

CONTRACT ADMINISTRATION

01400 QUALITY ASSURANCE / 01560 & 01710 CLEANING

1. The contractor will always have a representative of supervisory level on-site. This individual must be able to communicate site conditions, updates, concerns, and work progress to the Owner's construction field representative (Construction Coordinator).
2. Use adequate numbers of skilled and licensed workmen, thoroughly trained and experienced (at least five years) in the necessary crafts and trades, who are completely familiar with the specified requirements and methods needed for proper installation and performance of the work as specified herein.
3. No work will be sub-contracted to any other party unless all specifics are noted in writing and meets the requirements set forth in HUD's Construction Administration Guidelines and terms noted in this project's Scope of Work (SOW); with the Authority giving approval in writing.
4. Federal Section-3 regulations will apply.
5. All contractors must have the appropriate State contractor's license, City of Hampton business license and a minimum coverage of \$1,000,000 per occurrence liability insurance policy. In addition, any contractor parking a vehicle on the Authority's property (no vehicles or storage units will be allowed on grassy lawn areas without written permission) must have similar automotive liability insurance coverage. Furthermore, any contractor that obligates work with the Authority is required to participate and operate with workman's compensation insurance.
6. Comply with all applicable codes and regulations of governmental agencies having jurisdiction over the work of the project. To include all permit costs, fees and inspections. The project will always be within OSHA and EPA guidelines.
7. Contractors in relation to their work must monitor quality control over suppliers, manufacturers, products, services, site conditions and workmanship; to produce final work as specified to professional quality within industry standards.
8. Comply fully with manufacturer's instructions for storage, installation and operation of products.
9. Comply with specified standards as a minimum quality for the work except where more stringent tolerances, codes or specified additional requirements indicate higher standards or more precise workmanship.
10. Any discrepancies between the specifications and the actual conditions shall be brought to the attention of the Authority (Contracting Officer), prior to commencing work. Any structural difficulties preventing the contractor from installing Us materials properly will be promptly brought to the attention of the Authority by the contractor, so a resolution (in writing) may be made.
11. Site & Structure: The contractor will be responsible for their own tools, equipment and the securing of materials when on-site. The Authority will have a dumpster and chemical bathroom

facility on-site (within 300' of project), the contractor will utilize these or be responsible for making their own arrangements.

12. Always maintain the site in a neat and orderly condition. Any debris that may become airborne or may have the ability to leave the work area may need to be disposed of more often than daily.
13. Daily inspect the structure, work sites and storage areas; pick up all scrap, debris and waste material and remove them to the place designated for their storage.
14. Prior to the start of work and upon completion of work, sweep clean with a hand-held broom all staging and storage areas.
15. "Clean" for the purpose of this specification shall be interpreted as meaning the level of cleanliness generally provided by skilled craftsman using quality assurance and control standards as established in the RS Means "Residential & Light Commercial Construction Standards".
16. The contractor will be required to remedy to the Authority's satisfaction any damage to their property (building), to include Landscaping.
17. Prior to completion of the work, remove from the job site all tools, surplus materials, equipment, scrap, debris and waste.
18. Visually inspect all surfaces and remove all traces of soil, waste materials, smudges and other foreign matter. These surfaces include but not limited to; all siding, posts, flooring, baseboards, casings, doors, walls, etc.
19. Remove smudges, droppings, spots, stains and dye from finished surfaces caused by the installation or completion of the contractor's work if appropriate control measures are not taken or maintained.
20. Remove all debris and packaging from the job-site area.
21. All dust, noise and odors caused by the work shall be kept to a minimum.
22. Smoking in the existing facility, including the project's site area is prohibited. All HRHA owned property is deemed a No Smoking area.
23. The contractor may be required to attend a weekly meeting with the Director of Construction to review status and workmanship.
24. All work must be to the Authority's satisfaction and accepted before the contractor may invoice for final payment.
25. It will be the Contractor's sole responsibility to resolve to the Authority's and any other contractor's satisfaction for any claims against them for causing damage to any of the existing property. It is to the contractor's advantage to document all occurrences, pre-existing damage and site conditions.

26. It is the Authority's intention that the Contractor shall use existing utility services (including electrical and domestic water) for the renovations of 517 Smiley Rd. However, the Authority accepts no responsibility for supplying the contractor any utilities and any related costs for such replacements (reference generators & water trucks). The contractor should investigate the actual construction site to field verify the actual conditions prior to submitting a total lump-sum cost bid proposal.

END OF SECTION

02220 FOOTING TRENCH, EXCAVATING, BACKFILLING AND GRADING

1. Work to consist of:
 - a. Excavating, backfilling and grading to the lines, grades and elevations as specified on the drawings and as indicated herein.
 - b. Installing culverts as required by the plans or by code restrictions.
 - c. Scheduling and coordinating inspections as required. Work to include all necessary work required by the Land Disturbance (Erosion and Soil Control Measures) permit and as shown on the lot site plan, such as storm drain inlet protection, silt fencing and temporary driveways. (As applicable to Work Proposal}
 - d. Locating all utilities, including sanitary sewer and water lines.
 - e. Where required, cutting curbs and placing new apron to provide for driveway access as shown on the drawings. Remove and replace any damaged sidewalk.
 - f. Initiating work order to locate all existing utilities.
 - g. Providing adequate protection for existing street and curbs. If damage is incurred, contractor will be responsible for repair at no additional cost to the Authority.
 - h. All grading must drain water to a maintained storm water drain inlet; water may not drain to an adjacent property. (Note: all stormwater drainage work required on the Development Site Plan.}
 - i. Ordering and coordinating stone and culvert deliveries.
 - j. Constricting construction temporary driveway if required (filter fabric base with 2" to 3" aggregate stone.
 - k. Hauling excess fill in or out of job site if required.
 - l. Establish a 1% minimum lot grade (or as noted on the lot's site plan), that will drain water away from home and away from adjacent properties — toward street's storm sewer system.
 - m. Provide backfill and level grading to any trenched areas that were created for water, sewer, utility lines and other conductors as required.
 - n. Establish swales as necessary to ensure that water will drain away from home (the grade at home should be 6" higher than grade 10' from the house.
 - o. Installing footing to dimensions indicated by plans and/or owner, to include the placement of specified concrete.
 - p. Excavation will include the removal of root systems and or stumps that in the direct path of the footing or may exist within the home's parameter.
2. Excavating: (Miss Utility to be contacted prior to any excavating)
 - a. Excavate topsoil and stockpile in area designated on site.
 - b. Excavate subsoil required for building foundations, construction operations and other work as required will meet all code requirements.
 - c. In excavating for footings, slabs and foundations, take care not to disturb bottom of excavation. All work must be approved by the City's inspection office, prior to any placement of concrete.
 - d. Excavate and backfill in a manner and sequence that will always provide proper drainage.
 - e. Protect active utility lines. If damaged, repair or replace at no additional cost to the Authority. If existing utilities are found to interfere with the permanent facilities being constructed, immediately notify the Authority and secure his instructions.
 - f. Where rocks, boulders, granite or similar material is encountered (to include any abandoned in place utilities), remove such material by means which will neither cause

- additional cost to the Authority nor endanger buildings or structures on or off the site.
- g. All footing trenches will be established to Code requirements; normally a square base 12" below the frost to adequately compacted soil base. The width will be 24" minimum or oversized to ensure a 4" minimum perimeter of concrete around all masonry work (to include any brick stair areas). All pier footings will be continuous.
3. Backfilling: All work for preparation of foundation and garage/driveway slabs will meet all code requirements. Backfill excavations promptly or as the progress of the work permits. Backfill will be completed to a smooth (raked) and level grade. The backfill should be established to a height of 6" greater than the projected height of the lot's final finished grade. The backfill will be established to insure a minimum of 12" of clearance at the drop girder and at least 21" of clearance for the floor joists.
- a. Fill and backfill materials: The remaining mason's sand and dry fill sand may be used for backfilling within the foundation's perimeter. See the landscaping requirements for backfilling outside the foundation's perimeter.
 - i. Provide soil materials free from organic matter and deleterious substances, containing no rocks or lumps over 1 1/2" in greatest dimension. (Fill sand is preferable).
 - ii. Where and if shown on the Drawings or otherwise required, provide topsoil consisting of friable, fertile soil of loamy character, containing an amount of organic matter normal to the region, capable of sustaining healthy plant life, and reasonable free from subsoil, roots, heavy or stiff clay, stones larger than 1 inch in greatest dimension, noxious weeds, sticks, brush, litter and other deleterious matter.
 - b. Ensure foundation drainpipe is installed and extended to daylight prior to backfilling.
 - c. After all backfilling has been completed and before the framing foundation box is installed a soil poison treatment will be applied and a certification letter provided by the vendor.
4. Grading:
- a. Uniformly grade the areas to the lines and elevations on the site plan.
 - b. The grading and finished landscaping will ensure that no standing water or ponding is occurring on the lot.
 - c. Grading and backfill will be necessary around any raised elevation concrete slabs and the masonry foundation. All grading must be approved by the city for the final Land Disturbance inspection.

END OF SECTION

02520 PORTLAND CEMENT CONCRETE PLACEMENT/PAVING

The contractor will supply the Authority an all-inclusive lump-sum bid proposal to include all materials, labor, tools and equipment to complete the project as per industry standards set-forth by the national Concrete Masonry Association (NCMA) and be local Code complaint to IRC 2018 Standards. The bid will not allow for unit costs and cubic yard rates. The contractor may supply a proposal for just the; 1) Driveway Apron work, 2) Footing work (house foundation) or 3) Walkways & Driveway. If the contractor chooses to bid on all work, the bid proposal must show an individual cost for each function as work will be completed at different times with the possibility of multiple contracts being awarded.

1. Provide Portland cement concrete foundation footing (brick steps), porches (ramps), driveway, deck footings, walkways where shown on the drawings (lot's site plan & house's foundation plan), as specified herein, and as needed for a neat, complete and proper installation.
All work to meet local code requirements and be of a satisfactory quality for the Authority's acceptance. Contractor will be responsible for any/all necessary inspections and related fees (footing, curbing & apron). The Authority has already acquired the Land Disturbance Permit (if applicable), Right-Of-Way Permit and the Building Permit. The Authority will inform Contractor if any permits are required, but the Contractor is responsible for calling-in all inspections and paying for any additional inspection fees.
Form design and layout will correspond with the site plan unless given written approval to deviate by the Authority.
Any exterior (rear/side) doors will have a 3' x 5' x 4" slab installed.
2. Forms:
 - a. Provide wood or metal formwork profiled to suit conditions, including adequate bracing to the lines and grades shown on the drawings. All debris (temporary driveway) removed while excavating for the driveway will be removed from the site.
 - b. Earth forms will not be permitted for paving. Concrete work should have established grades to ensure water drainage to a maintained storm water drain inlet (contractor is responsible for establishing grade). The contractor will not place concrete without establishing the proper elevation.
3. Sub-base: Aggregate with maximum size 3/4", 4" thick, compacted to 95% or local code requirements. Footing to be a minimum thickness of 8".
4. Provide concrete with the following characteristics:
 - a. Compressive strength at 28 days: 3,500 psi.
 - b. Thickness: 4" or as required by local code. (Check local code requirements for driveway apron)
 - c. Slump: 1 - 3 inches maximum.
 - d. The use of additives that accelerate the time for reaching full strength, such as; High Early Strength Portland cement may only be allowed per the manufacturer's strict recommendations.
 - e. Chemicals added to mix, such as calcium chloride, which acts as a drying agent and decreases setting time for pouring in cold weather may be used per the manufacturer's strict recommendations. However, at no time will anti-freeze (liquid) be allowed to be added to the concrete.
 - f. Saw cut or score every 100 s.f.
 - g. Other chemicals that increase the curing time may only be added according to the manufacturer's strict recommendations. Apply spray-on curing compound to reduce

- possibility of spalling.
- h. Concrete is to only be placed in footings will properly compacted sub-bases (to include front and rear porch areas).
 - i. All porch areas and walkways will have control joints every 5' and expansion joints every 20'.
 - j. Driveways will have 6 mil poly and galvanized wire installed prior to concrete placement. Expansion joints will be installed every 20'.
 - k. Aprons and Curbing will be installed per Code requirements and any additional work deemed necessary by the City (Public Works).
5. Provide welded wire fabric: No. 10 welded wire mesh, plain type in coiled rolls, unfinished. Insulate according to code requirements.
 6. Finishing:
 - a. Float to produce a surface level within 1/4 inch in 1 foot or the appropriate local code.
 - b. With a bristle broom produce a textured medium finish on all exterior walks and driveway. Front and Rear Porches if applicable) is to have exposed aggregate concrete (buff) finish.
 - c. When placing concrete in cold weather, the poured concrete must be protected from freezing. Concrete that freezes prior to curing will never achieve its full strength or retain a proper finish. The Contractor will remove and replace concrete at no extra charge to the Authority.
 - d. Pouring concrete on hot and dry days will evaporate essential water used for the curing process before it has a chance to set. Additional water will not be allowed into the mixing, as the concrete's mixture will be compromised. Defects in the concrete due to hot and dry conditions will result in the Contractor removing and replacing the concrete at no extra charge to the Authority.
 7. Beginning immediately after placement, protect concrete from premature drying, excessively hot or cool temperatures and mechanical injury.
 8. If water stands or ponds on any exposed concrete, the Contractor will remove and replace concrete at no extra charge to the Authority.
 9. The owner will not accept any concrete that has cracked, flaked (spalling) or is in any process of the two.
 10. Any damaged sidewalks (existing) will be repaired. Contractor is to protect the home's existing condition, any splatter is to be cleaned from such surfaces of; brick, siding, doors, etc., to the Owner's satisfaction.
 11. Warranty: The contractor will supply the Authority a written warranty on all workmanship for a 2 year period. It will be sent with the final payment invoice.
 12. Scheduling: This home is being built utilizing the critical path method, where maintaining the construction schedule is mandatory. The concrete work will be separated into two phases: the footing work will one of the very first construction tasks, and the driveway and walkways will be one of the last construction tasks. The contractor will have 5 workdays to start actual work on this project's site after being notified by the Authority of the mutually agreed upon Notice to Proceed date. All contracted phased work will be completed within a 5-workday duration.

See Section 02220 Footing Trench, Excavating, Backfilling and Grading: for additional pertinent specifications.

END OF SECTION

02950 LANDSCAPING

Landscaping Contractor will provide the Authority a total lump-sum bid proposal that includes all materials, labor and equipment to complete a neat and professional project as specified herein. A project site-plan is attached to aid in estimation.

1. It will be the contractor's responsibility to clear the lot of debris/trash to provide a clean and neat finished lawn.
2. As the project's Land Disturbance Permit was issued in the Authority's name it will be the contractor's responsibility to obtain the final inspection's approved/accepted status for permit close (if applicable). All work must meet State and Local Code requirements for storm water drainage. Note: If no paved drains, easements or yard inlets exist adjacent to the rear yard area, all water must drain through the front yard area to the City sewer system while inswing the final grade is 6" higher at the house's foundation perimeter than the lawn's grade height at a distance of 10'; unless specific drainage work is noted in the approved Site Development Plan with elevations and easements.
3. All Erosion and Soil control devices must be maintained (not removed), until written permission is given by the Local City Inspector, for all final work to be completed.
4. Determine the location of all underground utilities and perform work in a manner which will avoid any possible damage. Hand excavate, as required.
5. It is recognized that the contractor will have to clean and place a final grade on the lot. It will be the contractor's responsibility to calculate the amount of fill needed to meet all code and drainage requirements. However, there will be a minimum 2" thick layer of topsoil (debris free — screened to 1/2") over the entire lot.
6. After final grade is achieved, a fine grade to site is to be completed to have an even and smooth uniformly loose texture. Roll, rake and drag planting areas, remove ridges and fill depressions, as to ensure no ponding (no standing water on site).
7. Moisten planting areas (to include grass lawn) before planting if soil is dry. Water thoroughly and allow moisture to dry before planting. Do not create a muddy soil condition.
8. Provide trees, plants and ground cover, as specified herein. The actual location of plants and beds will be specified by the Authority. The contractor will supply all materials, labor and tools to provide a complete and proper installation.
9. Plant trees and shrubs after final grades are established and prior to planting of lawns.
10. Provide a full one-year warranty (in writing) for grade, lawn, plants and trees, including all necessary labor and equipment. Warranty will be provided with payment invoice.
11. Replacements: Plants of same size and species as specified. If seasonal weather conditions do not allow planting to occur, planting will occur in the next growing season (noted in writing), with a new warranty commencing on date of replacement.
12. Provide by spreading and mixing a commercial granular slow release balanced 10-10-10 fertilizer delivered to the entire site at a rate of 1 pound per 1,000 square feet, prior to any other lawn planting or seeding.
13. Provide peat moss as a soil amendment (backfill) for all planting that meets Q-P-166E Federal specification's standards.
14. Planting procedure for all shrubs and trees will include the addition of tightly compressed, long lasting, slow-release fertilizer tablets manufactured expressly for placing in the root zone of plants and providing not less than 20 percent total nitrogen, 10 percent available phosphoric acid, and 5 percent soluble potash.
15. When setting and planting stock — excavate hole to a depth that ensures that the top of ball is the

same elevation as the adjacent finished landscape grade. Ensure that pit is larger enough for a minimum of 2" of peat moss backfill will be added to sides and base. The pit will be filled to a 2/3 full depth with water and allowed to dry before placing stock. Water again after planting stock in the center of the pit, backfilling and placing the final layer of topsoil.

16. After planting trees (tall accent shrubs), guy and stake immediately, as required.
17. Mulch (hard wood free from deleterious materials): Provide standard size ground bark chips 1/4 inch to 1 inch in size, mill-run chips or other shredded material approved by the Owner. This product will be an Organic Dyed (Dark Brown) mulch, with a MSC Certification Logo to ensure that it is free of CCA-treated wood and is safe for handling.
18. A Weed Barrier Fabric will be installed under all areas where mulch is to exist.
19. All new trees are to be mulched for a 3' trenched circle to a depth of 5". The existing trees to be mulched in the same manner but to a 5' circle.
20. All existing trees are to have four fertilizer stakes installed at the tree's canopy drip line.
21. Mulched beds will be created around shrubs, plants and walkways, and on the home's front elevation, with final location and design determined by the Authority (field verification will be necessary).
22. Any existing grassy lawn area that is undisturbed/unchanged and has an appropriate grade, will still be aerated, fertilized and over-seeded. It may be necessary for the contractor to initially mow this area, prior to any other work.
23. Do not use wet seed or seed that is moldy or otherwise damaged. Sow seed using a spreader or seeding machine. Do not seed when wind velocity exceeds 5 miles per hour. Distribute seed evenly over the entire area by sowing equal quantity in 2 directions at right angles to each other. Rake seed lightly into the top 1/8" of topsoil, roll lightly, and water with a fine spray. Sow not less than the quantity of seed specified as per schedule.
24. Straw will be applied at the time of seeding and be raked clear after 30 days. At which time, the contractor should re-seed thin areas where germination did not occur. The seed should be lightly raked and covered with 1/4" of peat moss.
25. Grass Seed Schedule: Provide fresh, clean grass seed which is free from noxious weed seeds; new-crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America, select certified seed; the blend used will ensure lawn establishment throughout the year.

Provide a blended seed mixture composed of the following grass species and proportions; 40% Tall Fescue, 30% Perennial Ryegrass and 30% Bermuda grass. Hulled seed rates should be based on the following rates; Bermuda — 1 / lbs. per 1,000 sf., Rye at 2 / lbs. per 1,000 sf. and Fescue at 5 lbs. per 1,000 sf.

Acceptable brands are as follows:

Bermuda grass varieties include Blackjack, Continental, Mohawk, Princess, Rivera Savannah, Southern Star, Sundevil II, Transcontinental, or Yukon.

Perennial Ryegrass varieties include Accent, Affirmed, Applaud, Blazer IV, Brightstar, Brightstar II, Caddieshack, Calypso II, Scharismatic, Churchill, Cutter, Divine, Exacta, Extreme, Fiesta 3, Gallery, Headstart, Imagine, Inspire, Laredo, Mach I, Majesty, Manhattan 4, Monterey II, Nexus Omega 3, Pizzazz, Prelude III, Premier II, Prizm, Prowler, Quickstart, Racer II, Stellar Top Gun, or Wind Star.

Tall Fescue varieties include Kentucky 31, Alta, Rebel, Olympic, Kenwel or Bonsai.

26. Watering: The contractor will saturate each annual, plant, shrub and tree with water at the time of planting. The contractor will ensure that the lawn has been sufficiently watered at the time of the seeding. The contractor will be responsible for supplying the water and all necessary equipment to ensure that the first watering application has been supplied to aid in germination, growth and root development.
27. Maintenance: The contractor will be required to maintain that the mulched planted areas remain weed & grass free for the initial 30-day period. In addition, the contractor will be responsible for all watering duties during this period to insure the establishment of the lawn. The contractor will mow grassy areas, edge concrete surfaces and the home's foundation to insure a neat, clean and professional landscaping project.
28. Schedule - Plant List: Provide trees, shrubs, and other plants of size, genus, species, and variety as indicated for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock".
The Authority will make final selections (based upon availability — with Nursery confirmation) from equal-to substitution submittals provided by the Contractor.

Quantity 8 – Broadleaf - Encore Azalea (@ink,purple,white,red) slow growth / 3 gallon

Quantity 6 – Broadleaf- Barberry Royal Burgundy -moderate growth / 1 gallon

Quantity 1 – Tree - Crape Myrtle (red/purple/pink) — 5'/6' — 5 gallons

Quantity 15 – Perennial - Day Lilly (white)

Quantity 15 – Annual - Begonia (color as available) - spring & summer planting season

- Pansy (color as available) — fall & winter planting season

29. Scheduling: The Authority is constructing this home utilizing the Critical Path Method and must adhere to a strict construction schedule. The contractor will have 7 calendar days to start work on the jobsite from a pre-established mutually agreed upon Notice to Proceed date (in writing). All contracted and specified work will be completed by the contractor within 7 workdays (duration). The contractor may invoice 95% of his lump- sum contract after achieving all applicable code approvals (documented) and the Authority has accepted the final product. The contractor may invoice the final 5% (retainage) of the contract amount after 30 days (where site has had necessary landscaping maintenance tasks completed along with the additional lawn establishment).

See Section 02220 Footing Trench, Excavating, backfilling and Grading: for additional pertinent specifications.

END OF SECTION

06100 ROUGH CARPENTRY

1. The contractor/framer; as specified herein will supply all labor, tools & equipment and misc. incidentals as needed for a complete and proper installation (including nails/fasteners for nail guns). All framing will be in accordance with local building codes, ordinances and regulations; it is the framer's sole responsibility to obtain a passed/approved/accepted framing inspection status. The framer may bill/invoice for up to 90% of his contracted proposal bid amount at the time of work completion (accepted by the Authority), no draws or other partial payments will be allowed. The framer may bill for the final 10% retainage once the framing inspection is obtained or approved according to local code requirements. Furthermore, the framer will be provided a material cut list. The framer may be required to replace lumber at his own expense, due to his mistakes, excessive waste and deviations from the cut list. The framer should notate all pages of the blueprints and specification herein for pertinent information. As noted earlier; all work must be code complaint, but the Authority has noted specific construction details that are more restrictive (see wall & porch detail and specifications herein) and must be followed. Good framing practices must be followed at all times: to include but not limited too; nails heads should be driven to dimple wood surfaces but not penetrate, all joists/beams/headers/rafters will be crowned up, all wall studs crowned the same for an uniform appearance, and an OSHA safe work-site maintained at all times. This project will be completed in a neat and professional manner to building standards set forth by the National Frame Builders Association (NFBA) and American Society for Testing and Materials (ASTM). Contractor must follow all details and notes on plans, such as: construction technique and materials, wind shear and wind up/download requirements. Finally, the Authority will arrange for all materials to be delivered (and dropped at) the site by the supply vendor (including trusses) — it will be the contractor's sole-responsibility to make any arrangements for (such as cranes, boom trucks, fork-lifts). Furthermore, the framing contractor must set (install) all windows and doors the same day as delivery to ensure no loss is incurred due to theft.
2. Lumber Materials: Use lumber, S4S, S-Dry unless otherwise indicated, grade marked complying with the following requirements:
 - a. Girder (Drop) Framing: 3 - 2" x 10"
Species: pressure treated pine (PT / ST)
Grade: 2
 - b. Joist framing: spacing and size as shown on drawings or required by local codes; Header (Rim/Perimeter) and End Joists (Band) will be pressure treated. All End Joists will be doubled to avoid wall roll-over. All 1st floor walls that run parallel to the joists will have an additional joist laid out under them (see plans).
Species: Pine
Grade: 2
 - c. Rafter framing: (Porch roof system and eave extensions) spacing and size as shown on drawings.
Species: Pine
Grade: 2
 - d. Trusses (as Applicable): to be provided by owner and laid out according to the Engineered Truss plans.
 - e. Studs (2-4 inches thick, 2-4 inches wide, 10 feet or shorter): "Stud" or No. 2 Structural Light Framing grade. Studs should be used as wall support members. Note: the plans

notate specific locations for designated plumbing walls, where 2" x 6" material will be cut and utilized as load-bearing studs.

- f. Plates (2-4 inches thick, 2-4 inches wide, 10,12,14,16 feet) Light Framing grade. Three plates to be used, top/cap plates should be doubled and inter-locked at wall intersections. Note: in specific locations, plumbing walls are notated and 2" x 6" material must be utilized.
- g. Non-structural light framing: Standard grade or better. No utility grade.
- h. Concealed boards: Standard grade (2).
- i. Sill boards (mud sill): Pressure treated (2" x 8"). Sill seal (5 /") will be applied between the mud sill and the top/cap course of the masonry foundation.
- j. Structural light framing: No. 2 or better.
- k. Lumber for misc. uses: Unless otherwise indicated, use standard grade lumber for support of other work, including bucks, nailer, blocking, furring, grounds, strapping and similar members.
- l. Pressure treated lumber: pressure treatment: AWPA Treatment C, using waterborne preservative with 0.25 percent retainage, rated for specific use as noted on the Drawings.
- m. Engineered Lumber: LVL's and/or glulam lam beams will be provided as noted in plans and must be installed per plans, codes and the manufacturer's instructions.

3. Other wood materials:

- a. Sheathing Materials
 - i. Oriented Strand Board (OSB) /" x 4' x 8' sheathing (all walls/bracing): Use APA rated, PS-1 or APA PRP-108.
 - ii. Particleboard: Exterior Type 2-M. (Impregnated sheathing on non-heated gable elevations only).
- b. Subflooring: APA rated plywood sheathing, exterior grade. (OSB 3/4" tongue and groove)
- c. Roof sheathing: APA rated plywood, exterior grade. (OSB 1/2") Truss H clips will be utilized on any sheathing spans over 16".
- d. Underlayment:
 - i. APA rated underlayment, exterior; or
 - ii. Particleboard, oriented strand board, waferboard or structural particleboard, with waterproof resin binder.
- e. Wall sheathing: all walls to be sheathed in 1/2" OSB or CDX plywood. All walls to be wrapped with Tyvek house wrap.
- f. Gables: may be covered with 1/2" impregnated sheathing (Tyvek need not be installed to non-heated areas except garages).

4. Fasteners and anchors:

- a. Screws and Nails: Galvanized steel for exterior, high humidity, and treated wood locations. Plain finish elsewhere.
- b. Joist hangers: Galvanized steel, sized to suit framing.
- c. Anchors: (see specific materials as noted on the plans)
 - i. Hollow masonry: Toggle bolt.
 - ii. Solid masonry or concrete: Expansion shield and lag bolt.
 - iii. Steel: Bolt or ballistic fastener.

5. Other materials and tasks:
 - a. Sill gasket on top of foundation wall: Glass fiber strip, width equal to plate dimension (Sill Seal 5 1/2").
 - b. Sill flashing: Galvanized steel or aluminum. (Pressure-treated lumber only).
 - c. Subfloor glue: APA AFG-01, solvent base, waterproof. Glue will be applied to all floor joists.
 - d. Building paper: The framing contractor will dry-in the roof utilizing roofing felt-paper. No. 15 asphalt felt maybe used on roof pitches 5, 6, 7 & 8 / 12 all other pitches to use 30 lb. roofing felt/building paper.
 - e. Termite shield: Galvanized sheet steel or aluminum if applicable.
 - f. NOTE: the framing contractor is not responsible for building the rear deck, front porch — flooring, decorative columns/posts, handrails and front steps. The contractor will be required to build/place load-bearing porch posts (attached as noted on plans), beams, and the entire porch roof system (to include any necessary cornice).
 - g. Air infiltration barrier: The framing contractor will wrap the entire house utilizing 9' x 145' rolls of house wrap.
Mfr: Tyvek; Product — House wrap: No 12" window wrap will be necessary due to the Tyvek whole house wrap. Contractor to make an X cut in the door/window opening and fasten the flap.
 - h. Catwalk: framer will install in the attic (1/2" x 4' x 8' on both sides of attic access opening) in addition the framer will complete the catwalk with 2' ribs (1/2" OSB) running the remaining length of the house's attic. The sub-floor sheathing will not be anchored directly to the ceiling joist material but furred-out in a box structure utilizing 2" x 6" material.
 - i. The framing contractor will completely cornice the house as noted on the plans utilizing the material noted on the cut-list and delivered to the site. Such components may include but not limited to: fascia, soffit, rake boards (furred-out with 1" x 4" spacer boards), dog-ears, returns, pigeon ledges, beauty bands/ribbons, etc.
 - j. The framing contractor will set/install all windows and exterior doors.
6. Installation:
 - a. Main stack plumbing walls to be 2 x 6 (as noted on plans).
 - b. All joists to be headered off, where required for plumbing.
 - c. All walls to be installed plumb, square and true.
 - d. All joists to be installed with crown up, level and true. A joist will be installed under all parallel walls.
 - e. All floor sheathing to be glued and nailed.
 - f. Air barrier installed in accordance with manufacturer's instructions.
 - g. All exterior (all floors) and first floor (interior) wall headers to utilize 2" x 10" material (see wall detail) dimension as a minimum. (Note the header height on plans) Specific openings will notate any deviation for span and load concerns.
 - h. All interior second floor wall headers to utilize 2" x 6" material (see wall detail) dimension as a minimum. (Note the header height on plans)
 - i. All exterior walls will have double joist support (end joist and floor joist).
 - j. All joists spanning more than 8' will have center 1" x 4" cross bridging.
 - k. All walls will have studs on 16" centers. Studs should be kulled, especially in rooms

where chair rail is to be installed to insure straight walls.

- l. All second-floor joists will have center/fire blocking (2" x 10") installed over wall locations.
 - m. Only 2" by material will be used for drywall nailers, blocking or support.
 - n. All barge rafters (roof overhangs) will be supported by the overhanging ridge board and notched 2" by blocking at a distance of no more than 4'. The blocking will be notched for a smooth surface below the roof sheathing and have the load supposed by at least two rafters or trusses. A block nailed directly to the gable will not be allowed. An overhanging rafter which is supported by the roof sheathing will not be allowed.
 - o. A 2" x 4" laid flat and attached to every joist (strong back) will be installed the full length of the house in at least three locations (evenly spaced) to ensure trusses/joists are properly aligned.
 - p. A 2" x 4" laid on edge and attached to the strong back & every joist (hog trough) will be installed on the two outer strong backs to ensure that ceiling is flat and level.
 - q. All knee walls and gables are to be braced according to local codes including any wind restrictions.
 - r. The framer will be responsible for all notes on plans — especially in the areas of wind shear and uplift requirements.
 - s. The framer will note window & door opening sizes on the plans, reference the window & door schedules on the plans and finally confirm the opening size requirements with the Authority (as the actual suppliers may have slight deviations).
 - t. The framing contractor will raise framed walls - (square / level / plumb) and then secure and brace walls (installing cap plates to the top plates) — layout and install ceiling and/or 2' d floor joists. The exterior wall sheathing will be installed after all exterior walls have been set and secured. The OSB panels will be attached utilizing code complaint fasteners with the appropriate spacing, with the first run being run horizontally at the base of all walls (bottom edge flush with the bottom of the mud sill plate). All other course runs will have the OSB panels run vertically (this panel will attach to 1st and 2nd floor walls — if applicable) and act as additional wind load support.
7. Scheduling: This home is being constructed utilizing the critical path method where maintaining the construction schedule is critical. The contractor will have 3 days to start work on the project's site after being notified by the Authority of a mutually agreed upon notice to proceed date. The contractor will have 15 workdays (duration) to complete all contracted work.
8. Warranty: The contractor will provide the Authority (in writing) a complete full 2-year warranty on all labor and workmanship.

END OF SECTION

SECTION 06200 - FINISH CARPENTRY

PART 1 - GENERAL - The contractor will provide all labor, tools and equipment (including nail gun fasteners & glue) to complete a quality project. The trim carpenter is expected to install all Standing Trim; hang/install interior doors, install trim (casing and such) in the areas noted in specs, trim; all windows, staircase/steps, cased openings, etc. The trim carpenter is also expected to install all necessary Running Trim, to include but not limited to; baseboard, crown mold, chair-rail, and shoe mold. The contractor will also install all locksets/hardware, door stops and shoe molding after the vinyl flooring has been installed.

All work shall meet standards for material and workmanship for molding installation described in the recommended methods provided in the publication Architectural Woodwork Quality Standards. All work is to provide a finished appearance to the installation of doors, windows, stairs and other features of a structure's interior.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- a. Lumber Standards: DOC PS 20 and grading rules of inspection agencies certified by American Lumber Standards Committee Board of Review.
- b. Softwood Plywood: DOC PS I.
- c. Hardwood Plywood: HPVA HP-I.

2.2 STANDING AND RUNNING TRIM

- A. Interior Trim: eastern white pine or sugar pine and clear or finger-jointed kiln-dried. Any pine or poplar trim may be finger-jointed; however, any specified Oak trim must be clear/solid.
- B. Wood Molding Patterns and Profiles: Virginia Molding and Millwork Company Inc., Empire, and/or specified vendor.
 1. Base Board: (620) - 9/16" x 3 1/4" - Colonial style, ogee base.
 2. Casing: (445) — 11/16" x 2 1/4" - Colonial style, beaded-edge casing.
 3. Stop: (888), 3/8" x 1 1/8" — Solid.
 4. Shoe Mold: (127).
 5. Crown Mold: (80), 9/16" x 4 5/8".
 6. Window Stool: (1021), 11/16" x 5 1/4".
 7. Wall Rail: (240) - 1 1/4" x 2 1/4" - poplar.
 8. Handrail: (6010) — 2 1/4" x 2 3/8" or (6210) — 2 5/8" x 2 3/8" — Non-Plowed — Poplar.
 9. Baluster: 1 1/4" x 1 4 x 34", 38", 42" — colonial style — square bottom / pin top (6" square bottom & turned tapering top) — primed Poplar P.
 10. Newel Post: 3 1/4" x 3 1/2" x 48" — starting interior — (17" square bottom block, 23" turned middle, 5" square top block & 2 5/8" mushroom top) — poplar.
 11. Rosettes: round 4 1/2" - Solid Flush Face (staircase use) -Poplar.
 12. Cove: (I00) — 11/16" x 1 1/16" (skirt board cap) - Pine A.
 13. Landing Tread: (1060/8090) - 1 1/16" x 3 1/4" - Bull-Nosed - Pine.
 14. Riser Board: 1" x 8" - White Board — Pine P. (Cut & Ripped to required dimensions)
 15. Skirt Board: 1" x 12" - Spruce P.
 16. Mullion: (95S) 3/8" x 1 1/2" - colonial beaded style - Pine P.

- C. Shelving: heavy-duty white metal. (Will not be installed as part of the interior trim, but as part of the bath accessories and mirrors).

2.3 STAIRS & RAILINGS

- A. Interior Treads: Install specified Stair Landing Treads per Code requirements and dimensions set forth by the framer's stair stringer - make alterations if necessary to ensure that they are level, plumb and secure; with a minimum depth of 10" (deviations of extremes to be less than 3/8"), with the factory radius nosing to extend between 3/4" to 1 1/4" past solid riser (deviations of nosing projections cannot exceed 3/8").
- B. Interior Risers: Install specified Stair Riser boards per Code requirements and dimensions set forth by the framer's stair stringer - make alterations in necessary to ensure that they are level, plumb and secure; with a maximum height of 7 3/4" (deviations of extremes to be less than 3/8").
- C. Handrail: Install Wall-Rail (Right side of stairway - standing at bottom & facing up) — wrap around wall at mid-landing and proceed to the top of wall, for a continuous stairway handrail using the specified Wall Rail material, as one continuous solid piece utilizing a minimum of 4 hangers brackets {Finish: Bronze} (bottom piece to be laid out in a manner where all three screws are to be secured to a stud). Handrail height shall be no less than 34" and no more than 38" above the sloped plane adjoining the tread nosing. Handrails with extend as a minimum from a point vertically above the first riser to a point vertically above the last riser. All railing to return into the specified wall-mounted Rosette Blocks. A section of handrail will span the top landing that overviews the Foyer (utilizing end rosette blocks and balusters pin mounted to a customized landing tread.
- D. Skirt boards are to be installed full length and on both sides of the stairway, they will be cut back flush on ends and capped as not protrude above the baseboard. The skirt board will also be topped/capped with the specified Cove mold.
- E. Attic Access: To be trimmed with I x material and casing to match casing used in home and / Finish Grade Plywood used for panel.

2.4 MISCELLANEOUS ITEMS and MATERIALS

- A. Fasteners for Exterior Finish Carpentry: finish steel nails, 4d, 6d, 8d 8 16d sized as needed.
- B. Contractor may use power nailer or nail gun; nails and/or staples, sized as appropriately needed for each specific use. Contractor to supply all fasteners as part of their lump-sum total bid proposal.
- C. Contractor to supply all necessary glue, caulk, putty and/or wood filler to complete a neat and professional job that meets all industry standards.
- D. Doorstops to be hinge mounted whenever possible and practical, when unable a spring style unit to be used, mounted to the baseboard. (Finish: Bronze)

2.5 INSTALLATION

- A. Condition finish carpentry in installation areas for 24 hours before installing. Kull material, installing damaged material will not be accepted. In addition, any damage to material caused by installation will also need to be addressed (wood putty/caulk, sand or replace).
- B. Prime and back prime lumber for painted finish exposed on the exterior.

- C. Install finish carpentry level, plumb, true, and aligned with adjacent materials (all reveals should be of equal spacing). Scribe and cut to fit adjoining work. Refinish and seal cuts.
- D. Install standing and running trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available (scarf joints should be used and only in low visibility areas). Stagger joints in adjacent and related trim. Cope at returns and miter at corners.
- E. Baseboard should be installed approximately 1/2" to 3/4" off of sub-floor where carpet is to exist and installed flush to the sub-floor where sheet vinyl is to exist. (See Carpet and vinyl flooring specifications)
- F. Shoe molding is to be installed where sheet vinyl is to exist (see spec 09650). Contractor to make an additional site trip after painting and plumbing trim-out to install shoe mold, door stops and necessary/supplied door locksets.
- G. Contractor to set all interior pre-hung door units. Doors are to be plumb in all directions — hinges should not bind, door blanks should strike stops equally, with even reveals.
- H. Windows are to have jamb extensions. Windows will be cased and have a stool & apron. Window stool is to have ends mitered and returned or eased over with a router (no 90's or butt ends). The apron will be installed under the stool with 22.5 angle cuts, (with the long points touching stool), the apron ends will also have 45 mitered returns (glued-in place).

3.1 LOCATION

- A. Crown Mold: will be installed in the Kitchen, Dining Room and Living Room.

3.2 SCHEDULING

This home is being constructed utilizing the critical path method, where maintaining the construction schedule is critical. The contractor will have 3 days to start work on the site after being notified by the Authority of a mutually agreed upon Notice to Proceed Date. The contractor has six (6) workdays to complete all the work addressed in the contract, plans and in the specifications herein. The tile contractor will be allowed to invoice 90% of the contract total, after the Authority has approved/accepted the completed work. The contractor will be required to mobilize on the site one additional workday to install door stops, shoe molding and locksets.

Upon completion of these additional tasks, the contractor may invoice a final payment for the remaining contract sum.

3.3 WARRANTY

The contractor will supply the Authority (in writing) a complete full two (2) year warranty on all labor and workmanship.

END OF SECTION 06200

06415 PREFINISHED CABINETS

1. Provide and install prefinished cabinets as shown on the drawings (field verify prior to construction), as specified herein and as needed for a complete and proper installation. Plans/Blueprints may be viewed at the Authority's Construction Department Office. All Cabinetry is to meet or exceed the current VHDA Design Criteria for new construction. The contractor/vendor will provide an all-inclusive lump-sum bid proposal, to include all material, labor, delivery and tools. The contractor/vendor may invoice a 100% final payment after installation and the Authority has approved work with notification of acceptance.
2. Kitchen Cabinets
 - a. Manufacturers: Custom Built. (No prefab modular units)
 - b. Material: Hardwood
 - c. Style: Cabinet Doors Raised Panel
 - d. Color: White
 - e. Finish: Satin
 - f. Hardware: Brushed Stainless(Handles)
 - g. Hinges: European Concealed Slow Close
 - h. Size / Dimensions:
 - i. Wall cabinets to be 42" tall and 12" deep.
 - ii. Base cabinets to be 36" tall and 24 1/2" deep.
 - iii. Wall cabinets above the refrigerator to be 12" tall and 24" deep. (Refrigerator opening to 36")
 - iv. Wall cabinets should have 3 5/8" crown molding (same finish as cabinets).
 - v. Cabinets to be designed for 30" microwave over the range, the exhaust fan will be ducted through the exterior wall — contractor is to box the duct work and notch shelves as necessary.
 - i. Face Frames: Solid wood, with minimum dimensions 1/4" x 1 1/2".
 - j. End Panels, Tops & Bottoms: Plywood, minimum thickness 1/2". Tops & Bottoms to be dadoed, glued and stapled into Sides & Face frames.
 - k. Backs: Plywood, minimum thickness 1/4". Installed by dadoed or rabbeted, glued and stapled into End Panels.
 - l. Shelves: Solid wood — minimum thickness 5/8".
 - m. Doors / Drawer Fronts: Cabinet (raised panel) — solid wood, minimum thickness 5/8".
 - n. Drawer Boxes: Solid wood or plywood, minimum thickness 1/2". Sides dadoed, rebated, or dovetailed to receive the front and back members of the drawer box. No butt joints allowed.
 - o. Drawer Bottoms: Plywood, minimum thickness 1/4". Bottoms dadoed and glued into drawer box.
 - p. Drawer Guides: Side mounted steel rails. Slow Close
 - q. Green Building Practices (improved Indoor Air Quality - IAQ): Cabinet construction utilizing plywood paneling and/or medium-density fiberboard; may only use prefab panels that conform to HUD's specified formaldehyde emission limits. PF phenol-formaldehyde resin may be used, but UF resin is not allowed.
3. Bath Vanity Cabinets
 - a. Manufacturers: Custom Built.
 - b. Model: Vanities
 - c. Material: Countertop - Granite -MSI-Bianco Antico- 3" back & side splashes
 - d. Style: Cabinet Doors (Raised Panel)

- e. Color: White
 - f. Finish: Satin
 - g. Sink: 16" x 19" square undermount porcelain — white - 8" center set 3 holes
 - h. Edge Treatment: Pencil
 - i. Hardware: Brushed Stainless— single knob
 - j. Size / Location / Number of Bowls: (3 baths / 4 sinks) See Blueprints/Plans (field verify).
4. Countertops: Kitchen
- a. Granite — MSI — Bianco Antico — undermount stainless steel sink Double Bowl 50/50 -Single Hole Faucet- see Blueprints/Plans (field verify).
 - b. Back and End 4" splash blocks to be installed where necessary with matching material.
5. Installation
- a. Contractor shall verify all on-site dimensions and notify Authority of any variances or changes. Supply complete shop drawings for Authority approval and quality-control of the installation process.
 - b. Install cabinets as indicated on the drawings. Install plumb and level with all joints tight.
 - c. Shim cabinets as required and trim with molding to match cabinets.
 - d. Contractor to wood putty (match cabinet finish) any cracks, seams and nail/staple holes.
 - e. Clean cabinets and leave in perfect working order with all doors, shelves and drawers aligned and plumb.
 - f. All cabinets are to be covered and taped with neatly cut cardboard as soon as possible after installation.
 - g. Install all cabinet hardware.
 - h. Contractor should box and cover range's exhaust hood duct — shelving to be installed accordingly.
 - i. Contractor is to cut/drill the smallest hole possible in the cabinet backs to allow access to plumbing stub-outs, all holes to be sealed and completely covered by escutcheon plates.
6. Extra Materials
- a. The contractor is to supply one additional separate 12' piece of finished oak 3 5/8" crown molding to the Authority (left in kitchen).
7. Warranty
- a. Contractor will provide in writing a full 2-year warranty on material and workmanship, submitted with invoice of final payment.
8. Scheduling
- a. After contract award, the contractor will regularly contact the Authority to develop and maintain a construction schedule. This home is being constructed utilizing the critical path method — the Authority and Contractor will agree to a Notice to Proceed date (in writing), in which the contractor must start the installation process on the worksite, within 7 calendar days. The contractor will have 3 workdays (duration) to complete all installation work.

END OF SECTION

07210 BUILDING INSULATION

1. Provide building insulation as shown on the drawings, as specified herein and as needed for a complete and proper installation, meeting all Virginia Residential Code 2018 requirements currently applicable in the City of Hampton. It will be the contractor's full responsibility to achieve an approved insulation inspection. The contractor/vendor will supply an all-inclusive total lump-sum bid proposal that will include all necessary materials, labor and tools necessary to complete the project as specified. The contractor will itemize the total into 3-line items; floor, wall and attic as a schedule of values to be used during invoicing.
2. Materials: "Green" Fiberglass Insulation (see 3&4 - A&B)
 - a. Recycled Content: 58% minimum (see 3&4 - A&B)
 - b. Formaldehyde-Free (see 3&4 - A&B)
 - c. Availability: Owens Corning Eco Touch Faced Batt insulation has been deemed an acceptable product, which will further establish a performance criteria.
 - d. Equal to products will be accepted, however the Contractor/Vendor must supply all technical documentation for a comparison evaluation.
 - e. Cellulose Blown-In loose fill insulation must meet all code requirements to include fire retardants and moisture treatments for mold.
3. Location & Type/Style:
 - a. Floor: Fiberglass Faced Batt (Kraft Paper)
 - b. Wall: Fiberglass Faced Batt (Kraft Paper)
 - c. Attic /Ceiling: Cellulose Loose-Fill
 - d. Slab Edge: Rigid Foam board
4. R - Value:
 - a. Floor: R—19
 - b. Wall: R—15
 - c. Attic / Ceiling: R - 49
 - d. Slab Edge: R-10 for 24 inches total depth (insulation can extend down to top of footing and outward, at a ½":12" slope, to meet the 24" depth requirement)
5. Required Associated Work:
 - a. Contractor to install insulation to the manufacturer's required thickness to achieve the appropriate R —value. Contractor will install ruler indicators in the attic for verification and provide the Authority two copies of insulation documentation (one for office and the other left in attic area adjacent to the access opening.
 - b. Any area that may require insulation in the rafter cavity will be done with Batt Insulation to code requirements with the appropriate spacing from the roof sheathing to insure proper ventilation.
 - c. Attic Rafter Baffles will be supplied and installed in all appropriate areas to insure proper ventilation through the home's ventilated soffit panels.
 - d. Contractor will supply and install any other related type or style of insulation to complete project, such as needed for; (assembly type, Continuous insulation, Cavity insulation) firebreaks, externally exposed storage areas, knee walls, canter- levered floors, cathedral ceilings, vaulted ceilings, HVAC supply & return chases, etc.
 - e. Contractor will install a 6-mil poly vapor barrier (wall to wall — no gaps — all seams to be secured with Foil tape — neatly cut around all piers) over the entire ground area in the crawlspace. The poly vapor barrier will be secured to the ground utilizing metal wire devices.
 - f. Access Doors: access from conditioned spaces to unconditioned spaces shall be

- weather-stripped and insulated to a level equivalent to the insulation on the surrounding surfaces.
- g. Attic Access: will be provided through a pull-down staircase (22" x 54") installed by the Authority. The Contractor will supply and install as part of the Ceiling Insulation process a attic Door (R-50) and mounting kit installed meeting all Code regulations and installed per the manufacturer's recommendations.
6. Installation: (to include but not limited too): Must meet all requirements set forth in VRC 2012 R302.10 and Chapter 11
- a. All vapor barriers to be installed toward conditioned space.
 - b. Do not compact or compress insulation in stud cavities.
 - c. Floor insulation must be installed to maintain contact with underside of the sub-floor decking/sheathing.
 - d. Insulation to be cut neatly and installed around and behind outlet boxes. Insulation to be split and installed both behind and in front of electrical wires that intrude into stud wall cavity.
 - e. Insure there are no gaps between framing and insulation.
 - f. Install insulation between window and door frames and framing.
 - g. Install insulation around all piping, beams, ducts, vents and electrical outlets in all exterior walls, firewalls and framing to unconditioned spaces.
 - h. Baffles to be installed at all eaves to insure adequate airflow.
 - i. Install insulation in all plumbing cold areas, fireplace chases and whirlpool areas.
 - j. Install insulation behind tub/shower enclosures adjacent to exterior walls.
 - k. Install insulation behind staircases attached or adjacent to exterior walls.
 - l. Insulation to be cut neatly and installed above window/door headers (cripple area).
 - m. Insulate framing gaps/voids in framing "comer posts and tees" where any wall may intersect with an exterior wall.
 - n. Caulk any and all penetrations through firewall or any other exterior surface.
 - o. Proper Air-Sealing will be completed on any cracks or penetrations to insure a fully sealed building envelope. Contractor is to only use high-quality sealant/caulking materials with the appropriate designation, such as fire-rated (red) caulk.
 - p. Ceilings with attic spaces must have the full height of uncompressed insulation extending over the top plate at the eaves as per VRC 2012 N 1102.2.1 (R402.2.1).
7. Scheduling: The Authority is utilizing the critical path method in this home's construction, where maintaining the schedule is critical. The contractor will have 3 workdays to start work on the actual project site after notification by the Authority of a mutually agreed upon Notice to Proceed date. The work will be completed in two phases: floor, vapor barrier and walls with a maximum duration of two workdays. Completed work may be invoiced for payment after the Authority has accepted workmanship and a City approved inspection status has been obtained. The ceiling/attic insulation will be scheduled once the drywall/sheetrock work has been completed, this insulation work will also have a maximum duration of two workdays.
8. Warranty: The contractor will supply the Authority a copy of insulation work documentation and any applicable manufacturer's warranties. The contractor will also supply in writing, a full 2-year warranty on materials, labor and workmanship.

END OF SECTION

07310 ROOFING /ASPHALT SHINGLES

1. Provide granular surfaced asphalt shingle roofing as shown on the drawings, as specified herein and as needed for a complete and proper installation. All materials must meet FHA # HUD Minimum Property Standards and Guidelines along with the current VHDA Design Criteria. The contractor's lump-sum bid proposal will include all materials, labor and tools necessary to complete the project. The contractor may use 15 lb. roofing felt only on roof pitches between 5/12 and 8/12 — all flatter or steeper roof systems must utilize 30 lb. roofing felt. In addition, an 8'x10' traditionally wooden framed storage shed (with 7'to 8' walls and a 3 to 5/12 pitch roof on a concrete slab, located in the rear yard; will be roofed with identical materials as part of the complete contracted work project.
The Authority completed a substantial color/style selection process; product selections have been pre-approved which further establishes additional specifications of performance criteria. A contractor submitting an "equal-to substitution," must get prior approval. It will be the contractor's responsibility to provide the Authority all technical specifications (ASTM) and samples for evaluation. The contractor may view the plans/blueprints at the Authority's Construction Department's Office for estimating purposes.
These new homes are being built utilizing a critical path method for scheduling; the contractor must anticipate his product's lead time and have his material ready to start work (mobilization) within 4 days of the mutually agreed upon Notice to Proceed date. The Contractor is also notified that all work on the jobsite must be completed within a maximum of 2 workdays (duration). The contractor will receive 100% payment after invoicing for an Authority approved installation has been completed.
2. Materials
 - a. Shingles: (House / Porch / Bay/ Garage)
 - i. Use self-sealing shingles complying with: UL class A fire rating (PER ASTM E-108).
 - ii. Tab type: Architectural
 - iii. Manufacturer: CertainTeed — LANDMARK
 - iv. Product: Two-piece laminated fiberglass reinforced base construction
 - v. Color: RESAWN SHAKE
 - vi. Warranty: 30 year — 10-year Streak Fighter - {Anti-fungal / Mildew/Moss Resistant} — 5-year 70mph wind-resistance warranty
 - vii. Specs: 240 lbs. per square, UL certified to meet ASTM D3462 & D3018 Type I and conforms to CSA standard A123.5.
 - b. Ridge Vent: will be installed on all ridges (main house and dormers). Ridge Vent will start with a 1 set back and have ends plugged. Venting shall be covered with the appropriate shingles according to the manufacturer's recommendations.
 - c. Underlayment: No. 30 lb. roofing felt must be used on any hip ridges in any valleys. All products shall conform to ASTM D 226, Type 1 or ASTM D 4869, Type 1.
 - d. Nails: Hot dipped zinc coated steel type, with a minimum head diameter of 1/8" and with a sufficient length to penetrate the roof sheathing a minimum of 1/4" .
 - e. Staples: Hot dipped zinc coated steel type, with a minimum face width of 15/16" and of sufficient length to penetrate the roof sheathing a minimum of 1/4" .
 - f. Plastic cement: Use asphalt type with mineral fiber components.
 - g. Flashing: Non-corrosive galvanized sheet metal (28 gauge minimum). Use step flashing at all roof penetrations — an underlayment product must be utilized under all flashing, with the step flashing bent/installed flush with the butt ends of the shingles.

- h. Drip edge at eaves and gables: an ice shield — dam membrane will be installed for the first 24" from the eave drip edge.
3. Installation
- a. Contractor is responsible for ensuring that roofing is installed according to manufacturer's instructions and in compliance with local codes. Contractor will be responsible for any necessary fees, inspections or permits. All roofing products and installation shall meet industry standards as established by the National Roofing Contractors Association (NRCA) in their roofing and waterproofing manual.
 - b. Do not install shingles when ambient temperatures are below that required by the product manufacturer.
 - c. Valleys to be closed (woven). Install full 36" 30# felt prior to installing shingles.
 - d. Roofer to ensure all penetrations are sealed (all boots and collars installed on vent and exhaust piping).
 - e. No exposed fasteners.
 - f. It is the contractor's sole responsibility to always maintain an OSHA safe and EPA complaint worksite.
4. Extra Materials: Contractor will leave 3 unopened bundles of shingles (exact match to roof with the Authority (in the crawlspace).
5. Warranty: The contractor will supply the Authority a copy of the manufacturer's product limited warranty for a period of no less than 30 years. Finally, the contractor will provide in writing a full 2-year warranty (his company) for materials and workmanship.

END OF SECTION

07464 FIBER CEMENT SIDING

1. Provide fiber cement siding system as shown on the drawings, as specified herein and as needed for a complete and proper installation. The Contractor will provide an all-inclusive lump-sum bid proposal that will include all labor, material and tools necessary to complete this project according to industry standards.
2. Vinyl siding shall comply with ASTM standard specification for Fiber Cement Siding C1186, Type A, Grade II. All siding is to be of premium quality with a minimum nominal thickness of 5/16" (wind speed rating up to 240 mph.). All siding components have been pre-approved to establish required performance criteria, any Contractor's submitting a proposal with an equal-to substitution, must also submit technical specs for the purpose of evaluation. The Authority has chosen color and styles through a process based on the City's Curb Appeal Program — all substitution proposals must match the Authority's selections. Provide siding boards in the longest lengths possible, as this home's approved renderings are based upon a concept of no visible siding seams.
3. Materials (Siding): (Contractor may examine house elevations (plans) at the Authority's Construction Office for bidding purposes.)
 - a. House:
 - i. Manufacturer: James Hardie
 - ii. Product: Hardie Lap
 - iii. Style: 8" exposure, Smooth Finish
 - iv. Color: See Drawings
 - v. Accessories: Use only those accessories that are approved by the product manufacturer as part of an unified system with exact matching color.
 - b. All Windows and Exterior Doors to be wrapped with normal sized pre-finished metal J channel in {black}.
 - c. All rake boards, dog ears, fascia boards and porch beams to be wrapped with high quality maintenance-free pre-finished metal trim sheet and coil stock. All stock is to have a minimum nominal thickness of .024" and have a smooth finish.
 - d. Soffit Eaves to be completed with a high-quality maintenance-free perforated fiber cement product that has minimum nominal thickness of 5/16" with a matte finish.
 - i. Hardi Soffit / Ventilated Soffit Paneling / Factory Primed, to be field painted.
 - e. Siding to include J mounting blocks; for light fixture, GFCI receptacles and (split) hose bibs – quantities per the Drawings. The contractor will also supply and install color and style matching vents for the clothes dryer and bathroom exhaust fans.
 - f. Accessories: Use only those accessories that are approved by the product manufacturer as part of a unified system (standard 3 1/2" corner trim) with exact matching color. The contractor is to use all accessories and manufacturer components to complete a neat and professional project.
4. Extra Materials: The Contractor will supply the Authority (leave in crawlspace) a minimum of 3 full length pieces of siding and a 10' piece of coil trim stock that are exact matches to the home.
5. Warranty: The Contractor is supplying the Authority with a copy of the manufacturer's warranty — with a minimum period of 5 years. In addition, the Contractor (his company) will supply in writing a full 2-year warranty on all materials and workmanship.

6. Scheduling: This home is being built utilizing the critical path method, where maintaining the construction schedule is mandatory. The contractor will have 5 workdays to start actual work on this project's site after being notified by the Authority of the mutually agreed upon Notice to Proceed date. All exterior siding related work will be completed within a 7 workday duration.
7. Installation:
 - a. All siding to be nailed at 16" o.c.
 - b. Head flashing to be installed over all framed openings and properly caulked.
 - c. All wood exterior trim to be caulked.
 - d. Backers to be installed behind all joints and panel ends of 8" siding.
 - e. Siding to be held tight to roof shingles at cheek walls.
 - f. Trim to have no exposed rough edges.
 - g. All siding will have random breaking joints per each course run, only where wall is longer than the longest available siding board.
 - h. Siding shall not break joints under windows.

END OF SECTION

07600 GUTTERS AND DOWNSPOUTS

1. Provide gutters and downspouts, as specified herein and as needed for a complete and proper industry standard installation. All gutter work must be compliant with all local code's regarding roof drainage and storm water.
The contractor will supply the Authority an all-inclusive total lump-sum price/bid proposal for the completed gutter project.
2. Design: Gutters to be installed on all Fascias (see Plans). Downspouts to be installed at the end of the gutters (house corners) and laid out to ensure that no downspout carries water from more than 700 square feet of roof area. Downspouts are to be located in the most non-obstructive locations, as not to detract from home's curb appeal.
3. Materials:
 - a. Gutters:
 - i. Material: Aluminum (Primary)
 - ii. Gauge / Thickness: .032" (heavy-duty)
 - iii. Length: Seamless (continuous) — field verify
 - iv. Size: 5"
 - v. Shape: K — ogee
 - vi. Color: Grey
 - b. Downspouts:
 - i. Material: Aluminum (Primary)
 - ii. Gauge / Thickness: .022" (heavy-duty)
 - iii. Length: field verify
 - iv. Size: 3" x 4"
 - v. Shape: rectangular
 - vi. Color: Grey
 - vii. Downspout Straps (and Fasteners) to be same size, finish and color as downspouts.
 - c. Accessories: All necessary drop-tubes, elbows, caps and etc. will be of the same material, size, shape, style, thickness and finish color as the gutters and downspouts.
4. Installation:
 - a. Gutters to be fastened using screw-in hidden hangers (rust-proof) at each rafter/truss tail locations, at 4' on-center maximum spacing.
 - b. Downspout straps to be spaced a maximum of 8 linear feet — with a minimum of 2 straps per downspout.
 - c. Spout and strap connections to be attached utilizing aluminum blind (pop) rivets or stainless sheet metal screws. Gutter and spout (to include all necessary accessories) connections will utilize the same attachment procedure and materials.
 - d. All gutters to be installed with a ¼" per 4 linear foot run, continuous slope/pitch toward downspout.
 - e. Downspout discharge elbows will be installed at a height to accommodate the development of the lot's final grade and to efficiently utilize ground splash blocks.
5. Scheduling: This home is being built utilizing the critical path method where maintaining the construction schedule is critical. The contractor will have 3 days to begin work on the project's site after being notified by the Authority of a mutually agreed upon Notice to Proceed date. The contractor will have a maximum of 2 work days (duration) to complete all fabrication and installation work. The contractor may invoice the full contract amount upon completion of all work and the acceptance of workmanship by the Authority.
6. Warranty: All materials used as part of this gutter project must have a 15-year manufacturer's

warranty as a minimum. The contractor will supply the Authority a copy of the manufacturer's warranty. In addition, the contractor will supply the Authority (sent with payment invoice) a full 2-year warranty for all materials, labor and workmanship.

END OF SECTION

08100 DOORS

1. Provide doors complete in place with finish hardware installed of the types, designs and dimensions shown on the Door Schedule, as shown on the drawings, as specified herein and as needed for a complete and proper installation. Exterior doors must be certified an Energy Star North/Central product (certification must be provided) Performance Criteria for North/Central: U-factor heat transfer to be equal to or less than .25 for doors deemed ½-lite or less (more than 1/2 lite doors will be equal or less than .30), Solar Heat Gain coefficient will block solar energy with a rating equal to or less than .25 for doors deemed ½-lite or less (more than 1/2 lite doors will be equal or less than .40).
2. Exterior Fiberglass Insulated Doors: flashing - non-corrosive sheet metal, high efficiency insulating glass panels, adjustable thresholds, durable rot-free weather-stripping, pre-finished with factory gel-coat.
3. Front Door (Quantity 1): Exterior trim: Brick Mold / (See Interior Door Trim — Casing) Trim Stop to be WM-888.
 - a. Type: ThermaTru — Fiber-Classic — Mahogany Collection — FCM4810XJ Craftsman Lite 2 Panel Shaker Flush Glazed “Chinchilla” — Onyx colorway — Energy Star — 5-year limited warranty.
 - b. Size: 36” x 80”x 1 ¾” (3’ x 6’8”) — Left Hand-In Swing - double bore (lockset & deadbolt).
 - c. Hardware Finish: Self-aligning Hinges — Bronze / Sill — Bronze / Door Bottom — Black /Corner Seal Pad — Black.
 - d. Lockset: Lockset: Kwikset / Vancouver Exterior Pull — Smart Key Single-Lock / Model 819VNH LIP 514 / Entry Handle set / Matte Black Finish
4. Rear Door (Quantity 1): Exterior trim: Brick Mold / (See Interior Door Trim — Casing) Trim Stop to be WM-888.
 - a. Type: ThermaTru — Fiber-Classic — Mahogany Collection — FCM1283XK — Full Lite - Flush glazed — Onyx colorway — Energy Star — 5-year limited warranty.
 - b. Size: 36” x 80”x1 ¾” (3’0” x 6’8”) — Right Hand-In Swing - double bore (lockset & deadbolt).
 - c. Hardware Finish: Self-aligning Hinges — Zinc Dichromate (Bronze) / Sill — Bronze / Door Bottom — Dark Bronze / Corner Seal Pad — Dark Bronze.
 - d. Lockset: Kwikset / Vancouver Exterior Pull — Smart Key Single-Lock / Model 819VNH LIP 514 / Entry Handle set / Matte Black Finish
5. Interior Doors: Casing: (WM 888) — flat, rounded edge casing
 - a. Type: Pre-Hung, Split 4 1/2" fj Jamb with 4 Panel Shaker style Hollow-Core textured molded composite Masonite (paintable) door blanks. Trim Stop to be WM-888.
 - b. Size - Blank/Slab: 80" height (6’ 8”) x 1 3/8" thickness
 - c. Count and Swing:
6. Locksets:
 - a. Privacy —Kwikset Signature — Juno —Venetian Bronze Model 730J-lIP-CP / Lowes # 34761
 - b. Passage — Kwikset Signature — Juno — Venetian Bronze Model 720J-11 P-CP / Lowes # 34808
 - c. Dummy — Kwikset Signature — Juno —Venetian Bronze Model 788J-11 P-CP / Lowes # 34919
7. For hollow core interior doors, provide core construction as needed to accommodate finish

hardware.

8. Door stops to be Bronze finish; wall and hinge mounted as required.
9. All doors to be installed plumb & level with the appropriate reveal.

END OF SECTION

08600 WINDOWS

1. Provide quality high-performance windows and screens as shown on the Window Schedule, as shown on the drawings, as specified herein and as needed for a complete and proper installation.
2. All windows to be vinyl clad or constructed of vinyl composite materials using safety tempered glass. Glass options will use clear viewing 'Z4" thick double pane glass in whatever low-e or argon gas option that allows for #3 compliance.
3. All windows to be certified an Energy Star product with Criteria for North/Central zone, certification must be referenced through Energy Star's government index website as a tested and approved manufacturer and specified model. All windows must have a National Fenestration Rating Council (NFRC) certification sticker verifying compliance for performance criteria.
 - a. U-Factor: (Ultraviolet Heat Transfer) - equal to or less than .30,
 - b. SHGC: (Solar Heat Gain Coefficient) equal to or less than .40.
4. Additional window performance criteria that may be used in the Authority's evaluation process: the higher the R-value restrictive ambient air flow the better, the lower the Air Leakage rate the better (0.3 cfm/ft²), the higher the Visible Transmittance (VLT) rate the better (0.20 — 0.80) and the higher the Condensation Resistance the better (0-100).
5. All windows to be maintenance-free with the interior color as White and exterior color as Black.
6. Windows will be Double-Hung with tilt sashes (both sashes shall be able to project into bedroom in order to meet current Code Regulations).
 - a. Windows should have 4 ½" jamb extensions.
 - b. Windows to have no grids or grills.
 - c. See plans and window schedule (field verify if necessary — numbers and dimensions).
7. Frame / Jamb: 3 ¼" frame depth — windows to have traditional brick mold — windows to have exterior window treatments per specifications for fiber cement siding (see 07464).
8. Bedroom windows must meet local code emergency egress restrictions and must have a minimum net clear opening of 5.7 sf., the minimum net clear opening height shall be 24" and the minimum clear opening width shall be 20" (see IRC-2012 and Window Schedule per plans).
9. Sash lock: factory installed; hardware finishes being white or brushed nickel.
10. Exterior flashing: Non-corrosive sheet metal.
11. Windows should meet ASTM D635 average burn time guidelines. They also should comply with AAMA 303 restrictions on minimum ignition temperatures. Windows will also meet the requirements of CMBSO forced entry resistance test.
12. Suggested Window Manufacturers and styles/model lines used to further establish performance criteria, and establish acceptable standards. All windows must meet or exceed FHA & HUD Minimum Property Standards and Guidelines, and the current VHDA Design Criteria for new construction.
 - a. Mi - CertainTeed — New Castle III
 - b. Andersen — 200 Series
 - c. Pella — Encompass Series
 - d. Silver Line by Andersen — Series 3000 Premium

- e. MW — Classic Series
 - f. Summit — Series 8000 Line (8880)
 - g. JELD-WEN — V4500 Series
13. Vendors and Contractors will supply window rough openings and any additional window specifications (such as; nailing fin, frame depth, exterior projection, etc.) with window proposal/bid.
14. Warranty: All windows must have as a minimum, a 10 year warranty. Insulating glass is to have a minimum 10 year warranty for breakage of seal. Contractor/vendor is to supply the Authority a copy of all of the manufacturer's technical data and warranty documentation.
15. Additional information for installation:
- a. Interior trim: The window sill height will not be more than 44" above the floor.
 - b. Type: Wooden window stool, casing and apron.
 - c. Size: Window stool 5 1/4" f/wm-1021, Casing & Apron 2 1/4" flat casing.
 - d. Finish: 2 coats semi-gloss latex over primer.

END OF SECTION

09260 GYPSUM WALLBOARD SYSTEM

1. Provide gypsum drywall (No gypsum wallboard or accessories made in China will be allowed) and (even material produced in the USA must have documentation that it has been screened for Sulfur Gases which produces Toxic Synthetic Gypsum) - and accessories where shown on the drawings, as specified herein and as needed for a complete and proper installation per industry standards. All work to be completed the Authority's satisfaction and in compliance with the local Codes, referencing IRC 2009 & 2012. The contractor will supply the Authority an all-inclusive total lump-sum price/bid proposal to include all materials, labor and tools necessary to complete the project as described herein. The contractor will also supply a board count take-off along with bid proposal. For estimating purposes: a set of plans are attached to these specifications, but a full-size set of blueprints may be viewed in the Authority's Construction Department's Office. The Contractor also needs to be notified that if his company hires additional employees or sub-contracts any portion of this project's work, Federal Section 3 regulations will apply, see the attached HUD guidelines.
2. Materials: All Gypsum Board material and accessories must conform to ASTM C 36, C79, C475, C515, C630, C960, C1002, C1047, C1177, C1178, C1278 and C1395. Adhesives must conform to ASTM C 557. Fasteners must conform to ASTM C1002 & ASTM C 514. All materials are to be a unified system with all components recommended for use by all of the manufacturers.
 - a. Gypsum Board: Location: Entire home's walls and ceiling areas (1st floor) — Except as Noted in the following/next sections.
 - i. Standard Type: Regular Residential - Taper Edged Paper Faced — (lighter side to living side of room).
 - ii. Thickness: ½"
 - iii. Length: 12' (to reduce the number of seams/joints)
 - b. Gypsum Board: Location: Home's Bathroom Areas {All Walls}
 - i. Type: Water/Moisture Resistant / Rated Board - Taper Edged.
 - ii. Thickness: ½"
 - iii. Length: 12' (to reduce the number of seams/joints)
 - c. Joint materials: Vinyl-Based joint treatment compound with Paper reinforcing tape.
 - d. Corner beads: Metal.
 - e. Fasteners: For fastening (Wall) - gypsum wallboard in place on wood, use Nails - annularly threaded diamond point, slightly concave thin rim 5/16" diameter head in the code complaint length — or Screws in the same fashion as designated for ceilings. For fastening (Ceiling) gypsum wallboard in place on wood, use Screws — with zinc Phosphate coating w/linseed oil, self-drilling & tapping Type W with diamond point in 1 / 4 "length. In addition, wallboard adhesive will be used on all Ceiling installation applications.
3. Installation: Must be performed within Industry Standards established in the Plaster and Drywall System Manual (BNI Publications, Inc.) and the Gypsum Construction Handbook (United States Gypsum Company).
 - a. Contractor to be responsible for having all materials delivered into the home and staged in the appropriate area. Contractor will be responsible to remedy to the Authority's satisfaction any damage to the site or the home (to include all building components) caused by the delivery process.
 - b. Contractor will install/hang all ceilings first (starting at a corner), before installing on the walls. Wallboard adhesive to be used on ceilings, when applying to ceiling joists the adhesive is to be left 6" from the wallboard's side edge to eliminate oozing.

- c. Contractor to install and finish all work per local Code requirements (IRC 2012 & VRC 2015) and specifications herein.
 - d. All end to end joints must fall/break on studs or joists.
 - e. Wallboards are to be held ½" above floor.
 - f. Fasteners will be installed / spaced according to local Code requirements.
 - g. All openings to include; Outlets, switches, pipes and ceiling boxes will be given careful treatment and cut neatly and close. Smooth cut edges and ends of the gypsum board where necessary to obtain neat jointing.
 - h. Factory edge to be placed at rim of bathtub and shower stall receptors.
 - i. Finishing is a multi-step process requiring three coats of joint compound, including the joint paper tape. The tape is embedded in a coat of joint compound (using 4" drywall knife/tool) and allowed to dry thoroughly. The subsequent two coats are applied (1" utilizing a 6"/8" drywall knife/tool and the 2nd utilizing a 10"/12" drywall knife/tool) to create a feathered/tapered smoother surface; and sanded between coats to remove imperfections. The resulting finish will conceal the joints and nail/screw heads and will be smooth and ready for paint.
 - j. Do not apply joint compound when the temperature of the surfaces to be worked and the surrounding air temperatures are below 45 degrees F (or expected to be, within the next 12 hours).
 - k. Contractor to use care to prevent spilling of drywall mud (joint compound) or stipple on floors. Floors are to be left clean and ready for installation of finish flooring.
 - l. All other left-over gypsum wallboard and accessory debris will be removed from the house. All scrap and drywall debris will be placed in the on-site/or nearby dumpster, on an adjacent lot. The contractor will sweep out the house after all work gypsum wallboard work has been completed.
4. The contractor will perform point-up work after the painter has applied his primer coat of paint to gypsum wallboard. Project is not deemed completed/satisfied until the Authority has formally accepted workmanship.
 5. Extra Material: The contractor will leave one piece (4' x 4' x 5/8") and one piece (4' x 4' x 1/2") of wallboard in good condition (in the master bedroom closet).
 6. Scheduling: This home is being built utilizing the critical path method, where maintaining the construction schedule is critical. The contractor will have 3 days to begin work on the separate phases of this project (hanging & finishing), after being notified by the Authority of a mutually agreed upon Notice to Proceed date. The contractor will have 5 workdays (duration) to complete the installation/hanging process of the gypsum wallboard, after completion and acceptance of the work, the contractor may invoice for payment 60% of the contract's total amount. The contractor will have 6 workdays (duration) to complete the finishing process of the gypsum wallboard, after completion and acceptance of the work, the contractor may invoice for payment 35% of the contract's total amount. Finally, the contractor will have one day to begin work on the final point-up work phase, (completed after the home has been primed by the painter), after being notified by the Authority of a mutually agreed upon Notice to Proceed date. The contractor will have 2 days to complete all point-up work, after completion and acceptance of the work; the contractor may invoice for payment the final 5% retainage remaining of the contract total.
 7. Warranty: The contractor will supply (with the final payment invoice) the Authority in writing a full 2-year warranty on all materials, labor and workmanship.

END OF SECTION

09300-Tile Flooring

1. Perform Work in accordance with TCNA Handbook for Ceramic Tile Installation and the herein referenced standards for all tile installations. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress. Source Limitations: Obtain each material required for any one type and color of tile work from a single source to minimize variations in appearance and quality.
2. All work of this Section shall be performed by skilled installers of the trade and shall be of the highest quality specializing in installation of the products specified in this section
3. Provide all setting materials, sealants, grouts and other misc. product required for complete installation.
4. All products provided for installation shall be the products specified by owner unless noted otherwise. If material is no longer available or if a substitution is required, notify owner as soon as possible.
5. Tile to be installed in First floor ½ Bath, Upstairs Hall Full Bath, and Primary Bedroom Bath.

Materials:

1. Bathroom: Floors and Tub/Shower Walls
 - a. Tile Brand- FloridaTile
 - b. Tile Name- Rhyme "Stone Chamber" SKU- FTI285931 12x24
 - c. 4. Size/Thickness- 12x24/ 9mm
 - d. S. Finish- Matte
 - e. Color/Pattern- Stone Chamber (grey/brown)
 - f. Grout Color- Laticrete Sanded (color to match tile close as possible)
2. Kitchen: Wall behind sink cabinetry
 - a. Tile Brand- FloridaTile
 - b. Tile Name- Emotive "Astonished White Glossy" SKU- FTIEMV1G3x12
 - c. 4. Size/Thickness- 3"x12" / 9mm
 - d. S. Finish- Glossy
 - e. Color/Pattern- Astonished White Glossy (white)
 - f. Grout Color- Laticrete Sanded (color to match tile close as possible)
3. Provide and install Schluter Systems. Provide items as follows as well as any other products to ensure a proper install per manufacture.
 - a. Kerdi-Shower Pan with center drain.(contractor to field verify size)
 - b. Kerdi- Board Curbside
 - c. Kerdi- Drain Grey Round Flange
 - d. Kerdi- Drain Square Grate 4in (Bronze)
 - e. Kerdi- Board SN 12" x 12" Shower Niche (to be installed in side wall of all showers)
 - f. Kerdi- Band Orange Polyethylene Waterproofing Tile Membrane (Walls)
 - g. Ditra Orange Polyethylene Waterproofing Tile Membrane (Floors)
 - h. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or metal, designed specifically for flooring applications. Color to be Bronze.
 - i. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
 - j. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints and that does not change color or appearance of grout.
 - k. Cementitious Backer Board and Backer Board Accessories: ASTM C1325 or ANSI

A118.9 for use as backing for tile.

4. Installation

- a. Comply with TCNA's "Handbook for Ceramic Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used. Install Schluter Systems per manufacturers instructions to ensure a water stilled installation.
- b. Do not proceed with installation when ambient and substrate temperature conditions are outside limits permitted by material manufacturers. Do not install solvent-based products in an unventilated environment.
- c. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.
- d. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.
- e. Install backer board if required in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners cover with skim coat of setting material to a feather edge.
- f. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages
- g. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- h. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- i. Provide manufacturer's standard trim shapes or non-ceramic trim where necessary to eliminate exposed tile edges.
- j. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
- k. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
- l. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
- m. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 - i. Ceramic/Mosaic Tile: 1/16 inch. - 1/8 inch
 - ii. Quarry Tile: 3/8 inch
 - iii. Paver Tile: 3/8 inch
 - iv. Glazed Wall Tile: 1/16 inch.
 - v. Decorative Thin Wall Tile: 1/16 inch.
- n. Metal Edge Strips: Install where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with or below top of tile and no threshold is indicated.
- o. Grout Sealer: Apply grout sealer to cementitious grout joints according to grout-

sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.

- p. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers. Clean all thin set, grout, and haze off of finish surface of tile.

END OF SECTION

09650 Resilient Flooring - Laminate Flooring

As specified herein and as needed for a complete and proper installation within manufacturer's recommendations, RFCI's Recommended Work Practices and Authority's expectations. All work should be completed as specified herein and as needed for a complete and proper waterproof installation within manufacturer's recommendations and Owner's expectations. Contractors and vendors may substitute only equal to products; the contractor must submit all technical documentation for consideration.

1. The contractor's lump-sum bid proposal will include all materials, labor and tools necessary to complete the project.
2. The Authority is utilizing green building practices and has completed a substantial color/style selection process; product selections have been pre-approved which further establishes additional specifications of performance criteria. A contractor submitting an "equal-to substitution," must get prior approval. It will be the contractor's responsibility to provide the Authority all technical specifications and samples for evaluation. These new homes are being built utilizing a critical path method for scheduling; the contractor must anticipate his product's lead time and have his material ready to start work (mobilization) within 3 days of the mutually agreed upon Notice to Proceed date. The Contractor is also notified that all work on the jobsite must be completed within a maximum of 3 workdays (duration). The contractor will receive 100% payment after invoicing for an Authority approved installation has been completed.
For estimating purposes, the contractor may view the plans/blueprints at the Authority's Construction Department's Office.
3. All vinyl products to meet and exceed:
 - a. FHA & HUD's Minimum Property Standards for Housing and VHDA Design Criteria
 - b. United States Green Building Council (USGBC) - LEED Homes Green Building Rating System: reference the Resilient Floor Covering Institute (RFCI) in conjunction with Scientific Certification Systems (SCS) all products submitted and used must be FloorScore Certified to ensure Indoor Air Quality (IAQ) through the use of only zero Volatile Organic Compounds (VOCs) emissions.
 - c. ASTM F-1303: Type I, Grade 3, Class A.
 - d. Critical Radiant Flux Classification: Class I, not less than 0.45 w/sq. cm per ASTM E 648.
 - e. Must pass ASTM E-662 NBS Smoke Chamber Density Test with smoke value of 450 or less.
 - f. The sheet vinyl product must have as a minimum nominal total thickness of .080".
 - g. The sheet vinyl product must have a urethane wear layer with a minimum nominal thickness of .010".
 - h. Adhesives: Use waterproof and stabilized type adhesive as recommended by the manufacturer of the material being installed on the appropriate surface. The homogenous product will be 100% glued down, with no perimeter only attachment. Green Building Practices will be utilized with attention to Indoor Air Quality (IAQ), Zero VOC adhesives must be used.
 - i. Underlayment: per manufacturer's recommendation. (1/4" AC Meranti and or approved luan} Use floor leveler if required. (Hydraulic cement based embossing lever)

- j. Provide colors and patterns as selected by the Authority as indicated below.
 - 1. Product Specification: Coretec Pro Plus Series
 - 2. Color: Chandler Oak Style: VV017-01011
 - ii. Description: Uni-click installation waterproof system with attached pad.
Dimensions (Plank Size): 48" length x 7" width x 5/16" (5.0 mm.) thickness
Plank Surface Finish: Authentic
 - iii. Plank Edge: Square
 - iv. AC Rating: AC4 FloorScore Certified Quality Certified: NALFA
 - v. Meets ACTM 93120 regulations and is CARB Phase 2 complaint. Finish Type: easy clean finish with scratch guard
 - vi. Finish Warranty: Lifetime Limited Residential wear, stain, and fade warranty.
 - vii. Location: Living Room, 1st floor hallway area, Dining and Kitchen

General /installation

- 1. Allow laminate flooring to acclimate for 48 hours in its sealed packaging before installing. Mix planks from different cartons when installing to maximize the natural look of the floor.
- 2. Cut any door jamb and or casing to allow flooring to go under.
- 3. Install the proper moisture barrier (manufacturer's matching unified system products) over the concrete floor (if applicable) before installing the laminate.
- 4. A hard surface reducer (adaptor profile) installed for all transitions to sheet vinyl and a carpet reducer (End Profile) when transitioning to carpet. All components must be approved by the manufacturer as a recommended item utilizing the manufacturer's installation instructions.
- 5. Make sure that the floor has the proper spacing off any walls, cabinets, etc. to allow for the floor to expand and contract.
- 6. Extra Material: The contractor will supply (left in laundry area) two planks of laminate flooring used in this home.
- 7. Warranty: Contractor will provide a full 2-year written warranty on flooring and installation labor, to be submitted before final payment. The manufacturer's Residential Limited Lifetime and Commercial 5-year warranty will also be provided.
- 8. Duration: Work shall be completed within 5 working days.

END OF SECTION

09900 PAINTING

1. Paint and finish exposed surfaces using the combination of materials as specified herein and as needed for a complete and proper installation within industry work standards. A high quality 100% acrylic/latex ultra performance Zero VOC paint that is LEED compliant must be used. The Authority is utilizing green building practices and has pre-approved selected paint manufacturers and brands that will be acceptable. These paints will further support these specifications by establishing product and performance criteria, which possible substituted products will be evaluated against for acceptance. All paints and primers must be matched manufacturer products that are specifically designed to be used as a unified system. All manufacturers' recommendations for application and use will be applicable, except paint/primer combos and one coat coverage - (see notes below). Acceptable paint manufacturers and brands will be: Sherwin Williams — ProMar 200 — Zero VOC Interior Latex, Harmony Interior Acrylic Latex, ProMar 200 Zero VOC Interior Latex primer, Solo 100% Acrylic Interior/Exterior Latex, - Benjamin Moore — Ultra Spec 500 Interior Latex, Ultra Spec 500 Interior Latex Primer, Impervex Latex High Gloss Metal and Wood Enamel, and Multi-Purpose Latex Primer — Pittsburg Paints — Pure Performance Paint and Pure Performance Primer. Any other paint brands must be pre-approved by the Authority, technical spec sheets must be provided with bid proposal for evaluation. Any other paints noted on the work site will be unacceptable and will constitute a breach of contract. Color selections do not apply preference of paint manufacturer; however, one company's palette must be used for color selections. As the Authority has completed a substantial color selection process using City approved curb appeal guidelines, a Contractor using paint differing from the palette's manufacturer must insure the accuracy of the color. Color differential from the palette will not be accepted or approved by the Contracting Officer.

All paints should be applied by roller or brush - NO SPRAYING or back rolling — no thinning agents will be allowed.

2. Environmental conditions
 - a. Do not apply paints when the temperature of surfaces to be painted and the surrounding air temperatures are below 45 degrees F (or expected to be, within the next 12 hours).
 - b. Do not apply paint in snow, rain, fog or mist; or when relative humidity exceeds 85 percent; or to damp or wet surfaces.
3. Paint materials
 - a. Undercoats and Primers: {walls/ceilings/doors/trim = 3 coats (1 primer & 2 finish)}
 - i. All new drywall, wood, steel, vinyl, and plastic must be primed / undercoated with the appropriate product prior to the application of the two finish coats.
 - ii. Use undercoat and finish coats as parts of a unified system of paint finish.
 - b. Primer/sealer: An additional second coat will be applied to knots, pitch pockets and other stained areas, where a painted finish is to be provided.
 - c. Preparation: All exterior surfaces that are to be painted require sanding, caulking and/or putty. Interior trim; sand thoroughly and putty smooth nail holes. A high-quality paintable 40/50-year 100% latex caulk is specified. Color as necessary.
4. Exterior painting schedule (primer and 2 finish coats)

- a. Exterior trim: Door Blanks/Slabs
 - i. Mfr: Sherwin Williams
 - ii. Color: Sundried Tomato SW7585
 - iii. Finish: Semi-Gloss
 - b. Rear Deck (all components)
 - i. Mfr: Olympic
 - ii. Type: Waterproofing Preservative Sealer
 - iii. Color: Clear
 - c. Windows (n/a): Vinyl — Black/White (see Window specifications)
 - d. Exterior walls (n/a): Fiber cement siding (see Fiber Cement Siding specifications)
 - e. Caulk all joints and fill all nail holes.
5. Interior painting schedule (primer and 2 finish coats)
- a. Walls:
 - i. Mfr: Sherwin Williams
 - ii. Color: Bungalow Beige SW 7511
 - iii. Finish: Eggshell Finish
 - b. Ceilings:
 - i. Mfr: Sherwin Williams
 - ii. Color: Extra White SW 7006
 - iii. Finish: Flat
 - c. Doors: Blanks/Slabs (including interior sides of exterior doors) - ALL door blanks must have the tops & bottoms painted along with the sides.
To Include all Hand and Wall Railing.
 - i. Mfr: Sherwin Williams
 - ii. Color: Extra White SW 7006
 - iii. Finish: Semi-Gloss
 - d. Trim: Baseboards, Casing, lambs, Crown Mould, Chair Rail, Quarter Round/Shoe Mould, Window Stool, Aprons, Balusters and Newel Posts and Rosettes.
 - i. Mfr: Sherwin Williams
 - ii. Color: Extra White SW 7006
 - iii. Finish: Semi-Gloss
6. Extra Materials: Paint contractor will leave (in the pantry closet) with Authority - 1 gallon (unopened) each color of wall and ceiling paints (flat finish), 1 quart (unopened) of each color of wall (egg-shell finish), 1 quart (unopened) of each color of trim (semi-gloss finish) and 1 quart (unopened) of each exterior color (gloss finish) used on this project.

END OF SECTION

10820 RESIDENTIAL BATH ACCESSORIES — MIRRORS — CLOSET SHELVING

Provide toilet and other noted accessories as shown on the drawings, as specified herein and as needed for a complete and proper installation. All products to be an upgraded style and quality from any of the Builder's grade series, with all products having a minimum diameter thickness of $\frac{1}{4}$ ". The contractor is to supply a total all-inclusive lump-sum bid proposal for all materials, labor and tools necessary to complete the project in a neat and professional manner.

4. Schedule of Fixtures: First Floor — Full-Bath

- a. Toilet Tissue Dispenser: installation location: Chase wall Left of water closet
 - i. Manufacturer: Taymor Bathware / Maxwell Collection OR
 - ii. Pamex Inc. Bath Hardware / Carmel Collection
 - iii. Color/Finish: Oil Rub Bronze
 - iv. Number of Units: 1

- b. Towel Ring: installation location Right exterior wall
 - i. Manufacturer: Taymor Bathware / Maxwell Collection OR
 - ii. Pamex Inc. Bath Hardware / Carmel Collection
 - iii. Color/Finish: Oil Rub Bronze
 - iv. Number of Units: 1

- c. 24" Double-Towel Bar: installation location: wall directly across from the water closet between vanity and light switches
 - ii. Manufacturer: Taymor Bathware / Maxwell Collection OR
 - iii. Pamex Inc. Bath Hardware / Carmel Collection
 - iv. Color/Finish: Oil Rub Bronze
 - v. Number of Units: 1

5. Installation:

- a. Install fixtures, accessories, and items in accordance with manufacturer's instructions and code regulations. All towel bars should be installed 48" above the finished floor. The toilet paper dispenser should be installed no lower than 19" above the finished floor.
- b. Install plumb and level, securely and rigidly anchored to substrate.

6. MIRRORS: to be installed over all lavatories/vanities.

- a. Dimensions: The mirror's length (vertical) should extend from above the Vanity's splash blocks to within 6" of the base of the wall light fixture. (Field Verify)
 - i. First Floor — Half-Bath: Mirror to be the same width (horizontal) as the vanity — (Field Verify all locations and dimensions)

- b. Style: Mirrors to have beveled decorative (edged on all sides) overlay on top of the frameless mirror. The mirrors are to be high quality $\frac{1}{4}$ " thickness and one panel. Mirrored effect receptacle cover plates will be included in the mirror installation

- process.
- c. Install base plumb and level, securely and rigidly anchored to substrate.
7. Shower Bars (non-descript / Oil Rub Bronze): to be installed on all tub/showers.
 - a. Install plumb and level, securely and rigidly anchored to substrate.
 8. CLOSET SHELVING:
 - a. All closets are to utilize White Wire Shelving (12" wide) Heavy-Duty with open slide-ease front design. The Authority will confirm design, lay-out and locations with an on-site field verification visit. Closet shelving usually consists of; coat closet (1 shelf), pantry (5 shelves), linen closet (4 shelves), bedroom closets utilizing one shelf full length area and two shelf areas, and laundry area (1 shelf).
 - b. Install plumb and level, securely and rigidly anchored to substrate. All mounting must be to the stud, no drywall anchoring will be allowed. All shelving configuration and mounting procedures must conform to a heavy-duty classification and hold loads accordingly.
 9. Warranty: The contractor is to supply the Authority a copy of any applicable product's manufacturer's warranty. The contractor will also supply the Authority in writing a 2- year full warranty on workmanship, to include all materials and labor.
 10. Scheduling: This home is being built utilizing the critical path method, with maintaining the construction schedule being a critical factor. The contractor/vendor will have 3 workdays to start work at this project's site after notification by the Authority on a mutually agreed upon Notice to Proceed date. The contractor will have 3 workdays (duration) to complete the installation of all contracted work items.

END OF SECTION

11452 APPLIANCES

Provide appliances as shown on the drawings, as listed on the Appliance Schedule, as specified herein and as needed for a complete and proper code compliant installation according to manufacturer's recommendations. All appliances (if applicable) must be Energy Star rated. The Authority has completed a substantial selection process based upon cosmetic features, performance criteria and overall costs, to make a best value determination on pre-approving the following products. Each selection has established overall performance and design criteria, any contractor/vendor wishing to submit an equal-to substitution proposal must supply all specification technical data sheets for all products, for the Authority to make a reasonable evaluation.

PRODUCTS:

RANGE: (Quantity 1) - 30" Free Standing Unit / Ceramic Smooth Top / Electric — 240 volt — 40 amp / 5 burner / 29 7/8" wide
Manufacturer: Frigidaire
Model No.: FCRE305LAF
Color: Stainless Steel

DISHWASHER: (Quantity 1) — Built-In Under Counter — Energy Star — 24" W x 35" H x 25" D
Manufacturer: Frigidaire
Model No.: FFCD2413US
Color: Stainless Steel

MICROWAVE OVEN over the range: (Quantity 1) - 1.8 cf- ducted vent — 300 cfm fan - (cut out dimension 30" w x 13" d x 16.5"h)
Manufacturer: Frigidaire
Model No.: FMOS 184LBF
Color: Stainless Steel

REFRIGERATOR: (Quantity 1) — Side by Side (Total capacity 25.6 c9 / Freezer Capacity 9 cf/ Refrigerator Capacity 16.6 cf/ 35.8" D x 70"H x 36.3" W / with Ice maker — Frost Free - Energy Star & CEC approved
Manufacturer: Frigidaire
Model No.: FRSS26:3AF
Color: Easycare Stainless Steel
Ice Maker & Water Dispenser

WASHER (Clothes): (Quantity 1) — Top-Load — 4.6 cf— Energy Star & CEC approved / 27" D x 27" W x 44" H
Manufacturer: General Electric
Model No.: GTW500ASNWS
Color: White

DRYER (Clothes): (Quantity 1) — 7.2 cf— CEC approved / 29.5" D x 27" W x 44" H
Manufacturer: General Electric
Model No.: GTD45EASJWS
Color: White

INSTALLATION:

1. All necessary installation accessory equipment will be supplied to include but not limited to, such as: electrical pig-tail electrical cords, tip-over brackets, water- supply ice-maker lines & shut-off valve, exhaust ductwork and/or exhaust hoses, etc.
2. Install equipment in accordance with the manufacturer's instructions and local regulations.
3. Set and adjust units, level and plumb.
4. Activate units to confirm proper operation.
5. Run dishwasher through a full cycle, to confirm proper operation and that no leaks exist.
6. No scratches and abrasions will be accepted.

WARRANTY:

The contractor/vendor will provide a copy of all manufacturers' warranties, including any necessary registration forms.

END OF SECTION

15400 PLUMBING

1. Contractor is responsible for all plumbing permits, inspections, and related fees. Contractor will provide an all-inclusive total lump-sum bid proposal for all materials, labor and tools needed for a neat professional project completed according to industry standards. Provide plumbing as shown on the drawings (houses containing 2"x6" framed plumbing walls must be utilized), as specified herein and as needed for a code compliant installation including, but not limited to:
 - a. Domestic hot and cold-water piping systems.
 - b. Drain, waste and vent systems.
 - c. Plumbing fixtures and trim as shown on the drawings and as specified herein.
 - d. Water Supply Lines (underground) from the water meter to the house (including connection).
 - e. Main Sewer Drain (underground) from the City's tap to the house (including all connections).
2. Sanitary sewer piping:
 - a. ABS pipe: ASTM D2680 or D2751, solvent weld joints.
 - b. PVC pipe: Schedule 40, solvent weld joints.
 - c. Only piping approved by local codes will be acceptable to use (no cast iron). Soil-stack drain lines shall not be installed in 2"x4" walls. The contractor is to coordinate with the roofing contractor to ensure that all thru-the roof vent boots are installed.
 - d. All traps are to have a clean-out.
3. Water piping:
 - a. Copper tubing: Type K annealed with wrought copper fittings and compression joints.
 - b. PVC pipe: Schedule 40, minimum 150 psig pressure rating, solvent weld joints.
 - c. PEX tubing: Cross-linked polyethylene tubing with copper compression rings.
 - d. Stub-Outs: Copper (8" minimum) will be used at all wall penetration locations.
 - e. Only piping approved by local codes will be acceptable to use. Water supply pipes located under the house in the crawl space and/or located in exterior walls should be appropriately insulated.
4. Water heater with pressure relief valve on overflow: also, to include a stand, pan and drain line. Water heater will be installed in a heated/cooled living area (designated closet).
5. Electric Water Heater: (see Plumbing Fixture Schedule) Factory assembled and wired, electric, vertical type, with automatic immersion water thermostat, flanged or screw-in nichrome elements, high temperature limit thermostat. Meets or exceeds requirements of the National Appliance Energy Conservation Act (NAECA).
6. Ice maker Box will be supplied and installed in Kitchen in the Refrigerator's designated opening, and during trim-out connected to refrigerator.
7. Clothes Washing Machine connection box will be supplied and installed in the area designated laundry and connected to washer. Washer to have pan and drain line.
8. All hose bibs are to be frost free and located per plans.
9. The contractor will make all connections/installations as deemed necessary for a completed project as per this set of specifications and plans/blueprints. Such work will include but not be limited to; dishwasher, garbage disposal, under mount sinks supplied as part of the bathroom vanity cabinetry etc.
10. Plumbing Fixture Schedule:
 - a. Kitchen Faucet — (Quantity 1) - Delta — 9178-RB-DST — Leland — Brushed Stainless - 1.8 GPM- Pull Down Kitchen Faucet with Magnetic Docking Spray Head and Shield Spray

- b. Lavatory Faucets — (Quantity 1) -Delta — “Linden” — Widespread Deck Mounted Bathroom Faucet with Diamond Seal Technology and Pop-up Drain Assembly — 3593RBMPU-DST - 3-hole sink application — 8” center set — Oil Rubbed Bronze — 1.2 gpm - aerator to be installed.
 - c. Water Closet (Quantity 1) — American Standard — 270DA101.020— “Cadet 3” - 1.28 gpf Round 2-piece Toilet Bowl with Everclean Technology — White Vitreous China — floor mount 12” rough-in / 15 ½” rim height.
 - d. Toilet Seat — (Quantity 1) — American Standard Cadet 3 — Round Slow Close with cover and ever clean surface — White- 5345110.02
 - e. Tub/Shower — (Quantity 1) -American Standard — Studio — Model 2973102.011 / Finished - 60” x 32” —White — textured anti-flex floor / Soaker Alcove Bathtub
 - f. Shower/Tub Fixture — (Quantity 1) — Delta — T14494-RB— Linden Monitor 14 Series Tub and Shower Trim Package — Single Handle Pressure Balance Tub & Shower Faucet — Oil Rubbed Bronze— 1.75 gpm
 - g. Food Waste / Garbage Disposal (Quantity 1) — In-Sink-Erator IBadger 5 — “Badger” — BADGER5WC- 1/2 hp Dura-Drive Induction heavy-duty motor — Galvanized Steel Grind System — permanently lubricated bearings- manual reset — 1725 rpm — 120 volt — grinder capacity 26 oz. — height 12 5/8”/ supply and install In-Sink Erator ISTprs — Disposal stopper/flange — stainless steel-To include power cord.
 - h. Water Heater — (Quantity 1) — State Water Heaters — High-Efficiency Electric — Model ENG-55-DORT — Tall 55 gallon — Energy Factor .93 — Peak Demand Output (1st hour rating gallons) 72 — Recovery 90-degree Rise 21 — R-value 20 — 6-year limited warranty.
11. Warranty: Contractor will provide the Authority a copy of the manufacturer’s warranty on all applicable fixtures. In addition, the contractor will provide in writing a complete 2-year warranty on all materials and workmanship, sent with the final invoice.
12. Scheduling: The Authority is constructing this home utilizing the Critical Path Method and must adhere to a strict construction schedule. The contractor will have 7 calendar days to start work on the jobsite from a pre-established mutually agreed upon Notice to Proceed date (in writing). This project will be completed in phases — rough-in and trim- out. The rough-in phase will include all underground and framed housework, completed in no more than 10 workdays (duration). The trim-out phase will be completed in no more than 5 workdays (duration). The contractor may invoice 60% of Us lump-sum contract (rough-in) after achieving all applicable code approvals (documented). The contractor may invoice the final 40% of the contract amount a9er final inspection approvals have been obtained and the Authority has accepted the final product.

END OF SECTION

15502 CENTRAL AIR CONDITIONING & HEATING

1. Contractor is responsible for all mechanical permits, inspections and associated fees. Provide heating and air conditioning system as shown on the drawings, as specified herein and as needed for a complete and proper installation per industry standards. All equipment and components should be Energy Star compliant. The HVAC unit should be sized based upon the ACCA's manuals S & J. It will be the contractor's responsibility to notify the Authority if their load calculations based on the home's size, design and heat loss, requires a different sized unit, duct or return (than those specified) to meet the expected performance criteria. The contractor will supply an all-inclusive total lump-sum bid proposal to include all materials, labor and tools to complete this project to the Authority's satisfaction.
2. Forced Air System: Ultra-High Efficiency Split System (ENERGY STAR compliant)
 - a. Equipment product performance criteria requirements:
 - i. Capacity — 3 ton (Field Verify Correct Ton for Size of Home)
 - ii. SEER — 15 equal or greater (Seasonal Energy Efficiency Ratio)
 - iii. HSPF - 8.2 equal or greater (Heating Seasonal Performance Factor)
 - iv. EER — 12 equal or greater (Energy Efficiency Ratio)
 - v. ECM (Electronically Commutated Motor) -Air Handler unit motor must be Variable Speed — NO multi-speed air handler blower motor units.
 - b. Manufacturer: All major brands will be evaluated for acceptance — the contractor must provide all technical performance data with bid proposal. Contractor may be asked to document the availability of parts and service in this locality for certain manufacturers. However, the Authority has pre-approved the following manufacturer and model as acceptable, meeting all required performance criteria:
 - c. Refrigerant: R-410A coolant / Puron type
 - d. Fuel: Electric (supply the Authority with electrical requirements for equipment in your bid proposal — for electrician)
 - e. Supplemental/Auxiliary/Emergency Heat — 7 KW Heating Strip
 - f. Outdoor Equipment Placement: Contractor will place the self-contained unit as per the plans, utilizing the access opening (36" x 24") in the masonry foundation wall.
 - g. Contractor to supply and install level pad a minimum of 8" above the site's finished grade and set condensate lines to drain away from home.
 - h. All parts will have a minimum 5-year warranty with a 10-year warranty on the Compressor.
 - i. Contractor is to provide and install a complete security case system for all of the outdoor equipment.
 - j. One Programmable Thermostat (Energy Star compliant)
 - i. 5 + 2-day model
 - ii. Four default program periods per day
 - iii. +/- 2-degree accuracy
 - iv. Digital backlit display
 - v. Change Filter indicators
3. DUCTWORK should be designed, installed, balanced, and sealed according to the ACCA's manual D. Based upon ACCA Standards for the equipment's tonnage, the Authority requires 18" duct. Contractor will utilize the chases designed into each home's floor plan (1st & 2^d floors —inline) to run their supply and return main trunk lines. Contractor will understand that the installation may be inspected by a third party to verify that no leaks exist, and the system is properly balanced prior to final acceptance.
 - a. Metal ducts: All duct work should be roughed in prior to insulation and drywall. For

exhaust systems and for the heating, ventilating and air conditioning systems, use galvanized sheet metal ducts, insulated as required by code and to Energy Star guidelines.

- i. Kitchen overhead range exhaust fan to be ducted with rigid metal duct (4" x 10") and exhausted through the exterior wall.
 - ii. Bathroom exhaust fans are specified in #16400 light fixture schedule and supplied by the electrical contractor, the mechanical contractor is to mount (per plans) the unit's blower motor frame/box and attach 4" round metal duct, exhausted to the exterior wall.
 - iii. Dryer vent to have metal duct plumbed into wall — dryer vent to be unseen and exhausted to the exterior wall.
- b. At branch ducts, provide manually operated dampers, two gauges heavier than the ducts and equipped with locking quadrants.
- c. Flexible ducts: Where permitted by code restrictions, contractor may use factory fabricated insulated low-pressure flexible duct with the following attributes:
- i. Zinc-coated spring steel helix, with 1-inch-thick fiberglass insulation, sheathed in a seamless vapor barrier jacket.
 - ii. Interior fire-resistive coated to prevent fiber erosion.
 - iii. Provide flexible duct in fully extended condition, free from sags and kinks. Use only the minimum length required to make the connection. Do not exceed 8 feet in length. Make joints and connections with 1/2-inch-wide positive locking steel straps.
- d. All ducts to be sealed with mastic or metal foil tape (UL 181) to ensure energy efficient seal (ducts sealed for a leakage rate of less than 4 cfm/ 100sf to outdoors).
- e. All supply duct work to have as a minimum insulation of at least R — 8. All return duct work to have as a minimum insulation of at least R — 6. However, the contractor may be required to install additional insulation to meet all IRC 2012 & VRC 2015, IECC and Energy Star requirements.
- f. Air outlets: Use double deflecting type with opposed blade dampers.
- g. Piping: For refrigerant piping use type L copper, refrigerant grade, with wrought copper fittings. All mechanical system piping must be insulated to a minimum of R - 3.
- h. Returns: One return grill (14" x 24") with filter to be installed on each floor, place as noted on the plans. All grills and/or returns to have a White finish. Install additional returns per code in bedrooms.
- i. Supply Registers: All supply registers on the first floor to be installed in the floor, all supply registers on the second floor will be installed in the ceiling. All registers are to have a White finish.
- j. Install 36" H x 4.5" W yellow steel safety bollard in front of air handler in garage.
- k. Scheduling: This home is being built utilizing the critical path method, where maintaining the construction schedule is mandatory. The contractor will have 4 calendar days to start work at the actual project's location after being notified by the Authority of a mutually agreed upon Notice to Proceed date. This project will be completed in two phases: rough-in and trim-out. The contractor will have 5 workdays (duration) to complete all necessary work required for rough-in and may invoice up to 40% of the contract's total amount after obtaining an approved/accepted inspection status. The contractor will have 3 workdays (duration) to complete the trim-out phase (including unit start-up) and may invoice the contract's remaining balance after obtaining an approved/accepted status on the final inspection, to include final acceptance on workmanship by the Authority.

1. Warranty: Contractor is to supply the Authority a copy of all the applicable equipment's manufacturer's warranties. The contractor will also provide in writing, a full 2-year warranty on materials, labor and workmanship; that will be sent with contractor's final invoice.

END OF SECTION

16400 ELECTRICAL DISTRIBUTIONS

1. The contractor will have full responsibility for permitting, inspections and any related fees. Provide complete electrical, cable and telephone service as shown on the drawings, as specified herein and as needed for a complete and proper installation, meeting all relevant code requirements and VHDA design criteria. The contractor will also be responsible for all contact with Dominion Power, such as: meter bases, under-ground service, service entrance cables and getting the home's power activated.
2. Use only new materials of the type and quality specified. Wherever Underwriters' Laboratories, Inc. have established standards for such materials, use only materials bearing the UL label.
3. This home will be all "electric", all efforts are to be made to make the home as efficient as reasonably possible, and components should be Energy Star rated.
4. Wiring:
 - a. Non-metallic sheathed cable, size 14 through 4 AWG: Copper conductor, 600-volt insulation, rated 60 degree C, type NM.
 - b. Underground feeder and branch circuit cable: Copper conductor, 600-volt insulation, rated 60 degree C, type UF.
 - c. Service entrance cable: Copper conductor / Aluminum 4 AWG, 600-volt insulation, type SE.
5. Telephone:

Provide service entrance equipment, outlets, terminal boards and required for a complete, approved and operating telephone service, except for such items as are provided by the serving telephone company. Phone jacks are to be installed in accordance with the floor plans or as directed by the Authority.
6. Cable Television / Computer:

Provide service entrance equipment, outlets, terminal boards and other required for a complete, approved and operating cable television service, except for the television units and such items as are provided by the serving cable television company. Cable hook-ups are to be installed according to the floor plans or as directed by the Authority.
7. Main distribution panel:
 - a. Circuit breaker type, 200-amp service - Underground Service.
 - b. Provide surface cabinet front with screw cover and hinged door. Cabinet to be sized to provide blanks for future expansion. Ground Fault and Arc Fault Circuit Interrupter circuit breakers are to be used where local codes dictate.
 - c. HRHA recognizes that their specifications can not over-ride the NRC or local code requirements, but because of today's electrical needs they would like these circuits (unless the Contractor can demonstrate where these will not meet code restrictions).
 - i. Concerning all rooms over 70 sf— light fixtures will be wired to an adjacent room's lighting circuit's receptacles (x pattern) to ensure that power (lighting) is available in the room if repairs are necessary (breaker off).
 - ii. Each bedroom should have its own 15-amp circuit (minimum)/ receptacles (ARC Fault).
 - iii. Each full bathroom should have its own 15 amp — GFCI receptacle circuit (minimum).
 - iv. The kitchen should have a minimum of two 20 amp — GFCI small appliance circuits.
 - v. The major first floor gathering room (Living or Family Rooms) should have its own 20-amp receptacle circuit (minimum).

- vi. The two exterior receptacles to be on their own 20-amp GFCI circuit.
 - vii. The refrigerator is to have its own individual circuit.
 - viii. The electrician is to confirm all circuitry needs with the mechanical and plumbing trades {(HVAC system to include heat strip — specifications # 15502) and water-heater — specifications # 15400}.
 - ix. The range/stove should be a 50-amp circuit. (Confirmation can be made through the appliance specifications #11452)
8. Wiring Devices and Wall Plates:
- a. Wall switch: (Color — White / Medium Oversized Cover Plate) - AC general use, quiet operating snap switch rated 15 amperes and 120-125 volts AC, handle type as industry standard typical toggle switch.
 - b. Receptacle: (Color — White / Medium Oversized Cover Plate) - CU CLAD, 120- 125 volts, 15 or 20 amp - pending location, plastic face.
 - c. Specific purpose receptacles: Configuration as noted on the drawings, (dryer & range).
 - d. Wall dimmer: Linear slide type, color selected by owner (Color -White). Rated for 600 Watts, sized to accommodate circuit shown on the drawings. To be installed to control any chandelier style light fixtures. Ceiling fans are to have the light and fan functions wired separately and controlled by different switches. Bathroom Exhaust Light/Fans: light function should be wired with a switch that controls light over vanity and the fan/light unit switched separately.
 - e. Weatherproof cover plate: Gasketed cast metal with hinged gasketed device covers. Each home is to be wired with at least two exterior GFCI circuits located according to the plans.
 - f. Smoke Detectors (hard wired) to be supplied and installed by contractor according to local code requirements.
 - g. Blueprints are provided to designate specific locations for GFCI's, Arc Faults and Cable & Phone Jacks. The plans also provide general information, as number of fixtures and suggested locations. The plans are not certified by an electrical engineer and in no manner releases the contractor from the responsibility of completing a code compliant project. No change-orders will be accepted, for additional work (not shown on plans) required for code compliance.
 - h. Light Fixtures will be furnished and installed by contractor in accordance with manufacture's recommendations, code requirements and contract documents. (See Light Fixture Schedule).
9. Installation:
- a. Appliances will be furnished by the Authority and installed by the appropriate contractor. Contractor will supply all necessary supplies, accessories and tools for a proper code compliant installation.
 - b. Install as applies, microwave, dishwasher, range hood exhaust fans, washer, dryer, refrigerator and electric range, level and plumb. (As applicable per plans)
 - c. All built-in electric ovens and ranges are to be securely fastened after wiring connections are completed. (Tip over plate at rear base)
 - d. Garbage Disposal to be wired to operate from a switch.
 - e. Low voltage furnace wiring to be completed by heating contractor.
 - f. Light Bulbs will be supplied by the electrical contractor (all incandescent fixtures will utilize CFL or LCD — base/socket size pending).
 - g. Light fixtures, switches and receptacles will be supplied and installed in the attic, garage and any designated storage areas as per the plans, specifications herein or required by local codes.

10. Warranty: The contractor will supply the Authority a copy of all applicable manufacturers' warranties. The contractor will also supply (in writing) to the Authority a 2-year full warranty on all workmanship to include all materials and labor.
11. Special Note to the Scope of Work:
 - a. The electrical contractor should include in their bid proposal the cost of adding any disconnect box — because of the floor plans and equipment proximity.
12. Blueprints are not all inclusive they merely show preferred locations for switches, light fixtures, telephone boxes and cable boxes — actual locations of such items as receptacles will be dictated by Code requirements. In addition, the provided drawings can not be used to calculate the exact number of such items. Additional work required by the City or Dominion Power for contractor to receive a passed/approved/accepted Code's inspection will not be a change-order, but part of the original lump-sum bid proposal.
13. The contractor will provide in writing, an all-inclusive lump-sum total bid proposal supplying all materials, labor and tools to complete this project to industry standards and set forth within these guidelines and specifications. This home is being built utilizing a critical path method, where the construction schedule is critical. The contractor will have 3 working days to begin work on the specific worksite from the Authority's notification of a mutually agreed upon Notice to Proceed date. This project will be completed in two phases, with the initial phase being that of rough-in, which the contractor has 5 workdays to complete (duration). The contractor may invoice 50% of the total contract amount once a City approved inspection is approved. The second phase of this project will be the trim-out phase. The contractor will have 4 workdays (duration) to complete all necessary work. The contractor may invoice the remaining contract balance; after all, electrically related inspections have been obtained in an accepted/approved manner. The Authority will have the final judgment on project quality acceptance.

LIGHT FIXTURE SCHEDULE:

All light fixtures will be Energy Star rated, if fixture utilizes a traditional bulb base — the bulbs must be high-efficiency products. no incandescent bulbs will be allowed. The contractor will supply all necessary bulbs as Dari Of the manufacturer's recommended installation process. The Authority has completed an extensive review and acceptance procedure; all of the fixtures have been pre-approved for cosmetic appeal, performance criteria and cost-effectiveness. If a contractor/vendor is submitting an equal-to substitution (for any reason including product discontinuation), they must provide all technical data including fixture pictures for an Authority evaluation and/or acceptance.

Exterior (Front Porch Ceiling) — (Quantity 2) — Wall Hung — Black — Sonneman / "Mezza Cupola 5" LED Sconce / 7470.72-WL.

Interior (Living Room) — (Quantity 1) — Ceiling Fan 52" — Hunter / Axial 52" 4 blade / White Finisyh / 4-reversable blades / Light Kit included — white etched glass — Hugger Indoor Ceiling Fan with LED Light Kit

Interior (All Bedrooms + Living Room) — (Quantity) — Ceiling Fan 42" — Hunter / Newsom / Bronze Finish / Dark Oak Blades / 51078 — Light Kit included — white etched glass — Indoor Ceiling Fan with LED Light Kit

Interior (Dining Area) — (Quantity 1) — Ceiling Flush Mount — Minka Lavery — Vantage 13" LED — 13" Wide LED Flush Mount Ceiling – white finish

Interior (Over the Kitchen Sink) — (Quantity 1) — Under-Cabinet Lighting— Juno Lighting— Contractor Select UCES 36IN SWW6 90CRI WH M6 / 36” Wide undercabinet light

Interior (Kitchen) — (Quantity 3) — Minka Lavery — Ceiling Flush Mount — Vantage —7.5” Wide LED Flush Mount Ceiling – White finish

Interior (Attic) — (Quantity 2) — Flush Ceiling Mount —Sylvania Lighting Ultra LED / 1636358.

Interior (1st Floor Bath) — (Quantity 2) — Single Fixture Wall Mount — Bathroom — Bronze Finish — 1 bulb — Kovacs / “Alluria 6”” — P1350-618 — 6” Wide Bathroom vanity light with etched glass shade

Interior (1st Floor Bath Shower Ceiling) — (Quantity 1) — Dals Lighting Ultra Slim 6” Square LED can less recessed fixture- SPNG5Q-CC-3T.

Interior (Baths) — Ceiling Mount — Bathroom Fan with Light — White — Aero Pure — ABF80L6W / 0.3 sones — 80 cfm fan.

END OF SECTION