



Rice Construction Company

P.O. Box 445
Johnson City TX 78636
(830) 868-4108 Fax (830) 868-4208
www.riceconstructioncompany.com

Specifications

THIS AGREEMENT, Made as of **(Current Date)**, In the Year of **(Current Year)**,

Between the Owner: **Contact Name**
Street Address
City, State Postal Code
Contact Telephone

And the Contractor: **Rice Construction Company**
TRCC #8015

For the Project: **Project Name**
Project Address

DIVISION 1. GENERAL REQUIREMENTS

01000 – Purpose -

01002 – Instructions -

01500 – Temporary Facilities and Controls - This work shall consist of the application of temporary measures throughout the life of the project.

01510 – Temporary Utilities - All connections and extensions required to provide temporary utilities shall be made by the Contractor at the Contractor's expense.

01511 – Temporary Electricity – Contractor to provide and install temporary power for construction site. Connect to existing power service without disrupting local service requirements. Power feeder service characteristics shall be compatible with the service from which it is taken. Size, type and loading shall be per requirements as established by the National Electric Code (NEC). The contractor shall provide main service disconnect and over-current protection at a convenient location in accordance with the NEC. The Contractor shall provide power outlets for construction operations, with branch wiring and distribution boxes located as necessary and shall provide flexible power cords as required. Provide and install distribution equipment, wiring and outlets to provide single phase branch circuits for power and lighting.

01514 – Temporary Heating, Cooling and Ventilation - Contractor to provide and install temporary heating, cooling and ventilation for construction site. Contractor to maintain system during construction, while exercising measures to conserve energy. Ventilate enclosed areas to assist cure of materials, to dissipate humidity and to prevent accumulation of dust, fumes, vapors or gases. Supplement with temporary fan units as required to maintain clean air for construction operation.

01515 – Temporary Lighting – Contractor to provide and install temporary lighting for construction site. Provide and install temporary lighting in all work areas sufficient to maintain a lighting level during working hours not less than the lighting level required by OSHA standards. As permanent lighting facilities are completed, they may be used in lieu of temporary facilities. Provide temporary lighting as required to satisfy safety and security requirements. Maintain a minimum illumination level of **30 foot-candles measured 3 ft. above floor** in areas where finish trades are performing work. At exterior areas, provide **1 foot-candle of light** after dark for security purposes.

01517 – Temporary Telephone – Contractor to provide and install temporary telephone for construction site.

01518 – Temporary Water – Contractor to provide and install temporary water for construction site. Connect to an existing water source for construction operations.

01520 – Construction Facilities – Field offices and sheds shall be portable or mobile buildings, or buildings constructed with floors raised above the ground, securely fixed to foundations, with steps and landings at entrance doors. Structurally sound, secure, weather tight enclosures for office and storage spaces shall be maintained during progress of work and removed at completion of work. Size of field offices and sheds shall depend on contractors needs. Install appropriate fire extinguisher. HVAC shall be adequate to maintain comfortable conditions. At completion of work, all temporary facilities shall be removed and area restored to new condition.

01523 – Sanitary Facilities – Existing facilities shall not be used. Contractor shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees as will

comply with laws and regulations. Temporary toilet facilities may consist of portable toilets. [The number shall be based on number of workers, 1 toilet per 15 workers.](#) Toilet facilities shall be kept supplied and clean and in sanitary condition until the completion of the work and then shall be removed from the site. Upon removal the site shall be properly cleaned and graded.

01530 – Temporary Construction - The contractor shall provide and maintain for duration of work all required temporary stairs, ladders, ramps, runways and hoists for use of all trades.

01540 – Construction Aids – The contractor to provide all construction aids needed during construction which shall include but not limited to; elevators, hoists, cranes, etc.

01542 – Construction Scaffolding and Platforms – The contractor shall provide and maintain for duration of work all required temporary standing scaffolding. 'Independent tied' scaffolds will normally be provided for painting, pointing or other maintenance work. 'Putlog scaffolds', used for the construction of brick walls, have only one row of standards which are usually erected some [900mm](#) from the face of the wall, with the boards carried on horizontal members known as 'putlogs'. When used in new construction, the flattened ends of the putlogs are built into the bed joints as work proceeds and then withdrawn on completion, the resulting hole being pointed up.

01550 – Vehicular Access and Parking – Construct and maintain temporary roads accessing public thoroughfares to serve construction area. Arrange parking areas to accommodate construction personnel. Do not allow vehicle parking on existing pavement. When site space is not adequate provide additional off-site parking.

01560 – Temporary Barriers and Enclosures – The contractor shall provide barriers to prevent unauthorized entry into construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition. Install barricades and covered walkways required by governing authorities for public right of ways. When necessary install [chain link](#) fence around job site.

01570 – Temporary Controls - This work shall consist of the application of temporary measures throughout the life of the project to control erosion and siltation. Such measures shall include, but are not limited to, the use of berms, dikes, dams, sediment basins, fiber mats, silt fences, straw bales, washed gravel or crushed stone, mulch, grasses, slope drains, temporary seeding and other methods. Temporary erosion and siltation control measures as described herein, shall be applied to erodible material exposed by any activity associated with the construction and consistent with state and local control standard.

01580 – Project Identification – Within [15 days](#) after the commencement of work, provide [one](#) project identification sign at the locations indicated. Maintain sign throughout the life of the project. On the sign, list two points of contact by name and telephone number.

01600 – Product Requirements (Scope of Work) - All materials shall be installed in strict accordance with the manufacturer's written specifications or Material's Institute Standards. Where the manufacturer's recommended details are used, the manufacturer shall be responsible for the performance

of their product. All Items not specifically mentioned that are required to make the work complete and operational shall be included.

Installation and Storage - All materials, supplies and equipment shall be installed per manufacturer's recommendations and per applicable codes and requirements. Material stored on site shall be protected from damage by moisture, wind, sun, abuse or any other harmful affects.

01630 – Product Substitution Procedures – Contractor to investigate proposed products and determine that they are equal or superior in all respects to products specified. Coordinate installation of accepted substitutions into the Work, making such changes as may be required for the Work to be complete in all respects. Meet with clients and get change order request signed.

01640 – Owner Furnished Products – Contractor is not responsible for products furnished by the owner that are damaged prior to opening or receiving. Additional work required to install owner furnished products will be charged to the owner and due upon installation.

01700 – Execution Requirements – The execution of all work shall be in strict accordance with these specifications and manufacturer's written specifications or Material's Institute Standards. Where the manufacturer's recommended details are used, the manufacturer shall be responsible for the performance of their product. All work not specifically mentioned that is required to make the work complete and operational shall be included.

Codes - Construction shall comply with all applicable national, state and local building codes. It is the responsibility of the Contractor and Owner to insure compliance with said codes and modify the specifications as needed to comply with such codes.

Measurements - The Contractor shall check and verify all dimensions and conditions before proceeding with construction. Do not scale drawings. Noted dimensions take precedence.

Workmanship - Workmanship shall conform to the best and highest standards of quality in each trade and shall include all items of fabrication, construction and installation. All work shall be completed by skilled tradesmen and mechanics. Installation of all equipment and materials shall be in strict accordance with manufacturers recommendations.

Insurance - Builders Risk Insurance shall be maintained by the contractor during the course of construction until final acceptance by the owner. All bonding and insurance requirements shall be coordinated with the Owner prior to beginning construction. All contractors shall provide and be solely responsible for necessary barricades and safety precautions, and strictly adhere to all governing codes on safety, including the OSHA Act.

Square Footage - Interior finished square footage figures represent heated and cooled floor area only and do not include additional area for two-story or vaulted spaces, garages, decks, porches or any other unfinished areas. These dimensions are generally measured from the outside face of the stud. Fill in the appropriate square footage numbers for the project you are specifying.

0,000 sf Finished Interior
000 sf Parking

000 sf	Unfinished Storage
000 sf	Exterior Patios
00 sf	Exterior Porches
0,000 sf	Total

01712 – Local Conditions -

01740 – Cleaning - Construction site to be in a clean and orderly condition throughout the construction process. Clean interior spaces prior to the start of finish painting and the application of other finishes. At the conclusion of construction, the project shall be properly cleaned. This should include but not be limited to; cleaning the interior and exterior glass, surfaces exposed to view, remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surface areas, sweep and mop all tiled surfaces, etc. Replace filters of operating equipment. Clean equipment and fixtures to a sanitary condition. **Clean exterior such as debris from roof, gutters, landscape areas, driveways and walks, etc.** Remove all waste and surplus materials.

01760 – Protecting Installed Construction – Contractor to protect all installed construction. If products or materials come with a protective coating, contractor shall maintain protective coating until construction is complete. Contractor shall replace any items that become defective or damaged.

01903 – Hazardous Materials Abatement – Contractor to abate any hazardous material or substance before beginning construction. Contractor shall contract with a properly licensed and qualified hazardous material contractor.

01904 – Hazardous Materials Removal and Disposal - Remove and dispose of any hazardous material before beginning construction. Contractor shall contract with a properly licensed and qualified hazardous material contractor.

DIVISION 2. SITE WORK

02000 – General - Contractor shall review construction documents and provide necessary site work, excavation and grading as required to construct said project.

02200 – Site Preparation – The area of clearing shall be maintained within the limits shown on the appropriate site plans. Remove stumps and matted roots to a depth of **24 inches** below existing ground surface. Dispose of trees and shrubs in accordance with applicable garbage, refuse or weeds ordinance.

Do not burn materials on site. [The County Fire Marshal may consider granting a waiver from open burning restrictions.](#) Remove material from the site as it accumulates. Do not allow water material to accumulate for more than 48 hours.

Soil Bearing - Foundation designs are based on a soil bearing value of [2500](#) psf. Foundations and slabs are designed to uniformly bear on well-compacted, well-drained non-expansive soils. A certified soils engineer shall review foundation designs and building loads and compare with subsurface soil investigation. Should on-site observations show that foundation designs are not satisfactory, a structural engineer should be contacted immediately to redesign foundations to accommodate conditions.

02220 – Site Demolition – Provide all labor, materials and equipment to perform the required demolition of existing pavement no longer needed for access or parking, abandoned utilities and structures which interfere with the proposed construction. When required install chain link fencing around the area of demolition work. Protect all adjacent areas not to be demolished. Remove all debris from job site before construction begins.

02230 – Site Clearing - Clear and grub the construction site. Grade building site with appropriate soils. Existing trees to remain shall be marked prior to clearing and protected to prevent damage. If any damage is done to walkways, driveways, etc, needed repairs shall be provided by the contractor. Repair or replace any damaged vegetation or terrain that is indicated to be protected or is more than eight feet from the edge of any construction.

02240 – Dewatering – At all times during construction – provide, place and maintain ample means and devices with which to remove promptly all water entering trenches and other excavations. Keep excavations dry until the structures, pipes and appurtenances to be built therein have been completed and backfilled. Dispose of all water pumped or drained from the work without interference with other work, traffic or injury to public or private property. Prevent siltation of storm water facilities or receiving waterways.

02250 – Shoring and Underpinning – Existing footings, foundations, pile caps, grade beams, retaining walls or pavement which may be affected by excavation operations shall be shored or underpinned adequately or otherwise protected against settlement and shall be protected against lateral movement. Provide necessary materials to hold back earth at excavations and as required to prevent cave-ins and earth sloughs.

02260 – Excavation Support and Protection – Install excavation support systems for safety preservation of existing improvements. Design criteria of support systems shall consider all loads in a manner which will allow the safe and expeditious construction of permanent structures without movement or settlement of the ground.

02300 – Earthwork - Excavate bottom of all foundation walls and footings at building perimeter a minimum of [12”](#) below frost line and [20”](#) wide, (check with local building officials for frost line level requirements). Base of footings shall extend down to undisturbed virgin soil which has been compacted

to 95 percent proctor density. All excavation shall be to a level below existing demolition debris. Board form all footing as required by soil conditions.

For basement walls, excavate area indicated on construction documents, allowing an additional 18" minimum clearance around the perimeter of foundation walls for proper drainage and waterproofing assembly.

At slab foundations, compact sub-grade under slabs to a minimum 95% density. Compact backfill areas not under slabs or foundation to a minimum 90% ASTM D-689. Sub-base directly under concrete slabs on grade shall be a minimum of four inches of compacted granular fill.

02310 – Grading – Carefully remove loam and topsoil to be incorporated in the finished work and store separate from the other excavated material. Failure to isolate loam and topsoil from the other excavations shall require that said soils not be used as topsoil..

02311 – Final Grading - Keep exterior finished grade a minimum of 6 1/2" below finished floor elevation (see construction documents for exact locations) by backfilling with appropriate soils. Provide swales with positive outfall and slope grade away from building to allow water to drain away from the building foundation. Do not backfill against foundation until project is completely framed and roof structure is in place. [Soil type of fill shall be specified by Geotechnical Engineer.](#)

02312 – Rough Grading – Prior to commencement of earthwork, perform such soil and rock removal and filling as may be required to facilitate the progress of the work and bring all elevations to the rough grade lines indicated on the Contract Documents. Fill or backfill as required.

02315 – Excavation – Carry out the excavation, dewatering, sheeting and bracing in such manner as to eliminate any possibility of undermining or disturbing the foundations or any existing structure or any work previously completed..

02316 – Backfilling – Correct any part of the trench bottom excavated below the specified grade with approved materials and thoroughly compact. Complete all backfilling to the dimensions and levels shown on the construction documents. Where excavated material or any portion thereof is deemed unsuitable for backfilling material, procure and place approved select borrow materials. Backfill as promptly as is consistent with non-damage to the installed structures. Do not place frozen material in the backfill. No material shall be placed or compacted when it is too wet or frozen or when the sub-grade or previously placed material is too wet or frozen.

02317 – Select Borrow – Material needed in addition to that available from construction operations shall be defined as select borrow. Select borrow shall consist of durable natural granular material or granular aggregates mixed or blended with sand, stone dust, soil or other filler materials to provide a well graded mixture meeting the requirements herein specified. These materials shall be free from vegetable or organic matter, lumps or an excessive quantity of clay or

other objectionable or foreign substances, but may contain a maximum of **ten percent of shale** by weight. The size and gradation of the material shall range from stone no larger than 3 inches across its maximum dimension to soil passing a **No 200** sieve. The gradation shall be well dispersed through the borrow.

02320 – Excavation and Fill – Backfill material to be used from the excavations shall be of such nature that after it has been placed and properly compacted, it will make a dense, stable fill. It shall not contain vegetation, masses of roots, stones over **3-inches** in diameter, or porous matter and shall not be saturated. Organic matter shall not exceed minor quantities and shall be well distributed.

02362 – Termite Control – If required, Foundations shall be pre-treated under all slabs and crawlspace areas between vapor barrier and granular sub-base to conform with **HUD minimum standards** and applicable building codes. Treatments shall not be made when soil is excessively wet or after heavy rains. Contractor shall provide a one-year renewable warranty.

02370 – Erosion and Sedimentation Control - Clear the top layer of soil and place in a designated area for use at the end of the project. Provide swales with positive outfall, and slope grade away from building to allow water to drain away from the foundation. Backfill around building with subsoil graded free of lumps larger than 6", rocks larger than 3" and debris. Keep finished grade elevations a minimum of **6 1/2"** below finished floor elevation (see construction documents for exact locations. Do not backfill against foundation, until home is completely framed and roof structure is in place..

02500 – Utility Services - Install necessary utility services, such as electricity, water, gas and oil, sanitary sewerage and support structures for power and communications. Coordinate requirements with local utility providers. **All utilities shall be located underground from street to building, unless otherwise stated.**

02540 – Septic Tank - Excavate area for septic tank as shown on Septic Tank Diagram as required by the local Health Department. Install pre-cast concrete cylindrical tank with adjoining siphon tank or drain field a minimum of **2'-0"** below ground surface. See manufacturer's recommendations for drain field requirements and additional installation guidelines.

02621 – Foundation Drainage Piping - Install a minimum **5"** slotted drain pipe with a positive outflow around exterior basement wall footings, imbedded in a loose fill gravel, minimum **12"** deep. Slotted drain pipe should be wrapped with an appropriate geo-technical fabric to prevent silt buildup. Install other drains necessary for positive site drainage.

02625 – Retaining Wall Drainage Piping - Install a minimum **5"** slotted drain pipe with a positive outflow around retaining wall footings, imbedded in a loose fill gravel, minimum **12"** deep. Slotted drain pipe should be wrapped with an appropriate geo-technical fabric to prevent silt buildup. Install other drains necessary for positive site drainage.

02790 – Athletic Surfacing - Install synthetic surface over recommended ground cover (ex: asphalt, concrete, crushed rock, etc), and shock absorbent pad. Attach material with appropriate adhesives and tape. Follow all manufacturers recommendations.

02795 – Porous Paving - Install loose fill gravel in designated areas on construction documents. Frame area with pressure treated wood and install gravel within.

02800 – Site Amenities - Provide and install landscaping accessories as specified in construction documents. (Edging materials, tree grates, etc.)

02812 – Drip Irrigation - Low pressure water system with buried or sub-surfaced vinyl, pvc pipes. Install as recommended by manufacturer.

02813 – Lawn Sprinkling and Irrigation - Install irrigation system consisting of valves, water lines, sprinkler heads and control panels to adequately cover sod and plant beds. Install as recommended by manufacturer. (Manual valve or electronic valves.)

Trenching and Backfill - All main lines shall be buried a minimum of twenty (20") inches, and shall be covered with sand to six (6") inches above main. Laterals shall be buried a minimum of twelve (12") inches for spray heads and a minimum of eighteen (18") inches for rotors.

Backfill - Backfill shall be done in six (6") inch lifts with compaction between each lift. All large rocks and debris shall be removed from backfill. No backfilling or covering of water mains or irrigation lines shall be done before inspection by Project Superintendent.

Piping Installation - Piping shall be laid parallel in trenches and shall not cross over or wrap around each other, and shall be buried at least one (1") inch apart. Cutting and gluing of PVC pipe shall be done only with appropriate equipment and methods recommended by manufacturers of PVC solvent cement and PVC pipe.

Connections - Connections to existing water mains, other than at valve outlets, shall be made with compression tees and gate valves. All pipe under concrete, asphalt, or other masonry shall be cased loosely in larger size pipe with at least six (6") inches protruding from the sleeve before fittings are attached. Earth shall be compacted under the pipe where it extends from sleeve. All fittings shall have at least a two (2") inch clearance from other pipes or fittings.

Joints - All solvent cement joints shall be made with medium-body cement or heavy-body only with a pre-coat of primer. Excess cement shall be wiped off all joints. Swing joints shall be sealed with Teflon tape on threads. All other threaded joints shall be sealed with a non-drying thread joint compound. A copper tracing wire shall be imbedded in the trench and over the pipe to facilitate locating with a cable detector; end of wire shall terminate in valve box or above grade.

Valve Installation - Before installation of remote control valves, quick coupling valves, or sprinkler heads, all lines shall be flushed with water. All remote control valves shall be installed in large rectangular plastic boxes flush to grade unless there is a special need for sub-surface

installation, in which case valve markers shall be used with access to the flow control handle.

Valves - All quick-coupler valves shall be installed in round plastic boxes flush to grade. Anti-drain valves shall be installed on all low sprinkler heads. All electric remote control valves shall be installed with a gate valve on the pressurized side and a PVC union on the non-pressurized side. All remote control valve boxes shall be marked with a code system and sequenced in the controller in a logical manner to facilitate maintenance, i.e. A-1, A-2 (clock A, valve 1 and 2).

Sprinkler Head Installation - All sprinkler heads shall be attached to double swing joints. Shrub heads on risers shall be staked with 1/2 inch rebar and two hose clamps. The rebar shall be driven into the earth two (2') feet and be of sufficient length to terminate twenty (20") inches below the head.

Sprinkler Heads - All sprinkler heads two (2') feet or less from lateral connection shall be connected by threaded fittings only to the lateral. All sprinkler heads shall be installed with head flange at least 1 inch from header. In the case of shrub heads on risers, the riser shall have a minimum two (2") inch clearance to the header. Sprinkler heads of differing precipitation rates shall not be valved together. Shrub heads located along pathways or traffic areas shall be the type that retract to ground level when watering is completed; Toro, or approved equal. All shrub, ground cover and lawn heads shall be spaced so as to spray from head to head as minimum, preferred coverage is 1.25 to 1.5 times spacing.

Wiring and Splicing - Wire shall be run in the pipe trench and to one side of main. Each wire shall have an excess of two (2') feet coiled in the valve box. One spare wire shall be laid so that it enters and leaves every valve box. Spare shall be labeled. No splices shall be directly buried. All splices shall be made in splice box or valve box. All splices shall be waterproofed by one of the following methods: Rain-Bird Pen-Tite connectors; Scotch-Lok epoxy sealer bags with ends taped and sealed with Scotch-Kote; and end-to-end crimp connector taped and sealed with Scotch-Kote.

02815 – Fountains - Install pre-engineered fountains or pools as specified by manufacturer. Provide necessary plumbing, electrical and drainage for fountains.

02820 – Fences and Gates – Provide and install fence and gates at locations shown in construction documents. Support as required by manufacturer. Installation of fencing shall not be started until final grading has been completed. Posts shall be plumb and rigid after installation. Rails shall be straight and tight. Drill holes for post footings in firm, undisturbed or compacted soil. Footing holes shall be not less than 9 inches in diameter and 38 inches in depth. Post embedment in concrete shall be 36 inches. Excavate deeper as required for adequate support in soft and loose soils, and for posts with heavy lateral loads.

Gates - Gates shall be installed plumb, level and secure for full opening without interference. Install ground-set items in concrete for anchorage as recommended by the fence manufacturer. Adjust hardware for smooth operation and lubricate. Sliding gates shall operate smoothly and easily under minimum pressure.

Concrete – Place concrete around posts in a continuous pour. Check each post for plumb and vertical and top alignment and hold in position during placement and finishing operations. Trowel finish tops of footings and slope or dome to direct water away from posts. Set keepers,

02923 – Seeding and Soil Supplements – Seed only when weather conditions are suitable. All newly seeded turf areas shall be free of broadleaf weeds. Sow seed with mechanical spreaders at the specified rate on a calm day. Sow one half the seed in one direction and the other half at right angles. Seed shall be raked lightly into the soil to a depth of **1/4 inch** and rolled with a roller weighing not more than **100 pounds per linear foot** of tread. Keep the surface moist by a fine spray until the grass shows uniform germination over the entire area. Wherever poor germination occurs in areas larger than **three (3) square feet**, reseed, roll and water as necessary to obtain proper germination. Infested areas shall be treated with a selective broadleaf insecticide; Trimec or approved equal.

02924 – Sodding – Plant only certified sod only when the soil is moist and favorable for growth. Shape the area to be sodded and finish to the lines and grades indicated on the plans. Loosen the surface prior to placing sod. Keep the grade moist by sprinkling, if necessary, sod on the prepared surface with the edges in close contact. Each piece of sod laid shall be fitted and tamped into place with hand tampers not less than **one hundred square inches** in area. Apply a sufficient quantity of water to all sod after laying and to prevent the sod from drying out for a period at least two weeks to ensure growth.

02930 – Exterior Plants – Shrubs and trees shall be of a variety, size and quantity shown in the Construction Documents. Cut burlap, twin and wire baskets from top **12 inches** of root-ball and remove from site. Backfill with **1/2** clean existing soil, **1/4 sand and 1/4 peat moss**. Plants shall bear some relation to soil level when planted as they did when in container. Place each plant in center of plant pit. Firmly tap backfill material into plant pits around and under the root ball to force out all air pockets. Backfill as specified on the plans. Thoroughly water to saturate the root ball and backfill. Stake all trees with hardwood stakes driven **2'** into firm ground and secure tree to stake.

02932 – Plants and Bulbs - Hand dig holes without undermining existing facilities. Do not loosen soil at the bottom of hole, compact soil under root ball if loose. Dimensions of the hole will vary with the size of the root ball. Tree wells located adjacent sidewalks, shall have the top of root ball **four inches (4")** below the sidewalk surface. Place each plant in an upright and plumb position.

Berms - A berm of earth approximately **four (4") inches** high shall be built around the perimeter of the backfilled plant holes to form a shallow basin for the retention of irrigation water. Each basin shall be mulched with **two (2") inches** of mulch.

Drainage - Plant holes shall be randomly tested for drainage, by filling with water and confirming that all areas have drained within **two (2) hours** after filling. The random testing shall be performed on ten percent (**10%**) of the total large (15 gallon) size holes for the project. If more than twenty percent (**20%**) of these holes fail, then an additional **ten (10)** holes shall be tested. Areas that do not pass this test shall be corrected prior to planting.

Backfill - Backfill shall consist of the excavated material with all stones larger than **one inch (1")** removed, and with soil amendment added in the proportion of one (1) part amendment to three (3) parts soil thoroughly mixed. If additional soil is required, site topsoil shall be used. The backfill mixture shall be finely divided, loose, and free of clods.

03050 – Concrete Specifications - All concrete work shall be designed on the basis of “Strength Design” in accordance with ACI 318 “Building Code Requirements for reinforced Concrete.” Concrete work shall be proportioned in accordance with ACI 301 “ Specifications for Structural Concrete” and ACI 211.1 “ Recommended Practice for Selecting Proportions for Normal Weight Concrete”. Concrete slabs, patios, driveways, walls and foundations shall be constructed of a minimum 3000 to 3600 psi concrete, 28 day test, with a 4” minimum to 6” maximum slump maximum, air-entrained to 5 - 8%. No additional water shall be added to concrete after slump test is recorded. **Cylinders shall be taken from every batch truck and tested for compressive strength at 7 and 28 days.** Concrete should be a mix of high grade Portland cement, clean sand or granular fill and washed gravel or crushed stone as coarse aggregate per ACI 530. Maximum aggregate size shall be ¾”. All aggregates shall conform to ASTM C33. Gravel should be well graded and not exceed 1 1/2” in size. Water shall not exceed 5 1/2 gallons for each bag, unless sand is very dry. Concrete shall be mixed using an approved batch machine or mobile mixer until uniform in color and providing a 4” minimum to 6” maximum slump.

03100 – Concrete Formwork, Reinforcement and Materials – Provide all labor, materials and equipment necessary for the completion of the plain and reinforced concrete called for on the plans. Concrete when deposited shall have a temperature ranging between a minimum of 50 degrees Fahrenheit and a maximum of 90 degrees Fahrenheit.

Construction of Forms – Construct wood forms of sound material, and of the correct shape and dimensions, constructed tightly and of sufficient strength. Brace and tie the forms together. Make joints and seams mortar tight. Install leakage control materials in accordance with manufacturer’s installation instructions.

Chamfered Corners – Unless otherwise noted, provide chamfered corners on all exposed corners. Provide 3/4 inch moldings in forms for all chamfering required.

Embedded Items – make provisions for sleeves, anchors, inserts, water-stops and other features.

Form Ties – Use form ties of sufficient strength and in sufficient quantities to prevent spreading of the forms. Place ties at least 1 inch away from the finished surface of the concrete. Do not use ties consisting of twisted wire loops. Leave inner rods in concrete when forms are stripped. Space all form ties equidistant and symmetrical and line up both vertically and horizontally.

Cleanouts and Access Panels – Provide removable cleanout sections or access panels at the bottom of all forms to permit inspection and effective cleaning of loose dirt, debris and water material. Clean all forms and surfaces to receive concrete of all chips, sawdust, and other debris and thoroughly blow out with compressed air just before concrete is placed.

03210 – Reinforcing Steel - Reinforcing steel (rebar) shall be minimum ASTM A615, grade 40. All reinforcement splices shall be as follows: #5 bars 25” minimum, #7 bars 35” minimum. All rebar (reinforcing steel) shall be located 3” clear from bottom and side of footing and 2” clear from top. Locate vertical rebar (reinforcing steel) 4’-0” on center (OC). All reinforcement splices shall be in accordance with ACI 318 for “Strength Design.” All reinforcement steel shall be accurately placed, rigidly supported, and firmly tied in place with bar supports and spacers in accordance with ACI 301 and ACI 318.

03220 – Welded Wire Mesh - Welded wire fabric shall conform to ASTM A105 and be located in the center of the depth. Install at slab on grade conditions.

03230 – Anchor Bolts - Provide 1/2” diameter x 10” long anchor bolts in filled cells and poured concrete walls at 48” on center (OC) maximum at all window locations and on each side of exterior doors. For slabs, install appropriate tie downs or straps as required by applicable building codes.

03300 – Footings - Center all footings on walls, piers, or columns above unless otherwise noted. All footings shall rest on undisturbed virgin soil with minimum soil bearing allowable of 2500 psf, tested for 95 percent compaction, or 3/4” stone compacted in 12” lifts to 95 percent density if fill is required. Footings at building perimeter shall be a minimum of 12” below frost line and 20” wide, (check with local building officials for frost line level) constructed of 3000 psi concrete. Provide 3 - #5 rebar (reinforcing steel) continuous through footers. Provide #5 rebar (reinforcing steel) corner bars at all corners and intersections of footers, beams and walls. Each side should overlap 2’-0”, with a 90 degree bend. Footers shall bear on undisturbed soil and kept free from ground water. Underneath load-bearing walls and interior or exterior column footings, thicken slabs within a 1’ radius to 12”thick.

03300 – Slab Foundations - Concrete floor slabs shall be constructed of 3000 psi concrete, 4” thick reinforced with 10 gauge 6” x 6” welded-wire mesh continuous and rebar (reinforcing steel) as per plans. Place slabs over well-compacted granular fill compacted in 12 inch lifts to 95 percent density per AASHTO T-180 Proctor, and a 4 or 6 mil vapor barrier. Construction or control joints shall be provided in slabs on grade so that the maximum area between joints shall be 400 sq. ft. and the length of that area is not more than twice the width. Provide smooth steel trowel finish for all interior slab areas and garage surfaces. Provide broom finish texture for all exterior slabs. Slope exterior patio or porch slabs away from building at 1/4” of drop in elevation for every 1’-0” in distance. At garage slab, provide positive drainage and taper lip at garage/overhead door.

03300 – Poured Concrete Basement Walls - Poured walls shall be constructed of 3000 psi concrete with #5 rebar (reinforcing steel) at 12” x 12” on center (OC) placed in a vertical grid. Thickness of walls shall be a minimum of 8”thick for 8’-0”high, 10”thick for 9’-0”high, 12”thick for 10’-0”high. Patch all voids and depressions exceeding 3/8 inch in any direction. Provide appropriate waterproofing system around the exterior perimeter and install drainage as specified by manufacturers recommendations.

03300 – Expansion Joints - Provide 1/2” thick by 4” wide bituminous expansion joint material at all surfaces where slabs adjoin raised slab, crawlspace or basement stem-wall CMU or poured foundations.

03350 – Concrete Finishing – Repair of surface defects shall begin immediately after removal of form or pouring of slab foundation. Provide smooth steel trowel finish for all interior slab areas and garage surfaces. Provide broom finish texture for all exterior slabs. Slope exterior patio or porch slabs away from building at 1/4” of drop in elevation for every 1’-0” in distance. At garage slab, provide positive drainage and taper lip at garage/overhead door. Patch all voids and depressions exceeding 3/8 inch in any direction.

03400 – Precast Concrete – Provide all labor, materials and equipment to provide concrete structures as called for on the plans. Erect pre-cast concrete units and accurately install in place with hoisting

equipment more than adequate for the loads. At completion, units shall be plumb, level and square, true to line, with angles and edges parallel with related building lines.

03500 – Cementitious Decks and Underlayments - Install cementitious backer-board under ceramic tile, marble and stone finishes. Use straight edge as guide to score sheet's face with carbide tipped scoring knife and snap upward along the score line. Large cutouts use a circular saw with carbide tipped blade.

Floor Installation - Install over interior wood or concrete sub-floors. Ensure sub-floor is structurally sound. Ensure the sub-floor is not damaged. Replace any loose, warped or damaged boards. Make certain sub-floor is clean and flat. Exterior grade plywood or hardwood sub-floor should be at least **1 1/4" thick (5/8" minimum)** in order to provide for a structurally solid, movement free foundation. In addition, the space between the joists should not exceed **16" on center**. In any case, the maximum allowable concentrated deflection of your sub-floor may not exceed **L/360** of the span. Stagger joints. Do not align with plywood joints. Never allow all four corners of sheets to meet at one point. Apply a dry set mortar or modified thinset to sub-floor per manufacturer's recommendations. Fasten backer-board sheets with proper nails or screws every **8"** over the entire surface. Keep the fasteners between **3/8" and 3/4"** from sheet edges and **2"** in from sheet corners. Provide expansion joints where required.

Countertop Installation - Ensure cabinets are level and secure. Use minimum **1/2"** exterior grade plywood positioned across the wood cabinet. Space between plywood supports is not to exceed **16" on center**. So not align backer-board with plywood joints. Sheet ends and edges must be supported by perimeter framing. Apply a dry set mortar or modified thinset to plywood per manufacturer's recommendations. Fasten backer-board sheets with proper nails or screws every **8"** over the entire surface. Keep the fasteners between **3/8" and 3/4"** from sheet edges and **2"** in from sheet corners. Provide expansion joints where required.

Wall Installation – Ensure framing is structurally sound. Nominal **2" x 4" wood or minimum 20 gauge metal studs** must be straight properly aligned and spaced a **maximum of 16" on center**. In tub and shower enclosures, ensure that the framing is adequately reinforced at the corners. Sheets may be installed vertically or horizontally. Score and snap sheets to required sizes and make necessary cut outs. All joint ends and edges must be supported by a structural framing member or added blocking. In wet areas, install a moisture barrier (such as **15 lb. Felt**) between studs and backer-board. Install sheets **1/4"** above floor, tub or shower pan. Fasten backer-board sheets with proper nails or screws every **8"** over the entire surface. Keep the fasteners between **3/8" and 3/4"** from sheet edges and **2"** in from sheet corners. Set fastener heads flush with the surface, without overdriving. Provide expansion joints where required.

03540 – Cementitious Underlayment – Sub-floor shall be structurally sound. Clean sub-floor to remove mud, oil, grease, and other contaminating factors before the installation of the underlayment. Fill cracks and voids with a quick setting patching or caulking material. Allow joints to continue at the same width. Application shall not begin until the building is enclosed, including roof, windows, doors and other fenestrations.

Gypsum Underlayment - Place gypsum cement a minimum **1 inch (25 mm)** thick over sound deadening pad. Spread and screed gypsum cement to a smooth surface. Contractor shall provide continuous ventilation and adequate heat to rapidly remove moisture from the area until the

gypsum cement is dry. Contractor shall provide mechanical ventilation if necessary. Under the above conditions, for 1 inch thick gypsum cement 7-10 days is usually adequate drying time. To test for dryness, tape a 24 inch by 24 inch (609 mm by 609 mm) section of plastic or high density rubber mat to the surface of the underlayment. After 48-72 hours, if no condensation occurs, the underlayment shall be considered dry. Perform dryness test 5-7 days after pour.

Portland Cement Underlayment - Fill large cracks, holes and voids 36-48 hours prior to underlayment placement. Contraction and control joints must be maintained through the underlayment. Mark their location for later saw cutting. Mix primer and install per manufacturers recommendations. Apply an even coat removing any puddles. Very porous surfaces may require a second coat of primer once the first coat has dried to fully seal the floor. Allow primer to dry to touch completely. Keep primed surface clean and protected from abrasion. Mix cementitious underlayment per manufacturers recommendations. Spread out using gauged spreader tool set to the desired depth. Use spiked roller to disperse air bubbles. Repeat mixing and pouring until installation is complete. Use smoother for touchups. To avoid low spots between pours, pour into leading edge of previous pour before initial set and spread.

03600 – Grouts – Concrete surfaces to receive grout shall be prepared by removing defective concrete, dirt, oil, grease and other foreign matter to achieve sound, clean concrete surfaces.

Grouting– Mix up grout per manufacturers recommendations. Use a padded grout float to spread the grout over a workable section of tile. Push the grout diagonally across the joints to force it down into the gaps. Grout all the joints except those needed to allow for expansion joints specifically along fixtures, between the floor and walls, or joints in corners in between walls. Expansion joints will be sealed with caulk after the grouting process. Once the appropriate joints are packed with grout, scrap the excess grout off the surface of the tile with the grout float. Hold the float at a sharp angle and again use diagonal strokes to keep from digging grout out of the joints. Clean up the excess grout with a damp sponge and a couple buckets of clean water. Wipe excess grout off the surface of the tiles using a clean sponge in circular strokes. Once the tile surface is clean, make another pass parallel to the grout lines to shape the grout lines in the joints. Smooth the joints down a little below the surface of the tile. Clean the remaining haze off the surface of the tile with a sponge or a soft rag. In 24 to 48 hours after the grout has hardened, caulk using a clear tub/shower caulk or one in a color that matches the grout in the areas that you allowed for your expansion joints and over joints that may crack because of movement. Specifically areas between floor tile and cabinet toekick; between floor or wall tile and bathtub or shower; between floor and wall tile; and at the inside corner where two walls meet. Fill the joints completely then smooth them out with a damp rag or appropriate tool. Caulk around plumbing valves, sinks and faucets to seal them from water penetration. Glazed ceramic tile surfaces only require grout joints to be sealed which will provide an enhanced water and mildew resistant surface. Apply a silicone or water-based grout sealer to all joints per manufacturer's recommendations a minimum of 14 days after grout has been installed.

Nonshrink Grout - Lightly roughen concrete surface for maximum bonding per manufacturer's recommendations. Cover concrete areas with protective waterproof covering until ready to place grout. Align and level components to be grouted and maintain in final position until grout placement is complete and accepted. Install forms for grout around bases and other spaces to be grouted. The tops of such forms shall be one inch above the surfaces to be grouted. Place grout in accordance with the manufacturer's recommendations. Pour grout from one side only until grout rises at least one inch above the plate on opposite side or said plate. Neatly trowel edges of grout base, tapered at an angle of 60 degrees.

DIVISION 5. METALS

05000 – General - Contractor shall review construction documents and provide labor and materials pertaining to metal work as required in said documents and as specified herein, while complying with all applicable building codes.

05100 – Structural Metals - All structural metal for beams and plates shall be in accordance with ASTM A-36. All structural steel for steel columns shall comply with ASTM specification A-53 Grade B or A-501. Structural steel columns shall be **3” minimum** inside diameter, unless noted otherwise. All steel details and connections shall be in accordance with the requirements of the latest AISC specifications and latest revisions. Provide all required anchor bolts, bearing plates and metal ties required by standard practice and as noted below.

Tubular Steel shall be in conformance with ASTM A500 Grade B
Steel pipe shall be in conformance with ASTM A-53, Type E or S, Grade A or B.
Cast Iron shall be in conformance with ASTM A-48, Class 30, unless otherwise noted.
Welding Electrodes shall be as permitted by AWS Code D1.0.

05500 – Architectural Metal Fabrication - Install metal detailing as specified on construction documents. Install metal gates, grilles, iron work, etc. to meet all applicable building codes, with appropriate detailing and patterns as shown in construction documents. Metal shall be shop built, welded together, cleaned thoroughly and painted with two coats of an anti-rust primer. After installation, apply an additional coat and anti-rust primer in preparation for finish coats.

05520 – Metal Stairs and Hand Railings - Install metal hand railings and gates to meet all applicable building codes, with appropriate detailing and patterns as shown in construction documents. Metal shall be shop built, welded together, cleaned thoroughly and painted with two coats of an anti-rust primer. After installation, apply an additional coat and anti-rust primer in preparation for finish coats.

Location: Front Porch
Surface Finish/Texture: Smooth, Twisted, Matte, etc.
Material: Steel, Aluminum, Galvanized Steel, Wrought Iron, etc.
Specify: Size, Manufacturer, Model, Type

Location: Interior Iron Gate to Wine Cellar
Surface Finish/Texture: Smooth, Twisted, Matte, etc.
Material: Steel, Aluminum, Galvanized Steel, Wrought Iron, etc.
Specify: Size, Manufacturer, Model, Type

Location: Rear Balcony
Surface Finish/Texture: Smooth, Twisted, Matte, etc.
Material: Steel, Aluminum, Galvanized Steel, Wrought Iron, etc.
Specify: Size, Manufacturer, Model, Type

05521 – Pipe Handrails – Pipe handrails shall be galvanized steel pipe. The rails shall be standard weight and the post shall be extra strength steel pipe. Standard or special fittings shall be used or the joints may be welded. Post spacing shall not exceed **7'-0' on center**. Unless otherwise noted on the plans, the top rail shall be located at a height of **3'-6"** (**4'-6"** for bike trails), except stair runs shall have top rail at a height of **3'-6"** and enclosed stair landings shall have top rail at a height of **3'-0"**.

05700 – Ornamental Metal - Install ornamental metal and related components in strict accordance with manufacturer's printed installation instructions and project shop drawings. Preassemble metal systems, in easy to lift sections whenever possible. Separate aluminum which might contact concrete, masonry, or other metals, by means of asphaltic paint or other approved method to prevent electrolytic action. Adjust, level, and securely install railing system components. Immediately upon completion of installation, clean all railing system surfaces using clean water and mild soap or detergent. Do not use abrasive agent or harsh chemicals. Provide adequate protection for all surfaces of completed installations to prevent damage during remainder of construction activities. After installation, apply an additional coat and anti-rust primer in preparation for finish coats.

Bar Grilles.
Perforated Sheet Metal Grilles.
Progressive Louvers
Radiator Covers
Equipment Plates

05715 – Fabricated Spiral Stairs - Install stair assembly in accordance with manufacturer's instructions and approved shop drawings and in accordance with specified performance requirements. Anchor components rigidly and securely to building structure, plumb and level, accurately fitted, and free from distortion or defects. Fit exposed connections to form tight hairline joints. Weld connections that cannot be shop welded because of size limitations. Perform field welding of steel in accordance with AWS D 1.1. Field bolt and weld to match shop bolting and welding. Grind exposed joints smooth. Clean field welds, bolted connections and abraded areas.

Location: Interior Iron Gate to Wine Cellar
Surface Finish/Texture: Smooth, Twisted, Matte, etc.
Material: Steel, Aluminum, Galvanized Steel, Wrought Iron, etc.
Specify: Size, Manufacturer, Model, Type

DIVISION 6. CARPENTRY

06000 – General - Contractor shall review construction documents and provide labor and materials pertaining to carpentry work as required in said documents and as specified herein, while complying with all applicable building codes.

06100 – Rough Carpentry - Lumber shall be of live, sound stock and properly dried. Pressure treated lumber shall be used where any lumber shall come into contact with concrete, masonry block or soil and when using as support members for decks, porches or balconies. Lumber for use at exterior shall have a

maximum 12 percent moisture content, for dry climates 9 percent is recommended. Provide adequate bracing and shoring during the construction process. Studs and joists cut to install plumbing and/or wiring shall be reinforced by adding metal or wood structural reinforcing to strengthen member back to original capacity and maintain structural integrity. Holes bored shall not be larger than 1/3 the depth and not closer than 2" to the top or bottom of the joist.

Wood Species: #2 Southern Yellow Pine, Douglas Fir, etc.

06110 – Wood Framing

Floor Framing - Information below pertains to conventional stick framing, if pre-engineered trusses are used follow manufactures guidelines for installation. Pressure treated lumber shall be used where any lumber shall come into contact with concrete, masonry block, roof curbing or roof blocking.

Girders: Install girders in pockets formed in the foundation or on top of the sill plate. The pocket should allow a minimum of 1/2" on both sides for circulation.

Girders: solid wood, two or more 2" planks, laminated veneer lumber, glue-lam beams, steel beams

Sills: Install single 2"x 6", 4"x 6" or double 2"x 6" solid pressure treated lumber horizontally on foundation. Bore holes in sills for anchor bolts.

Floor Joists: Space floor joists 12" to 16" on center (OC) depending on type of construction, load bearing and spanning capabilities of wood species. Joists shall rest on a minimum 1 1/2" of bearing wood or 3" of masonry. Cut joists flush with the outside edge of sill. If joists are lapped over girder, the minimum amount of lap is 4" and maximum overhang is 12". Do not lap at wood I-beams. Joists shall be installed so that the end of the sub-floor sheets fall directly on the center of the floor joists. Nail joists at each bearing point using one 8d or 10d nail on each side. Nails shall be at least 1 1/2" from ends. Wood cross bridging shall be at least nominal 1" x 3" lumber with two 6d nails at each end. Install one row of bridging for 12'-0" spans and less, over 12'-0" spans install two rows of bridging.

Floor Joists: 2"x 10"s, 2"x 12"s, wood I-beams, wood or steel trusses, at 16" on center (OC).

Exterior Walls - All exterior walls shall be constructed with 2"x 4", 2"x 6" wood studs at 16" on center (OC), with single bottom plates and double top plates throughout. Provide solid blocking at mid-height of all walls. For exterior corner joints, install (3) 2"x 4"s, 2"x 6"s nailed together. Where interior partitions meet exterior walls, install 2 studs fastened together with 2"x 4", 2"x 6" blocks approximately one foot long. One block is placed at the bottom, one at the top and one about center of the studs.

2"x 4" studs placed 16" on center (OC) - typical

2"x 6" studs placed 16" on center (OC) - for higher ceilings and higher insulation values

Where exterior openings occur on 2"x 4" exterior walls, provide structural headers designed with (2) 2" x 10"s with a 1/2" continuous plywood fitch plate glued and nailed between the 2"x10"s. (For 2"x 6" exterior walls provide (3) pieces of 2"x 10" lumber fastened securely together.) At window sills, provide a single piece of 2"x 4", 2"x 6" lumber. Provide double jacks or liners for openings 6'-0" wide or greater,

Specify Bath Five: Manufacturer, item number, color

Specify Laundry: Manufacturer, item number, color

Custom: See construction documents for custom cabinetry details and specifications.

Doors: Flush, raised panel, European, etc.

Finish: Natural, Pickled, Cherry, Mahogany, etc.

Wood: Birch, Oak, Pine, Cherry, Alder, etc.

Specify Kitchen: Wood and finish

Specify Powder: Wood and finish

Specify Master Bath: Wood and finish

Specify Bath Two: Wood and finish

Specify Bath Three: Wood and finish

Specify Bath Four: Wood and finish

Specify Bath Five: Wood and finish

Specify Laundry: Wood and finish

06411 – Cabinet Hardware – Provide concealed or decorative hinges and cabinet hardware as specified below. Finish to be bronze, chrome, black, white, etc. Knob to be round, square, pull handle, etc.

Specify Kitchen: Manufacturer, item number, finish

Specify Powder: Manufacturer, item number, color

Specify Master Bath: Manufacturer, item number, color

Specify Bath Two: Manufacturer, item number, color

Specify Bath Three: Manufacturer, item number, color

Specify Bath Four: Manufacturer, item number, color

Specify Bath Five: Manufacturer, item number, color

Specify Laundry: Manufacturer, item number, color

06415 – Countertops - Plastic laminate, Corian, Solid Surface, Stainless Steel, Stone, Ceramic Tile counter tops shall be provided and installed per construction documents and finish schedules. Counter surfaces shall be glued onto 3/4" plywood or appropriate substrate as recommended by manufacturer. Edges shall be installed per construction documents and finish schedules. Provide minimum 4" backsplash between counter and wall. See tile section for further specifications pertaining to ceramic or stone counter-tops.

Counter-Top Options: Plastic laminate, Corian, Solid Surface, Stainless Steel, Stone, Ceramic Tile

Counter Top 1: Location, Manufacturer, item number, color

Edge: Material, Shape, Finish

Counter Top 2: Location, Manufacturer, item number, color

Edge: Material, Shape, Finish

Counter Top 3: Location, Manufacturer, item number, color

Edge: Material, Shape, Finish

Counter Top 4: Location, Manufacturer, item number, color

Edge: Material, Shape, Finish

Counter Top 5: Location, Manufacturer, item number, color

Edge: Material, Shape, Finish

finished 3/8" plank, strip and parquet (5/16" and 3/4"). Adhesive for end fastening 3/4" random planks shall be as recommend by manufacturer. Use 2" barbed fasteners of approved staples for installing plank or strip flooring. After a minimum of 48 hours, sand and finish, using a stain coat and a minimum three coats of polyurethane.

Flooring: strip, plank, custom wood tile or parquet

Wood species: Oak, Beech, Maple, Pine, Cherry, etc.

Surface color/finish: Natural, mahogany, cherry, etc.

Finish: glossy, semi-gloss, matte, etc.

Specify: Size, wood, stain and finish

09650 – Vinyl Flooring - Install appropriate underlayment for all surfaces as described below or required by manufacturer. Properly clean and fill all surfaces leaving installation area smooth and free of foreign material. Cracks and expansion joints should be smooth and level. Wood sub-floors must be solid, free from movement and have a minimum of 18" of well ventilated air space below the structure. Follow pattern arrows on back of vinyl flooring for the direction of installation.

Sheet Vinyl: Install 6'-0"wide, 9'-0"wide or 12'-0"wide sheet vinyl as indicated per construction documents. Use appropriate adhesive material or installation method guidelines per manufacturers recommendations.

Specify: Manufacturer, description, color and item number

Square Vinyl: Install 12"wide x 12"long vinyl tiles as indicated per construction documents. Use appropriate adhesive material or installation method guidelines per manufacturers recommendations.

Specify: Manufacturer, description, color and item number

09680 – Carpet - Inspect all sub-flooring to insure a clean, dry and secure surface before installation. If filling compound is needed for floor leveling, a latex based sub-floor filler will be used.

Padding: Cushion padding shall be 1/2" thick, residential grade installed in the longest possible lengths. Cushion seams shall not be located directly under carpet seams, and when possible shall be oriented at right angles to carpet seams. All padding shall be smooth, flat and secure with seams tightly butted and taped.

Installation: Carpet shall be installed to produce a tight, smooth, secure and uniform surface as indicated per construction documents and finish schedules. In areas where more than one width of carpet is required, precut the carpet to the proper length allowing for flash up at walls and through doorways. Position first two pieces of carpet, and cut seams by row cutting and trace cutting for the second piece in a manner that will produce a tight, uniform seam requiring a minimum amount of adjusting with a knee kicker.

Seams: Carpet seams shall be secured by a non-releasable backed low profile hot melt seaming tape per carpet manufacturers recommendations.

Specify Carpet: Manufacturer, description, color and item number

Specify Pad: Manufacturer, type, density

Bath Two			
Master Bedroom			
Master Bath			

09911 – Exterior Walls - All nail heads shall be set below the surface and finished smooth. If mildew is evident, the mildew must be removed and surface treated to inhibit further mildew growth. Exterior walls shall receive a primer coat and two coats of flat or semi-gloss paint. Pre-prime the **backside, edges and ends of lumber and siding** prior to construction. When staining, pre-prime with the same product as specified for the final coat. Sand and putty wood surface smooth before finish is applied. Surfaces shall be sanded before each finish layer is applied.

Paint/Stain - Prime wood surfaces including faces, edges and ends before installation. After installation, apply at least one coat of wood primer and two coats of finish paint.

Specify Trim Paint: **Manufacturer, description, color, finish and item number**
Stain: **Install one, two coats of stain on wood and seal with a polyurethane sealer.**
Specify Trim Stain: **Manufacturer, description, color, finish and item number**

09912 – Interior Walls - All nail heads shall be set below the surface and finished smooth. Joints should be taped and covered with a suitable drywall joint compound. Sand the spackled nail heads and joint compound smooth and dust well before priming. Interior walls shall receive a primer coat and two coats of flat or semi-gloss paint. Surfaces shall be sanded before each finish layer is applied.

Specify Wall Paint 1: **Manufacturer, description, color, finish and item number**
Specify Wall Paint 2: **Manufacturer, description, color, finish and item number**
Specify Wall Paint 3: **Manufacturer, description, color, finish and item number**

09930 – Interior Wood - Wood surfaces shall be sanded smooth before finish is applied. Putty areas with a wood based filler where nails or other defects appear in the surface.

Paint/Stain - Prime wood surfaces including faces, edges and ends before installation. After installation, apply at least one coat of wood primer and two coats of finish paint. Surfaces shall be sanded before each finish layer is applied.

Specify Trim Paint: **Manufacturer, description, color, finish and item number**
Stain and Varnish: **Install one, two coats of stain on wood and seal with a polyurethane sealer.**
Specify Trim Stain: **Manufacturer, description, color, finish and item number**

Specify: Manufacturer, description, finish, item number and number of each

10900 – Closet Specialties - Install shelving as indicated on construction documents for all closets, storage areas and pantries. Metal shelving shall be fabricated of heavy-gauge vinyl coated welded steel rod with deck rod spacing having a maximum distance of 1”. Provide supports every 3’-6” maximum on center (OC)

- Specify:** Manufacturer, description, finish, opening size and item number
- Specify:** Manufacturer, description, finish, opening size and item number
- Specify:** Manufacturer, description, finish, opening size and item number
- Specify:** Manufacturer, description, finish, opening size and item number
- Specify:** Manufacturer, description, finish, opening size and item number
- Specify:** Manufacturer, description, finish, opening size and item number

DIVISION 11. EQUIPMENT

11000 – General - Contractor shall review construction documents and provide labor and materials pertaining to the equipment as required in said documents and as specified herein, while complying with all applicable building codes.

11451 – Appliances - Install electrical or gas appliances as shown on construction documents, including all venting and supply requirements per manufacturers recommendations. See electrical specifications for wiring information.

Appliance Schedule

No	Appliance	Manufacturer	Item Number	Color
0	Range	GE	WS-2014583W	Black with stainless top
1	Range			
2	Oven			
3	Cooktop			
4	Vent Hood			
5	Microwave			
6	Dishwasher			
7	Disposal			
8	Refrigerator			
9	Washer			
10	Dryer			
11	Ice Maker			
12	Trash Compactor			
13	Outdoor Range			
14	Convection Oven			
15				
16				
17				
18				

decking shall be sloped away from pool a minimum ¼” per foot. Provide appropriate expansion joint between pool and decking surfaces.

Plastering – After the pool deck has been poured, the pool shell shall be thoroughly cleaned and an appropriate plaster pool finish surface shall be applied to produce a smooth finish.

Equipment – Provide appropriate pump, filter and heater and control systems to process the pool water a minimum of **twice** every 24 hours.

Testing & Operation – Users shall exercise extreme caution when diving into pool. All areas of pool less than 8’ deep shall be considered “Not for Diving”.

13850 – Detection and Alarm - Install an intrusion detection alarm system which detects entry into the room/building and which broadcasts a local alarm of sufficient volume to cause an illegal entrant to abandon a burglary attempt. Intrusion detectors must have the following essential features.

An internal, automatic charging DC standby power supply and a primary AC power operations.

A remote, key operated activation/deactivation switch installed inside the residence/office and adjacent to the entrance door frame and/or a central alarm ON-OFF control in the Police office.

An automatic reset capability following an intrusion detection.

A local alarm level of 80 dB (min) to 90 dB (max) within the configuration of the protected area.

An integral capability for the attachment of wiring for remote alarm and intrusion indicator equipment (visual or audio). See installation notes below.

A low nuisance alarm susceptibility.

13854 – Smoke Alarms - Install at least one smoke alarm on every floor of a structure (including the basement) and outside each sleeping area. Smoke alarms are required in all sleeping rooms, according to the NFPA 72, *National Fire Alarm Code*®. Mount the smoke alarms on ceilings or high on walls. Ceiling-mounted alarms should be installed at least four inches away from the nearest wall; wall-mounted alarms should be installed at least four inches, but not more than 12 inches away from the ceiling. On vaulted ceilings, be sure to mount the alarm at the highest point of the ceiling. Don't install smoke alarms near windows, outside doors, or ducts where drafts might interfere with their operation. Do not paint, apply finish or obstruct smoke alarms.

13900 – Fire Suppression – The work of this section consists of a fire protection system which may include one or all of the following:

[A complete automatic sprinkler system as by National Fire Protection Association \(NFPA\) Standard 13.](#)

[A complete Type I standpipe system as defined by NFPA 14.](#)

A complete fire pump installation with pressure maintenance pump as defined by NFPA 20.

Provide all piping, valves, backflow preventer, sprinklers, alarm devices, fire department connections, fire pump and controller, pressure maintenance pump and controller, and other material necessary to provide a complete fire protection system to protect the specified building areas in accordance with design requirements.

Each item of equipment shall be capable of performing its function over an extended period of time with a minimum of attention and maintenance. All equipment shall be constructed using new materials designed and built in accordance with the best practices of the industry. Each item of equipment shall be listed on the Underwriters Laboratories (UL) Fire Protection Equipment List or Factory Mutual (FM) Approval Guide. Each major item of equipment shall bear the manufacturer's name or trademark; serial number; and UL or FM label.

Sprinkler system shall be furnished with a spare sprinkler cabinet, wrench, and 12 spare sprinklers of each type and rating as are in the building.

A complete care and maintenance catalog is to be furnished at the valve location, enclosed in a watertight container, and attached to the riser. Verbal instructions for operation, care and maintenance of the sprinkler installation are to be given to the Owner's maintenance representative by the Contractor's representative upon completion and/or activation of the system.

Protection: All exposed piping devices (non-brass and chrome) are to be painted with two coats of **bright red paint**. Painting to conform to the protective coating section of the specifications.

In addition to any tests which might be required by approving authorities, the entire sprinkler system (both wet and dry) shall be hydrostatically tested in accordance with NFPA 13. All dry system piping shall also be air tested in accordance with NFPA 13. All underground piping shall be hydrostatically tested in accordance with NFPA 24. Flow tests shall be performed at each test connection to test all alarm devices. If leaks develop, they shall be repaired at the Contractor's expense.

System design and installation shall be supervised by an experienced sprinkler system technician or fire protection engineer with not less than **five (5)** years experience with sprinkler systems alarm systems. Shop drawings shall be prepared and signed by a NICET Level III or IV certified engineering technician or a registered fire protection engineer. The signature of the technician or engineer constitutes an affidavit that the statements, representations, and information presented in the submittal constitute a complete operational system conforming with applicable state codes and recognized engineering practices. All field installation work shall be continuously supervised by a NICET Level II or III sprinkler system technician.

Five (5) copies of the manufacturers' operating manuals and maintenance manuals shall be supplied to the within **fifteen (15)** days of substantial completion.

Piping - Provide and install all piping, approved shop drawings and hydraulic calculations in accordance with all the applicable standards. Piping shall run concealed in areas with **drop ceilings/finished ceiling**.

Installation of all piping shall be in coordination with duct, light fixture, and any other work that may obstruct sprinklers. All piping exposed installed outside, or otherwise exposed to weather, shall be externally galvanized.

Connection shall be made to the on-site water system. The connection between system piping and underground piping shall be made with a cast iron flanged piece, properly fastened. The backflow preventer shall be listed by UL for fire protection use.

Valves - All valves controlling water supply for sprinklers shall be readily accessible for use by emergency and maintenance personnel. All valves on connections to water supply to sprinklers shall be UL listed **butterfly type** indicating valves except for the following which shall be O.S.& Y type:

All indicating valves on the supply side of the backflow preventer.
The indicating valve immediately adjacent to the backflow preventer on the system side.
All indicating valves on the suction side of the fire pump.

Check valves 2-1/2 inches and larger shall be UL listed iron body swing check with cast brass hinge, rod, and brass faced discs. Valves shall be suitable for 175 psi working pressure.

Check valves 2 inches and smaller shall be UL listed brass body and all brass fitted. Valves shall be suitable for 175 psi working pressure.

Install appropriate globe valves, ball valves, test/drain valves, post indicator valves, etc. as required by the specified fire suppression system.

Accessories - All hanger assemblies shall be listed by UL. No sprinkler piping is to be supported from any mechanical or electrical devices and/or equipment (ducts, lights, etc.). No chains, wire or perforated band iron will be permitted for hangers. Hanger assemblies installed outside, or otherwise exposed to weather, shall be externally galvanized.

Install iron pipe sleeves of ample diameter at all points where pipes cut beams or floors or walls, so sized and installed that sprinkler pipes will not bend.

Install all other accessories and product for a complete and useable fire suppression system

Sprinklers - Sprinklers shall be listed by UL, only new sprinklers shall be used. Any sprinkler that incurs damage, is painted, or is sprayed with any fire retardant or obstructive material shall be replaced. Sprinklers shall be properly coordinated with other work including duct and electric fixture installation. The correct type of sprinkler head shall be used in every location.

Sprinklers that may be subject to mechanical damage due to their location (under stairwells, low hanging sprinklers in corridors, storage rooms, under ducts, etc.) shall be provided with guards listed by UL for the model and type of sprinkler used.

Sprinklers under open grating shall be provided with approved shields.

Fire Department Connections - Each fire department connection shall be the flush type. Freestanding type fire department connections shall only be installed when approved by UMCP/DAEC and shall be located a minimum of 40 feet from the building. Each fire department connection shall have two (2) 2-1/2 inch inlets with threads conforming to the American National Fire Hose Connection Screw Thread as defined in NFPA 1963, equipped with UL listed screw caps with pin lugs and chains. The fire department connection shall be labeled "AUTOMATIC SPRINKLER" with raised letters at least one inch in size cast on plate. The fire department connections shall be not less than two feet and not more than 3 feet 6 inches in

elevation, measured from the ground level to the center line of the inlets. Two fire department connections are required when two or more risers are provided.

Alarm Check Valve - An approved alarm check valve (Reliable Model E or equivalent) with all the required trim shall be installed as indicated on the contract drawings. All equipment shall be located and installed so that it is accessible for inspection, removal, and repair and shall be substantially supported.

A retarding device shall be installed with valves provided to permit repair or removal without shutting off the water supply to sprinklers. Valves shall be arranged so that they are sealed in the open position. A valve and bypass line shall be installed in order to test the alarm devices at the alarm check valve. All valves shall be identified with appropriate signs. All drainage shall be arranged to the main drain.

An approved outside water motor gong with guard shall be provided (Reliable Model C or equivalent). The water motor gong shall be located at the fire department connection. The water motor gong shall be provided with sufficient sized piping to cause a strong signal with one test valve open and flowing. The water motor gong drain shall be piped to a suitable drain or outside to grade level. The water motor gong shall be provided with a standard sign stating "SPRINKLER FIRE ALARM - CALL THE FIRE DEPARTMENT". The line to the water motor gong shall be provided with a sign stating, "ALARM LINE" or "WATER MOTOR GONG LINE" affixed to the pipe near the alarm check valve.

The top of the retard device or alarm line shall be fitted with an approved pressure switch. Conductors shall be provided under the electric division to provide fire alarm and annunciation. Activation of the sprinkler system by one sprinkler or equivalent shall cause an alarm signal on the fire alarm system to activate as "MAIN WATER FLOW".

DIVISION 15. MECHANICAL

15000 – General - Contractor shall review construction documents and provide labor and materials pertaining to the mechanical systems as required in said documents and as specified herein, while complying with all applicable building codes.

15100 – Plumbing - Plumbing shall be a fully operational system of hot and cold water. Provide and install all piping, soil, vents, drains, sewage removal and water supply systems to connect with appropriate water and sewage systems. Provide and install appropriate insulation around piping. All permits and inspections are to be obtained by contractor as required by local building codes and the Uniform Plumbing Code.

Sewer and Waste Piping - Drainage system shall be [Schedule 40 PVC pipe, or cast iron](#). All connections shall have [PVC cement or appropriate joint compound](#) and assembled tight for no leakage. Condensate drains shall be constructed of Schedule 40 PVC. Valves shall be Milwaukee Brand or equal. Building sewer shall be [vitrified clay pipe or approved Schedule 40 PVC pipe](#). Connection to public sewer system shall comply with all local requirements. Caulk joints or provide neoprene gaskets for all sewer lines. Pitch shall be a minimum 1/8" per foot for soil lines

larger than 3" diameter and a minimum of 1/4" per foot for soil lines 3" diameter or less. Insulate all interior drain/waste piping with batt insulation for sound attenuation. Clay pipes may be used for decorative drainage in yards.

Water Pipes - From public water line, install **Type "L" or "K" 1.5" (minimum) copper pipes**, located below frost line. From the meter to the building, install **1.5"** supply water lines. Use **1/2", 3/4"** minimum lines from supply lines to each plumbing fixture as required. At water heaters and hose bibs install a minimum **3/4"** pipe. From water heater install **3/4"-1"** pipe to each room with branches to fixtures as described above. Fittings shall be wrought copper, soldered with 95-5 solder and suitable flux. Use polished chrome adjustable brass P-traps with wall escutcheons at all exposed locations.

Provide shut-off valves at sinks, toilets, water heater and other fixtures as required. Test all pipes under **100 lbs** pressure per building code requirements.

Waste Drainage - Install sewage clean-out at the end of each horizontal drainage run and every **100** feet per building code requirements. Vents shall be installed throughout plumbing connections and connected with the vertical stacks and vented through the roof. Check with local building code officials for specific venting requirements.

Water Heater - Install **one, two 80** gallon **electric, gas** water heater(s) per construction documents. Water heater(s) shall have appropriate safety valves, back flow preventers, pressure relief valves and drain assemblies. **Install Type "X" fire-rated gypsum wallboard surrounding gas water heaters**. Follow manufacturer recommendations and building code requirements for installation and use.

Specify: gas, electrical, oil burning
Specify Powder: Manufacturer, item number

Optional Plumbing - If required install necessary plumbing requirements for **Septic tank and disposal system, solar water system, well and pump, etc.**

15410 – Plumbing Fixtures - Provide necessary piping, water and drains for plumbing fixtures as shown on the construction documents and listed herein. Fixtures allowances are listed in Contract Documents.

Fixtures and Fittings - Provide and install plumbing fixtures as listed below.

Location	Fixture/Fittings	Description	Model #
<i>ex: Kitchen</i>	<i>Sink</i>	<i>double bowl, porcelain</i>	<i>Kohler 2S324</i>

15530 – Gas Furnace - HVAC unit(s) shall total a high efficiency 00,000 BTU gas furnace. The system will contain air distribution ducts, diffusers and thermostats. Provide necessary venting and fire-rated wall system around furnace.

15700 – Heating, Venting and Air Conditioning - HVAC shall be a fully operational engineered system designed to meet local weather conditions and building requirements. All permits and inspections shall be obtained by contractor as required by applicable building codes.

15720 – Air-conditioning Unit - HVAC unit(s) shall total a high efficiency 0.0 ton unit. The system will contain a concrete pad for the condenser, power disconnects, condensate drains, air distribution ducts, diffusers and thermostats. Each floor level shall have a separate system. Central units for air conditioning or ventilation shall be arranged so that airflow is as direct as possible. Coordinate location of return air unit with contractor.

15740 – Electric Heat Pump Systems - HVAC unit(s) shall total a high efficiency 0.0 ton heat pump with electric heat and 11.0 SEER efficiency ratings. The system will contain a concrete pad for the condenser, power disconnects, condensate drains, air distribution ducts, diffusers and thermostats. Each floor level shall have a separate system.

15770 – Floor Heating - Installer to verify field measurements are as shown on Drawings. Verify that required utilities are available, in proper location, and ready for use. Beginning of installation means installer accepts conditions.

Complete installation shall conform to appropriate local codes and shall also be in accordance with manufacturer’s specification. MI copper or stainless steel sheath heating cable shall not leave heated area. Pull stranded wire (cold leads) through conduit from condulets to junction boxes. Completely bury conduit thru boxes (or pull boxes) in and fill with Delta Dry water repellent powder in accordance with manufacturer’s installation instruction. Cable Spacing in Concrete: at least 30 inches apart but not to exceed 5 feet apart. Do not pinch or make sharp bends in cable.

Selection of Installation mode shall be made by the engineers from the following selections:
 Directly embed heating cable in 6-inch sand bed located under floor insulation
 Directly embed heating cable in 3-inch concrete slab located under floor insulation.
 Place heating cables in 1" conduit directly embedded in 6-inch sand bed under floor insulation.
 Place heating cables in 1" conduit directly embedded in 3-8 inch concrete slab under floor insulation.

15810 – Ducts and Diffusers - Layouts for vents and diffusers shall be based per construction documents. High velocity duct system shall be designed for uniform friction loss not over one inch water gauge per hundred feet of length and a maximum velocity of four thousand fpm. Static pressure regained at branch outlets shall be considered in calculation system pressure losses.

15900 – HVAC Instruments and Controls – Install Pneumatic/Digital control systems. Zone rooms together as specified by drawings or electrical contractor. The location of controls shall be coordinated to avoid conflicts with furnishings or uses for the rooms in which controls are located.

DIVISION 16. ELECTRICAL

16000 – General - Contractor shall review construction documents and provide labor and materials pertaining to the electrical system as required in construction documents and as specified herein, while complying with all applicable building codes, local utility requirements and building restrictions.

16100 – Electrical - From electrical meter box, install above or below ground wiring to building. Raceways to be buried shall be PVC #2 Plastic Electrical conduit. Where permitted by code, non-metallic sheathed cable may be used. Type THW or THWN 600 volt insulation conductors shall be used, minimum wire size shall be #12. Aluminum wire shall not be permitted. Wiring shall connect into metal recessed electrical panel, as shown on construction documents. Electrical service shall be rated at 200 amps. Wiring from the outside meter box shall be SE cable.

16120 – Conductors and Cables - Provide and install necessary circuits and breakers for appliances as stated in manufacturer's recommendations per applicable building code requirements. For general illumination, provide a minimum 15 amp circuit for each 500 sf of living area (load 3 watts per sq.ft.) Branch circuits shall be wired with No. 12 gauge wire. Install GFI circuits with No. 12 gauge wire in all wet areas, baths and exterior outlets.

Appliance circuits shall be installed as follows per applicable building code requirements.

Range: No. 6 gauge wire

Dryer: No. 10 gauge wire

Disposal: No. 6 gauge wire

Dishwasher: No. 12 gauge wire

For furnace, heat pump, water pump and air conditioning units, install 10 gauge wire per applicable building code requirements.

16130 – Raceway and Boxes – Flexible or rigid conduits, couplings, supports and nonmetallic ducts. Install conduit concealed in all areas, excluding mechanical and electrical rooms/areas, connections to motors and connections to surface cabinets. Coordinate installation of conduit in masonry work. Unless indicated otherwise, do not install conduit larger than 2 1/2 inches in concrete slabs. Provide a minimum concrete cover around conduits of 2 inches. Install conduit free from dents and bruises. Plug ends to prevent entry of dirt and moisture. Minimize crossovers. Provide flashing and pitchpockets, making

