. Rated assemblies as required per Drawings/Wall Schedule.

   d. Submittals required for wallboard.

2. Sound Barrier: 440 Sound Barrier, Class C Fire-Rated, Molded, Recycled Post Consumer Paper, Cellulose Fiber Structural Panel, ½" thick, as manufactured by the Homasote Company.

3. Paint Systems: Sherwin-Williams; approved equal.

   a. Interior Paint:
      1) Preparation of All Surfaces: Caulk and nail hole spackle.
      2) Walls: One (1) coat primer + two (2) coat Eggshell finish; assume two (1) color different than ceiling color for all walls.
      3) Ceilings: One (1) coat primer + one (1) coat flat finish; Sherwin-Williams ProMar 200.
      4) Door Casing, Window Sill Aprons, Base: One (1) coat Semi-Gloss Finish (trim installed primed) and touch up as required; Sherwin-Williams Pro-Classic.
      5) Walls: One (1) coat primer + two (2) coats satin finish; Sherwin-Williams Harmony Low VOC.
      6) Windows: Prefinished.
      7) Stair Handrail and Wall Cap: Stain/polyurethane.
      8) Stair Stringers: Match trim painting specification.
      9) Note that windows are installed pre-finished white semi-gloss.

   b. Interior Colors:
      1) All ceilings to be painted SW6119 "antique white" flat matte.
      2) All interior non-bedroom walls to be painted SW6106 "Kilim Beige" eggshell.
      3) All bedroom and bedroom closet walls to be SW6108"Latte" eggshell.
      4) Half wall caps and handrails stain and poly finish.
      5) Provide color sample submittal for Owner or Architect approval.

   c. Exterior Paint:
      1) Preparation of all surfaces, caulk, and prime paint prior to applying finish coat.
      2) Trim: Smooth, pre-primed surface - two (2) coat semi-gloss exterior latex.
      3) Exterior Columns: Semi-gloss finish as per manufacturer's requirements. Provide paint color sample submittal for Owner or Architect approval.
      4) See Division 6 for description of aluminum soffit, fascia, porch ceiling, etc.

   d. Exterior face of exterior entry doors to be painted one of two accent colors.
      1) Accent Colors: (refer to Division 6, exterior finish schedule for locations)
         Option #1: TBD
         Option #2: TBD
      2) Assume that all colors are deep (clear) base colors.
      3) Caulk used at interior and exterior exposed painted surfaces per Division 7. Color to be determined.

4. Floor Finish:

   a. All vinyl flooring to be click LVT floating floor. Waterproof with attached pad. 12mm wear layer. Color to be determined.
      1) Submittal on vinyl LVT required.
      2) Location of Vinyl: Vinyl flooring to be at all kitchens, bathrooms, laundry areas, living rooms, and a 3' x 3' area inside front and rear door if not otherwise noted as vinyl.

5. Carpet Floor Finish:

   a. Carpet to be min. 35oz. nylon cut textured pile with min. 3.5 wear rating and integral stain repellant. Color to be determined.

   b. Install over .5" rebond pad with min. 6-lb. density.

   c. Acceptable Manufacturers: Shaw; Armstrong; Mohawk; or approved equal.

d. Submittal on carpet and pad required.

e. Location of Carpet: Carpet to be at all bedrooms, and hallways outside bedrooms except at six-plex where hall is LVT.

e. Carpet at stairs to second floor.

f. Transition strips to be aluminum. Color to be determined.

g. Underlayment: APA-rated underlayment, 1/4" thick.

6. Vinyl Treads and Risers: Johnsonite (Tarkett) Safe-T-Grip, square nose, visually impaired (VIVG), 12" tread depth with 7" integral riser, 2" wide safety grit tape insert, up to two (2) colors as selected by Architect.

K. DIVISION 10 - SPECIALTIES

1. House Numbers: Metal min. 4" tall. Color: Black. Coordinate location of house numbers with SBH.

2. Mailboxes: USPS approved, post-mounted, 4C format, horizontal metal mailbox unit, Salsbury or equal. Color: Black. Mount +48" maximum to uppermost key hole on decorative post. Coordinate with Owner for location and quantity of mail slots.

3. Unit Signage: At dwelling unit entry door, provide unit number sign. Include Braille below unit number. Lettering to comply with ADA. Mount with Braille at 48" maximum above floor.

L. DIVISION 11 - EQUIPMENT

1. See Division 26 for appliances to be set in place, connected and tested.

2. Garbage disposal shall be installed in this project and provided by SBH.

M. DIVISION 12 - FURNISHINGS

1. Casework:

a. Acceptable Manufacturers:
   1) Contractor's Choice.
   2) Advanta Cabinets.
   3) Kraftmaind.
   4) Merillat.

b. Workmanship, General:
   1) Machine parts for accurate fit and assemble with appropriate fastenings and adhesives to result in true, square, level, and plumb units.
   2) Verify dimensions of other trades to be built into casework.
   3) Provide removable or false backs for access or concealment of plumbing items.
   4) Scribe tops and backsplashes to walls and other adjoining vertical surfaces.
   5) There shall be a 1-1/2" maximum scribe with casework at end walls unless shown otherwise.
   6) Casework components shall be solid hardwood or hardwood plywood with wood veneer.
      (1) No particleboard will be allowed.

c. Casework Construction:
   1) All Cabinets shall be constructed of plywood.
   2) Boxes:
      a) Base Cabinets:
         (1) Two Plywood Stretcher Rails.

(2) 3-8" Plywood Back, Bottom and Sides.
(3) 3/4" x 1 1/2" Solid Wood Face Frame with 3" Center Stile.
(4) 1/2" Half-Depth Plywood Shelf.
(5) 3/8" x 4" High Plywood Recessed Toe-Kick (Recessed 3 3/8" Deep).
(6) Cabinet Interior features Natural Maple Laminate.

b) Wall Cabinets:
(1) 1/2" Plywood Top and Bottom.
(2) 3/4" x 1 1/2" Solid Wood Face Frame.
(3) 3/8" Plywood Sides and Backs.
(4) Cabinet Interior features Natural Maple Laminate.

3) Fixed and Adjustable Shelves and Dividers:
a) 3/4" plywood with wood veneer and edge banding.
b) Number of adjustable shelves provided, unless indicated otherwise on the Drawings or on the Schedule:
(1) Tall Casework:
(a) Four (4) up to 84"
(b) Five (5) up to 90"
(c) Six (6) up to 96"
(2) Base Casework:
(a) One (1) up to 36"
(3) Wall-Hung Casework:
(a) One (1) up to 24"
(b) Two (2) up to 30"
(c) Three (3) up to 42"

4) Doors:
a) Doors shall be Contractor's Choice:
b) Hinged Doors (Unit Kitchens):
(1) Contractor's Choice "Newberry Birch", Color by Architect, stile and rail, square recessed panel.
(2) Doors 48" and less in height shall have two (2) hinges per door.

5) Drawers:
a) All wood drawer with 1/2" sides and back and 3/8" bottom.
b) All styles feature natural wood finish.
c) 20" deep drawer box with stapled butt joint construction.
d) Drawer bottom stapled into sides, front and back.
e) Self-closing, epoxy-coated guides for smooth, quiet action.
f) Rated at 100 lbs. capacity per drawer.
g) Adjustable side-mount drawer guides with double rails for more stability.
h) Built-in Drawer Stop.
i) Drawer Face:
(1) Constructed of 3/4" minimum plywood.
(2) Glued and dovetail jointed.

6) Cabinetry Pulls: At standard and visitable units, top and bottom door edges have 15 degree reverse bevel without pulls. Provide stainless steel 4" wire pulls at ADA unit cabinet doors and drawers.
7) Finish: Multi-step process featuring stain sealer and multi-coat varnish.
8) Removable Sink Bases and Cabinets:
a) Where indicated on the Drawings, provide removable sink bases.
b) Provide end panels as required, so that a finished appearance is visible if the sink bases are removed.
c) At removable base cabinets, provide operable drawers.

f. Countertops: Refer to item G.5. Finish Carpentry.

2. Window Treatments: Purchased and installed by subcontractor.

3. Provide shop drawings, product data and samples for Owner or Architect approval.

N. DIVISION 21 - FIRE SUPPRESSION

1. Automatic Fire Sprinkler System (Apartment Building):

a. Codes: The entire installation shall be in full compliance with applicable sections of the 2012 International Building Code and NFPA 13R which shall be considered as part of these Specifications. The system will be subject to approval of the nearest insurance office (ISO), the Owner's insuring agency, the local fire prevention bureau and any other state or local inspection bureau having jurisdiction.

b. Design, Coverage and Permits: Sprinkler system layout shown on Drawings is diagrammatic. Locations and types of fire protection piping and heads shall be verified in the field by the sprinkler Contractor. Sprinkler Contractor is to design system to meet all applicable codes, is to provide certified drawings of sprinkler revisions to the local authority having jurisdiction for approval and is to pay any fees from all state and/or local agencies for design review and approval before proceeding with any work. Provide Architect with two (2) copies of approved permits, drawings and release letters.
   1) Utilize appropriate design methods required by NFPA 13R, latest edition.

c. Coordinate all work with other trades in order to eliminate possible conflicts.

d. Testing: After system is complete, the Contractor shall perform a hydrostatic test on each wet system at 200 psi for two (2) hours. Follow procedure as outlined by NFPA and provide any additional tests as may be required by NFPA and ISO.

e. Sprinklers: All shall bear U.L. and FM approval; manufacturers/suppliers to be Central, Viking, Gem or Reliable.
   1) Wall-Mounted or Pendant Heads: Heads exposed to view shall have chrome finish.
   2) Dwelling Units: In gypsum board ceiling areas, utilize concealed pendent type. Otherwise, utilize quick response sidewall heads.

f. Cabinet: Locate in the existing spare cabinet, one (1) sprinkler wrench for each size and type head. Provide only the required quantity of each type of head as designated in NFPA standards.

g. Pipe & Fittings: Shall conform to NFPA 13 and NFPA 14 Standards, latest edition.
   1) Pipe shall be Ductile Iron per ANSI utilizing mechanical joists or threaded connections.
      a) CPVC pipe up to 1" is acceptable where allowed by Building Code.
      b) Type "L" hard copper pipe is acceptable up to 3/4" and where located above a suspended ceiling.

h. Hangers: Support all sprinkler piping, valves and other components as specified in accordance with NFPA and local requirements. Hangers shall be U.L. approved.

i. Install sprinkler piping in heated space only.

j. Provide firestopping sealant at all fire-rated wall and floor penetrations.

O. DIVISION 22 - PLUMBING

1. Contractor shall furnish and install complete and efficient residential plumbing system. All work shall be in accordance with all applicable codes and is subject to City inspection(s). Make all final connections to City water and sewer systems.

2. Provide 5/8" water meter “ram's horn” base and fittings as required for City of South Bend 5/8" water meter. Installation of a ball valve shutoff at the 1" copper water supply line is to occur during plumbing rough in. Refer to Division 2 for information on water supply line from city stop valve.

3. Coordinate all below-slab plumbing and floor drains, with site and foundation work as required.

4. Potable Water:
   a. Pipe:
      1) Seamless Type "L" hard copper, ASTM B88.
      2) PEX tubing complying with NSF 14, NSF 61, and ASTM F876/F877 may be used within apartment units. Provide red piping for hot water and blue piping for cold water.

   b. Fittings: Shall be wrought copper solder joint fittings, ASTM B61, ANSI B16.22.
      1) Wrought copper solder joint fittings, ASTM B61, ANSI B16.22.
      2) Press Fittings: Copper and copper alloy press fittings shall conform to material requirements of ASME B16.18 or ASME B16.22 and performance criteria of IAPMO Ps 117. Sealing elements for press fittings shall be EPDM. Sealing elements shall be factory installed or an alternative supplied by fitting manufacturer.
      3) Fittings for PEX piping shall comply with ASTM F1807, ASTM F1865, ASTM F1960, ASTM F2098 and ASTM F2159.

5. Waste, Vent and Storm:

   a. PVC pipe Schedule 40 with DWV style fittings.
      1) Shall meet deflection standards of ASTM D3033.

   b. NO-HUB cast iron pipe and fittings.

6. Condensate Piping:

   a. PVC pipe Schedule 40 with DWV style fittings.
   b. Type "L" hard copper, ASTM 88 with wrought copper solder joint fittings.

7. Natural Gas:

   a. Pipe: Black steel, ASTM A53 or A106 Grade B, Schedule 40, furnace welded or seamless.

   b. Fittings:
      1) Malleable Iron Fittings: ASTM A47, class 150, ANSI B16.3 (except gas over 2 psi).
      2) Welded Fittings (Butt Welded): ASTM A234, Grade B, WPB, ANSI B16.9.

   c. Piping 2" and Smaller: Screwed fittings (except gas over 2 psi).

8. Provide and install PEX water supply lines to all plumbing fixtures, water heater and appliances. No PEX joints permitted inside wall cavities except at necessary branch fittings to fixture termination devices. Either color code (a) all cold as blue and hot as red or (b) all white.

   a. Distribution system to be branch layout.

   b. Install PEX per manufacturer specifications with appropriate supports, clips, and required accessories.

   c. Recessed laundry box at all washer/dryer locations.

9. All exterior mechanical penetrations through the WRB per Division 7.

10. Provide braided SS connections at water closets, lavatories and kitchen sink. Locate water closet connection 3" above top of baseboard trim for stools located against interior walls. Quarter turn shut off valve at each plumbing fixture connection. Dishwasher connection in kitchen sinkbase cabinet to be dual valve such that dishwasher can be isolated from the kitchen faucet.

11. Provide and install two (2) exterior hose bibb faucets (freeze proof) per building at duplexes and one (1) per unit at townhomes. See apartment plumbing drawings for hose bibb locations. Plumb separate soft water system loop adjacent to water heater for future use.

12. Provide and install one (1) PVC floor drain in unit mechanical room.

13. Cutting, notching, and drilling or structural members per the code and per manufacturer's instructions

.

14. Pipe Installation:

    a. Run piping straight and direct as possible, parallel with walls, partitions, structural elements and other piping and neatly spaced for service and insulation. Hang piping at or in ceiling from construction above, as close as possible to bottom of slabs, beams, etc. Maintain maximum headroom at all times. Coordinate with other trades prior to installation.

    b. Pipe shall be cut accurately to measurements established at building and shall be worked into place without springing or forcing.

    c. Arrange piping for maximum accessibility for maintenance and repair, and to properly clear windows, doors and other openings.

    d. Use reducing fittings for changes in pipe sizes.

    e. Provide dielectric couplings wherever copper and ferrous pressure pipe and/or fittings meet.

    f. Install piping isolators at each pipe hanger and pipe support for hot and cold water piping. Isolators shall be galvanized steel with felt padding by Tolco or Elmdor/Stoneman.

15. Fire caulk to be 3M Fire Barrier Sealant system or approved equal.

16. Sealants: Clear silicone sealant at base of stool at drop-in lavatories.

17. Protect tubs during construction with cardboard or equivalent tub liner.

18. Water Heaters:

    a. See Water Heater Schedule on the Project Drawings.

    b. Provide 5-year manufacturer's limited warranty.

    c. Minimum efficiency shall be 96% thermal efficiency.

    d. Provide concentric vent termination kit, flow switch and low water cutoff kit.

    e. Maximum working pressure 150 psi.

19. Thermal Expansion Tanks:

    a. Shall be carbon steel with baked epoxy finish, stainless steel connection and FDA-approved heavy-duty butyl bladder.

b. Performance Limitations:
   1) Maximum Design Temperature: 240°F.
   2) Maximum Design Pressure: 150 psi.

20. Garbage Disposal: Provide and install garbage disposal, switched at wall as shown on Project Drawings. Product noted below.

21. Refer to Drawings for Site Plan, Floor Plans, Elevations (for exterior wall openings), and Mechanical/Electrical Systems Reference Plan.

22. Plumbing Fixtures: Provide shop drawings and product data for Owner or Architect approval. Verify left/right handed for each location per plans and site plan. (that is, check for mirrored plans!)

    a. See Plumbing Fixture Schedule on the Drawings.

    b. Kitchen:
       1) Garbage Disposal: Insinkerator Badger 1.

P. DIVISION 23 - HVAC

1. Contractor shall furnish and install complete and efficient residential HVAC system. All work shall be in accordance with all applicable codes and is subject to City inspection(s). Make all final connections to water, sewer and gas systems

2. System Design: HVAC contractor to provide written heating and cooling calculations to verify equipment and ductwork sizes. Manual J. Provide these calculations after Contract award and before start of work. Coordinate any required adjustments or changes with the Architect.

3. HVAC Equipment:

    a. Acceptable HVAC Equipment Manufacturers: York; Goodman; Carrier; Rheem; Lennox; Armstrong. See Furnace and Condenser Schedule on the Drawings.

    b. Gas furnaces shall be minimum 95% efficient with matched direct expansion coil.

    c. Filter to be standard 1" type and sized for airflow. Provide filter return grille as described below. AC unit shall meet $SEER^2$ of 14 min.

4. Above-Ground Ductwork:

    a. All rigid ductwork shall be galvanized steel, fabricated and installed according to the latest edition of the SMACNA HVAC Duct Construction Standards, with ducts cross-broken (all flat surfaces greater than 12" in any direction), braced and stiffened with turning vanes in all square elbows. Minimum gauge shall be as follows:
       1) Exposed ductwork shall be 26 gauge minimum except where flexible ductwork is shown on Drawings.
       2) Concealed ductwork over 14" shall be 28 gauge minimum. Where rectangular ducts are installed against two gypsum board surfaces, duct board with reinforced Foil Face Scrim may be used.
       3) Concealed ductwork under 14", including boots and connections, shall be 30 gauge minimum.

    b. All supply air ducts, all outside air ducts, exhaust ducts in the attic and all mixed air ducts shall be insulated with blanket fiberglass, 1-1/2" thickness, with FSK vapor barrier. Fiberglass insulation shall have a minimum density of 1.5 pcf. Insulation shall be Owens-Corning, or Manville. Seal all joints, seams and edges with matching FSK tape.

c. Flexible duct shall be Thermaflex or Architect-approved equal. Provide Flex Flow elbow duct supports at all 90° bends. Ducts shall be M-KC series with R4.2 in heated space and R6 in the attic.

5. Grilles, Registers, Diffusers and Louvers: Titus, Hart & Cooley or approved equal. Diffusers shall be multi-directional unless indicated otherwise on Drawings. All air outlets must be supplied with an integral balancing device.

6. All ductwork joints, seams, collars, cleats, and connections to be sealed with specified mastic or UL181 rated tape. Framed bays that served as RA chases to be checked and sealed/caulked prior to wallboard installation, especially at cavity tops and where they connect through floor assemblies.

7. Provide gas supply piping to all listed gas appliances. Shut offs, drip legs, and other as required. Coordinate gas line pressure test with city of South Bend inspector at same time as rough-in inspection.

   Installation, testing, and inspection of the gas piping from the gas meter location to the furnace are to occur during rough-in. All exterior mechanical penetrations through the WRB per Division 7.

8. Cutting, notching, and drilling or structural members per code and per manufacturer's recommendations.

9. Provide and install all dryer vent ducts, exterior wall vent caps, recessed wall boxes behind dryers. Seal all venting ductwork joints and connections with alum. tape or fluid applied mastic duct sealant. Recessed clothes dryer box may be plastic type. No flex or semi-rigid duct is permitted.

10. Exterior dryer vent closure mounted on 5/4 wood trim block sized for vent. Acceptable dryer vent caps are: Heartland; Lambro Ind. 289W; approved equal. Where vents occur in soffit, provide Deflecto "Undereve Vent".

11. Condensate Drain: 3/4" PVC piping. Extend to drain with 1/2"/10 feet slope minimum.

12. Thermostat: Hardwired. Programmable. Honeywell RTH7500D or approved equal.

13. The following appliances shall be provided:

    a. Range Hood: Vented to exterior at kitchen range. Broan QML30WW. 3.25" x 10" ducted to exterior via wall cabinet above unit. Provide Broan 639 wall cap.
       1) Duct sealing and sealant at WRB per Division 7.

    b. See Exhaust Fan Schedule on the Drawings.

    e. Ceiling Dampers: Provide ceiling radiation dampers complying with UL555C at bath exhaust fans in the ceiling and at all ceiling diffusers in ground floor units.

Q. DIVISION 26 - ELECTRICAL

1. Contractor shall furnish and install complete 100 amp electrical service.

   a. 24-slot main recess-mounted breaker panel.

   b. Acceptable Manufacturers: Square D; Siemens ITE;

   c. Clearly print description of each circuit at breaker box.

   d. All work shall be in accordance with all applicable codes and is subject to City of South Bend inspection(s).

   e. Electrical service to the house is to be underground.

2. Meter bases to be installed on trim block provided by siding contractor. Do not install meter base directly to sheathing or WRB. Coordination is required per Division 7.

3. Temporary Power: Where noted on schedule, provide 4 x 4 post, plywood panel, meter base, breaker box, and two (2) quad exterior GFCI receptacles. Overhead service cable coordinated with Owner and electric utility.

4. Coordinate phone/data and cable services, installation, routing and connections with Owner. Coordinate with utility providers for underground drops. Provide cable connection in each bedroom and living room. Route each cable to location on plywood adjacent to electrical panel. Leave looped at panel without termination.

   Phone wiring to be CAT-6E. Coaxial wire to be RG6.

   No daisy-chain configuration - each cable and coaxial wire is separate. Terminate each cable at wall plate.

5. All exterior mechanical penetrations through the WRB per Division 7.

6. Wiring:

   a. Wiring Materials:
      1) Wire to be 98% conductivity soft or annealed copper, to ASTM specifications.
      2) Wire insulation must conform to all IPCEA and NEMA Standards for voltage and environmental conditions encountered.

   b. Wire Sizes: Sizes to be not less than indicated. Branch circuit wire to be No. 12 AWG minimum. Wire for branch circuits of 120 volts, more than 100' long, from panel to load center, to be No. 10 AWG minimum.

   c. Insulation:
      1) Insulation types shall be as follows unless noted otherwise:
         a) No.8 AWG, or Larger Wire: Type RHW, THWN or XHHW. XHHW for interior use only.
         b) Smaller Than No.8 AWG: Type THWN, THHN, XHHW, except that 16 AWG wire for Class 2 remote-control circuits and signal circuits may be commercial fixture wire Type RF-2 or TF. XHHW for interior use only.
      2) All Wire Sizes for Ambient Temperatures in Excess of 75°C: Types RHH, THHN or SA.

7. Devices:

   a. Materials:
      1) All devices shall be specification grade, 20-amp minimum unless otherwise indicated or required. Standard color to be white unless noted otherwise. Confirm color with Architect.
      2) Acceptable Manufacturers:
         a) Hubbell
         b) Arrow-Hart
         c) Pass & Seymour
         d) General Electric
         e) Leviton
      3) Switches shall be quiet type, totally enclosed, back and side wired, 120-277 volt rated. Service type shall be as indicated (i.e., single pole, three-way, etc.) and in accordance with the following (Hubbell model numbers are used for reference purposes). Switches in dwelling units to be rocker type.
         a) Single Pole: #CS120 series.

b) Single Pole Rocker: #DS115LA series, provided at handicapped-accessible dwelling units.
c) Three Way: #CS320 series.
d) Three Way Rocker: #DS315LA series, provided at handicapped-accessible dwelling units.
e) Double Pole: #CS220 series.
f) Combination Sensor/Switch: #MS2000LA.

4) Receptacles shall be grounding type with grounding strap unless otherwise indicated, totally enclosed, back and side wired. Service type shall be as indicated (i.e., single outlet, duplex, etc.) and in accordance with the following (Hubbell model numbers are used for reference purposes, unless noted otherwise):
a) 2-Pole, 125-Volt, Simplex: 5261LAA (15A), 5361LAA (20A).
b) 2-Pole, 125-Volt, Duplex: SNAP5262LAA (15A), SNAP53626LAA (20A).
c) 2-Pole, 125-Volt, Duplex, Ground Fault: GFRST15SNAPLA (15A), GFRST20SNAPLA (20A).
d) Single-Pole, Switch with One Receptacle: RC108LA.
e) Weather-Resistant 125-Volt Duplex: GFWRST20LA.
f) Provide NEMA standard configuration for special outlets rated above 20-amp and/or above 125-volt unless otherwise required for a particular piece of equipment. Coordinate exact types with actual equipment provided.

5) Device plates shall be one piece with unbreakable plastic for all new single and multi-ganged devices. Color to match device color, unless noted otherwise. Where plate is replaced at existing devices to remain, provide matching cover plates.

8. Raceways:

a. Materials: Provide the following types of raceways for the specified application or location indicated:
1) Rigid Galvanized Steel: Where specifically indicated on the Drawings or required by code or utility company.
2) Electrical Metallic Tubing (EMT): Only within buildings and where not exposed to mechanical injury.
3) Exposed Surface Raceway: Only where indicated on plans or as directed by the Architect.
4) MC Cable: Only as indicated on plans.

b. Acceptable Manufacturers:
1) Conduit: Rigid Steel, IMC and EMT:
a) Allied Tube and Conduit
b) Westem-Tube
c) Republic Conduit

c. Sleeves to be Schedule 40 black steel or Schedule 80 PVC.

d. Connection to Utility Transformer: Contractor to seek out the requirements for new feed to building with the electric utility. All materials and details for a new building feed shall conform to those requirements.

9. Feeders and Branch Circuits:

a. System to be complete from service to distribution equipment and from distribution equipment to outlets, motors, appliances, transformers, controls, etc.

b. Verify current and overload protection of equipment requiring electrical connection. Install feeders and branch circuits of proper size for actual equipment provided. If feeder sizes will deviate from that shown on Drawings, notify the Architect/Engineer for direction before proceeding.

c. Verify that all circuits servicing fixed equipment will operate at less than 2% voltage drop under normal operating conditions.

10. Grounding:

a. Main Service disconnecting means grounding:
   1) Make grounding and bonding connections at the building main service equipment or main disconnecting means and extend the grounding electrode conductor to the point of entrance of the metallic water service main. Make connections to the water pipe by a suitable grounding clamp. If flanged pipes are encountered, make connections with the lug bolted to the street side of the flange connection. Enclose the grounding conductor in rigid metal conduit and solidly bond the grounding conductor to the conduit at entry and exit wherever used. The raceway for main grounding electrode conductor shall be exposed and accessible to allow for interconnection with ground conductors of all communications systems.
   2) In addition to the grounding system indicated above, make ground connections to driven ground rods on the exterior of the building with a maximum resistance to ground of 5 OHMS under normally dry conditions. Three driven ground rods set in a triangular arrangement shall be utilized, spaced not less than 10' on centers. Make a ground connection to 20' of building footing reinforcing bars. Driven ground rods shall be located in unpaved areas only. Rods shall be fully driven with at least 2" of cover over top of rod.
   3) Ground main power distribution transformer secondary neutrals, as required for service system grounding.

b. Telephone System Grounding:
   1) Provide one (1) #6 AWG in 3/4" conduit from apartment building ground conductor raceway to ground bus in telephone equipment room.
   2) Television Service Panel and Telephone Service Panel: Coordinate grounding requirements with service providers.

11. Color or all devices and cover plates to be light almond.

12. Combination smoke and CO detectors per code. Hardwired with battery backup per code. Hush feature. Acceptable manufactures: Kidde; First Alert.

13. Provide one (1) ceiling fan J-box per unit in bedroom. Separate control for light/fan. Location to be finalized in the field.

14. Refer to Drawings for Floor Plans, Elevations, and Mechanical/Electrical Systems Reference Plan.

15. Doorbell: Hardwired chime and button. Button at each unit entry.

16. Light switches to be located 46" above finished floor as measured to top of rough-in box. Receptacles shall be minimum 18" above finished floor. See Drawings for device height where they are over a counter surface or serve an appliance.

17. Provide one (1) 220v dryer receptacle at laundry location at each dwelling unit. Breaker as required.

18. Provide one (1) 220v range receptacle at kitchen range location. Breaker as required.

19. Exhaust Fan and Fan/light Connections:

a. Wire main bathroom fan for continuous operation by switching the red (high speed) leg and leaving black wire (low speed) hot. At all other bathroom, all fan features wired for switch function.

b. Range Hood Power: Receptacle in cabinet over range hood.

20. Coordinate power to mechanical and plumbing systems, including but not limited to:

Garbage disposal switched at wall.
Gas water heater.
Point-of-Use water heaters.
Ventilation systems listed above.

21. Appliances shall be uncrated and set in place by Contractor, and hooked up and tested:

a. Standard Range: Model number to be determined by Owner.

b. Front-Control Range (at ADA Units): Model number to be determined by Owner.

c. Refrigerator:
1) Units: Model number to be determined by Owner.

d. Stacked Washer/ Dryer: Model number to be determined by Owner.

e. Front-Load Dryer (at ADA Units): Model number to be determined by Owner.

f. Standard Washer: Model number to be determined by Owner.

g. Front Load Washer (at ADA Units): Model number to be determined by Owner.

h. Dishwasher:
1) Units: Model number to be determined by Owner.

22. Light Fixtures:

a. LED Luminaires:
1) Components: UL 8750 recognized or listed as acceptable.
2) Tested in accordance with IES LM-79 and IES LM-80.
3) LED Estimated Useful Life: Minimum of 50,000 hours at 70% lumen maintenance, calculated based on IES LM-80 test data.

b. Acceptable Manufacturers:
1) General Electric
2) Advance
3) Universal
4) Jefferson
5) Motorola
6) Magnetek
7) Sylvania

c. Dimmable LED Drivers:
1) Dimming Range: Continuous dimming from 100% to 10% relative light output unless dimming capability to lower level is indicated, without flicker.
2) Control Compatibility: Fully compatible with the dimming control to be installed.

d. Emergency Lighting Units:
1) Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
2) Operation: Upon interruption of normal power source or brownout condition exceeding 20% voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.
3) Battery: Size battery to supply all connected lamps, including emergency remote heads where indicated.

4) Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.
5) Provide low-voltage disconnect to prevent battery damage from deep discharge

e. Fixture Schedule: Refer to Drawings.

23. Unit Signaling Devices:

a. Sensory-Impaired Annunciator Kit: Shall be CFA Series 7005-G5 by Edwards Signaling. Kit includes 6536-G5 Horn/Strobe, 592 Transformer and 620 Push Button with 147-10 Mounting Plate. Locate as shown on plans.

b. Door Chime Kit: Shall be Nutone Model BK110NBWH chime kit with hardwired pushbutton and transformer.

c. Installation - Sensory-Impaired Annunciator Kit: Shall be installed at location as noted on the Drawings in accordance with manufacturer's written instructions. Provide 2-gang renovation box for horn/strobe.

24. Fire Alarm System (Quad-Plex Apartment Building):

a. The fire alarm system shall consist of all necessary hardware equipment and software programming to perform the following functions:
1) Fire Alarm and Detection Operations:
a) Monitoring fire suppression systems.
b) All other equipment as indicated in the Drawings and Specifications.

b. System shall conform to applicable state and local codes and comply with NFPA 72 requirements as applicable. All equipment shall be UL approved.

c. System Description:
1) General: Full system shall be a complete, non-coded, addressable/conventional, microprocessor-based fully field programmable fire alarm system with initiating devices, notification appliances, and monitoring and control devices as indicated on the Drawings. System shall have excess capacity to add strobes in the future via booster panels located on each floor.
2) In accordance with NFPA 72, National Fire Alarm Code, the system shall comply with Paragraphs 3-8.2.4 and 3-8.2.5 for Public Address functions.
3) System shall also include, but not be limited to: Class “A” expander module, battery set, fire communicator, flow alarm, tamper switch, fire alarm sounder, smoke detectors at common areas, stand-alone strobes and horn/strobe devices at sensory impaired units.

d. The vendor shall provide shop drawings for fire alarm system approval prior to component installation, in accordance with International Building Code Section 907.1.1, the Drawings and these Specifications. The shop drawings will include, but not be limited to, the following:
1) Floor plans.
2) Locations of alarm-initiating and notification appliances, clarifying existing and new.
3) Alarm control and trouble signaling equipment.
4) Power connections for new devices.
5) Battery calculations.
6) Conductor types and sizes for new devices.
7) Manufacturers, model numbers and listing information for new equipment, devices and materials.

e. Products:
1) Fire Alarm System Components: Provide components as manufactured by Honeywell, Siemens/ Cerberus Pyrotronics system, or by Edwards.

f. Execution:

1) System Wiring:

a) Provide 18 AWG shielded twisted pair to each new device. Signal wire shall be two conductor, 14 AWG fire alarm signal wire. Reuse existing wiring and boxes where possible.

b) Wiring shall be in accordance with the requirements of the National Electrical Code and NFPA. The fire alarm system, including raceways and wiring, shall be completely installed and wiring shall be properly tagged and color coded. The electrical contractor shall make final connections as shown and required by the equipment manufacturer's wiring instructions. Coordinate as required.

g. The complete fire alarm system shall interface with the fire protection sprinkler system such that activation of any sprinkler head will activate the fire alarm system.

h. System Test: The manufacturer's authorized representative shall perform a quality inspection of the final installation and in the presence of the electrical contractor and Owner's representatives, shall perform a complete functional test of the system, including sound test of horn devices. A system certification verifying the proper system operation shall be required prior to acceptance.

R. DIVISION 27 - COMMUNICATION

1. Door/Intercom System: Provide multi-tenant audio entry intercom system, GT Series, and manufactured by AIPhone with the following components:

Qty	Model	Description
2	GT-DB	Audio Module for GT Modular Entrance Panel
2	GT-DBP	Audio Panel for GT-DB(-VN)
2	GT-SW	4-Call Switch Module for GT Modular Entrance Panel
2	GF-4P	4-Call Button Panel
2	GF-2F	2-Module Front Frame
2	GF-2B	2-Module Back Box
1	GT-BC	Audio Bus Control Unit
1	GTW-DP	Distribution Point Wiring Terminal Strip
1	W-DIN11	DIN Rail Mounting Bracket
1	PS-2420UL	24V DC Power Supply, 2A, UL Listed
4	GT-1A	Audio Open Voice Tenant Station
1	GT-MCX	Building-To-Building Network Adaptor
1	GT-RY	External Signaling / Option Relay

Aiphone Wire

System	Wire #	Description	Max. Distance	Jacket/Nom. O.D.	Capacitance/ Loop Res.
Entrance(s) to GT-BC	872002 for Audio Signal	2 Cond., 20AWG, Solid, Non-shielded, PE Ins., Available in: 500' & 1000'	980'	PVC .134"	20.96 pf/ft, 10.15 Ohms
GT-BC to Farthest Apartment	872002 for Audio Signal	2 Cond., 20AWG, Solid, Non-shielded, PE Ins., Available in: 500' & 1000'	980'	PVC .134"	20.96 pf/ft, 10.15 Ohms
GT-BC to PS-2420UL	872002 for Audio Signal	2 Cond., 20AWG, Solid, Non-shielded, PE Ins., Available in: 500' & 1000'	490'	PVC .134"	20.96 pf/ft, 10.15 Ohms
GT-MCX to GT-BC	871802	2 Cond., 18AWG, Solid, Non-shielded, PE Ins., Low-cap, Available in: 500' & 1000'	490'	PVC .152"	11.05 pf/ft, 6.385 Ohms
GT-MCX to PS-2420UL	871802	2 Cond., 18AWG, Solid, Non-shielded, PE Ins., Low-cap, Available in: 500' & 1000'	490'	PVC .152"	11.05 pf/ft, 6.385 Ohms
GT-MCX to Network Drop	CAT-5e/6	UTP4 non-shielded Category 5e/6 cable (Not Available from Aiphone)	Per Spec	Per Spec	Per Spec

NOTES:

1. The entrance panel(s) provides Form-C dry contacts for door release (normally open or normally closed). The door where communication is established will be released. Door release mechanisms and power for them are not included in this quote.

2. The door release contact is adjustable on each entrance panel from a momentary to a 20 second closure.

3. One GTW-DP has been added to your system for every GT-BC bus control unit. The GTW-DP is a distribution point which, while not required, will increase installation speed and efficiency.

4. One GT-MCX has been added to your equipment list to allow the tenant directory to be programmed remotely.

5. One W-DIN11 mounting rail has been added for each of your adaptors which do not already include them. If adaptors will be shelf mounted, remove that quantity from this equipment list.

DISCLAIMER: This program is designed to provide systems available in the North American market only. Any products listed here are available from authorized Distributors and Dealers in the US and Canada. Aiphone Corporation is not responsible for any variances in the system design between the intent of the user of the QuikSpec program and the information given. This equipment list is a valid system at time of design. This design configuration is valid for 90 days from the time of creation. If your project is delayed beyond 90 days, please generate a new QuikSpec design to assure product model accuracy and availability. For further assistance, contact Technical Support by email or call (800) 692-0200 from 5:30 AM to 4:30 Pacific Time, Monday through Friday.

S. DIVISION 31 - EARTHWORK

1. "Excavation" consists of removal of material encountered to subgrade elevations indicated and subsequent disposal of materials removed. The subcontractor shall be responsible for familiarizing himself with the existing site conditions. Earthwork includes the following:

   a. Excavation and preparation of subgrade for building slabs, curbs, walks, pavements and site improvements included as part of this work.

   b. Dewatering to keep subgrades and excavations dry.

   c. Placement of topsoil and finish grading of lawn areas included as part of this work.

2. Soil Materials - Definitions:

   a. Satisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups GP, SW and SP. (Sand and gravel soil types).

   b. Restricted soil materials are defined as those complying with ASTM D2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH and PT. (Silts, clays and organic soil types).

   c. Subbase Material: Graded mixture of natural gravel, natural stone, crushed gravel, crushed stone, or recycled concrete.

   d. Backfill and Fill Materials: Soil materials free of clay, rock or gravel larger than 2" in any dimension, debris, waste, frozen materials, vegetable and other deleterious matter,

   e. Drainage Course: Clean, free-draining granular soil containing not more than 10%, by dry weight, passing a No. 200 sieve.

   f. Topsoil - Banked: Contractor shall clean existing topsoil suitable for reuse to remove subsoil, clay lumps, brush, grasses, weeds and other litter, and free of roots, stumps, stones larger than one inch (1") in any dimension, and other extraneous or toxic substance harmful to plant growth.

   g. Topsoil - New: Soil shall have a defined granular or blocky structure and shall be free from non-soil material, brick and other building materials and wastes, potential sharps, hydrocarbons, plant matter, roots of perennial weeds and any other foreign matter or material or substance that would render the topsoil unsuitable for use.

3. At building pads, perform excavation to the lines and depths indicated on the plans for foundations at each building site to limit grading to within parcel lines indicated on the Project Drawings. In cases where large rocks or tree stumps are discovered during excavation, report conditions to Architect.

4. Remove vegetation, trees, stumps, vegetation debris, "restricted" soil materials, obstructions, and deleterious materials from ground surfaces prior to placement of fill material. Items removed from building sites shall be removed from the project area and disposed of properly.

5. Contractor to be familiar with the finish grading plan for each building and export excess materials to the soil and topsoil stockpiles in the project as designated.

6. Erosion Control: Erosion control measures installed prior to start of building construction shall be maintained. Additional erosion control silt fence shall be installed between building sites and moved as the project progresses. Each contractor shall be responsible to keep tracked vehicles and wheeled vehicles from removing soils from the project site. Use of mats and temporary gravel parking beds minimize movement of equipment from the project site to minimize carrying soils into roadway and roadway construction areas. Where storm drain inlets exist adjacent to building, maintain inlet protection as shown on project details. Comply with IDEM requirements, with weekly reports by GC.

7. Structure Excavation:

   a. Excavate to the depth indicated on the Drawings unless unsatisfactory conditions are encountered. If such conditions occur, the excavation shall be carried to a depth where satisfactory soil conditions are covered which would provide suitable support for construction. Such additional depth shall be filled with compacted granular fill. The width of such fill shall be, at minimum, twice the footing width.

   b. The trenches for column footings, foundations, areas, pits, etc., are to be dug and formed, level, square and to full dimensions and depths indicated on plans. Excavate to a point not less than 1'-6" outside of exterior foundation line to permit erection of forms.

   c. Grade all floor, walk, and pavement areas to ±1/2" of finish subgrade.

   d. Shoring and Bracing: All excavations shall be properly shored as required to prevent cave-in. Excavation walls should be sloped, shielded or shored in accordance with current Occupational Safety and Health Administration (OSHA) guidelines and requirements.

8. Prevent surface water and ground water from entering excavations and from ponding on prepared subgrades. Reroute surface water away from excavated areas to avoid water accumulating within excavations.

9. Dewatering: Where, during construction, water accumulates at construction site, coordinate with the Owner a location for dewatering operations to occur. In general, water from dewatering pumps shall be directed to adjacent storm water ponds or sediment removal prior to entering storm system.

10. Backfill excavations as promptly as work permits, but not until acceptance of construction below finish grade including:

    a. Inspections, testing, approval and recording locations of underground utilities.
    b. Removal of concrete formwork.
    c. Removal of trash, rubbish and debris.
    d. Installation of drainage tile where shown on the Project Drawings.

11. Slabs on Grade: At building slab on grade, provide prepared subgrade of clean native sand and gravel, free of organic matter. Compacted to uniform density and prepare for specified vapor barrier. See Project Drawings for required thickness of subgrade material.

12. Rough Grading: Work grades to provide for positive surface drainage. Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades. Grade areas adjacent to building lines to drain away from structures and to prevent ponding.

13. Finish Grading: Prior to placement of concrete walks, remove all debris, trash, roots, branches and stones larger than 2" from topsoil materials. Place topsoil around building and correct settlement irregularities to within 1" of final grade. Do not place organic materials where walks are to be poured.

14. Final Grading: Rake site to remove debris, stones, roots, etc., to a minimum depth of three inches (3") in all lawn and planting areas, unless otherwise noted. Remove debris and fine grade smooth. Add topsoil as required to provide base for lawn seeding.

15. Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

16. Remove waste materials, including excess soils, excess topsoil that cannot be spread to levels indicated, unacceptable excavated material, trash and debris, and dispose off-site in a legal manner.

T. DIVISION 32 - EXTERIOR IMPROVEMENTS

1. Landscaping:

   a. Power rake building site and remove remaining surface debris from the project.

   b. Provide additional topsoil around each building to establish final grade.

   c. Grass Seed: Grass seed to be general purpose sun shade/sun blend. Grass seed to be planted after September 1, 2023.

   d. Watering Newly Planted Areas: Water seeded areas at initial planting and at regular intervals following until individual building site is turned over to the Owner. Owner is responsible for watering lawn areas thereafter.

   e. Lawn Repair: At time of building turnover to the Owner, lawn areas shall be inspected for initial growth and coverage. Repair damaged areas and reseed (spot seed) areas where required.

   f. Provide vinyl edging, landscape fabric, mulch and landscape planting as indicated on the Project Drawings at each site. See Site Landscape Plans for dimensions and layout of landscape beds.

2. Splash Blocks and Downspout Connections: At downspouts, install pre-cast concrete splash blocks. Set each splash block firmly into soil materials and set to direct water away from building foundation. Where downspout connections are indicated on Project Drawings, provide transition caps at each downspout and with no more than 6" of drain tile extension.

3. Asphalt Pavement: As shown on Drawings. Asphalt pavement materials shall meet the INDOT Standard Specifications as noted and shall be supplied by an INDOT-certified asphalt plant.

4. Curbs and Walks: Shall be as noted on Drawings. Concrete materials shall have a minimum compressive strength of 3,500 psi. Comply with City of South Bend requirements for size, dimensions, joints and finish. Obtain permits as necessary. Coordinate installation with work being performed by the City of South Bend.

5. Concrete Driveways: Shall be as shown on the Drawings. Concrete materials shall have a minimum compressive strength of 3,500 psi. Saw cuts shall be placed at intervals no greater than 9 feet.

6. Fencing: As shown on Drawings.

7. Exterior Signage: Shall be furnished and installed by Owner. Owner shall also obtain City permit for exterior sign.

U. DIVISION 33 - UTILITIES

1. Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult SBH immediately for directions. Locate the City-provided sewer lateral and adjust sanitary layout to provide the most efficient route to the connection.

2. Utilities:

   a. Water: Provide new 2" type K copper water service to the building. Route water line under footing to meter location. Leave 12" vertical extending above slab and cap line. Provide pressure test with accordance with City of South Bend Water Department. Provide sleeve where copper piping passes through foundation or concrete slab per code.

b. Fire Protection Water Service: Provide 4" ductile iron from the water main to sprinkler riser location. Install double check detector valve. Valve to be supported with wall brackets with drain extending to nearest floor drain.

c. Sanitary: Extend 6" SDR35 PVC from building to sanitary main in the sstreet. Provide two-way cleanout where piping passes through foundation wall. All cleanout caps in lawn areas to be inverted type. Mark cleanouts to protect from damage. All cleanouts shall be lowered to finish grade.

d. Storm Sewer: As shown on the drawings. Storm sewer pipe shall be SDR35 PVC or approved equal. Inlets and manholes shall be precast concrete. All sediment shall be removed from inlets and manholes upon completion of pavement and establishment of lawns.

3. Site Drainage: Shall be as noted on Drawings.