PART 1 - GENERAL

1.1 SUMMARY OF WORK
   A. Project Identification: As follows: 1. Project: Residence
   B. Contract Documents, dated 10/16/02 were prepared by Kevin Burr.
   C. The Work consists of building the residence per the plans provided with proper documentation.

1.2 WORK RESTRICTIONS
   A. Contractor's Use of Premises: During construction, Contractor shall have full use of site indicated. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project.
SECTION 01400 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Quality-control services include inspections and tests. Quality-control services are further specified in other Sections of these Specifications and shall be performed by independent testing agencies provided by Contractor or Owner, as specified.

1. Unless otherwise indicated, quality-control services required by authorities having jurisdiction will be provided by Owner.

B. Contractor is responsible for scheduling inspections and tests.

C. Retesting: Contractor shall pay for retesting where results of inspections and tests prove unsatisfactory and indicate noncompliance with requirements.

D. Duties of Testing Agency: Testing agency shall cooperate with Architect and Contractor in performing its duties. Agency shall provide qualified personnel to perform inspections and tests. Agency shall promptly notify Architect and Contractor of deficiencies observed in the Work during performance of its services. Agency shall not release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work. Agency shall not perform duties of Contractor.

E. Submittals: Testing agency shall submit a certified written report of each inspection and test to the following:

   Owner.
   Architect.
   Contractor.
   Name and signature of laboratory inspector.

F. All construction to conform to current UBC and local building codes.

END OF SECTION 01400
SECTION 02300 - EARTHWORK

PART 1 - GENERAL
  1.1 SECTION REQUIREMENTS
      A. Unauthorized excavation consists of removing materials beyond indicated subgrade
         elevations or dimensions without direction by Architect. Unauthorized excavation and
         remedial work shall be at Contractor's expense.

PART 2 - PRODUCTS
  2.1 MATERIALS
      A. Satisfactory Soil shall comply with ASTM standards.
      B. Backfill and Fill shall be inspected by Contractor or Architect.

PART 3 - EXECUTION
  3.1 EARTHWORK
      A. Excavate to subgrade elevations regardless of character of materials and obstructions
         encountered.
      B. Excavate for structures, building slabs, pavements, and walkways. Trim subgrades to
         required lines and grades.
      C. Place backfill and fill in layers not more than 6 inches in loose depth at optimum
         moisture content. Compact each layer under building, pavements, and walkways.
      D. Grade areas to a smooth surface to cross sections, lines, and elevations indicated.
      E. Remove surplus satisfactory soil and waste material, including unsatisfactory soil,
         trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02300
SECTION 02361 - TERMITE CONTROL
PART 1 - GENERAL
   1.1 SECTION REQUIREMENTS
      A. Submittals: Product Data and product certificates signed by manufacturer certifying that products used comply with U.S. EPA regulations for termiticides. Include application instructions and EPA-Registered Label.
      B. Engage a licensed professional pest control operator to apply termite control solution.

PART 2 - PRODUCTS
   2.1 TERMITICIDES
      A. Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in a soluble or emulsible, concentrated formulation that dilutes with water or foaming agent. Use only soil treatment solutions that are not harmful to plants. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to the product's EPA-Registered Label.

PART 3 - EXECUTION
   3.1 INSTALLATION
      A. Prepare surfaces and apply treatment at rates and concentrations recommended in manufacturer's written instructions.
      B. Apply termite control to the following:
         1. Under concrete floor slabs on grade.
         2. At expansion and control joints and slab penetrations.
      C. Post warning signs in areas of application.
      D. Reapply soil termiticide treatment solution to areas disturbed by subsequent excavation or other construction activities following application.

END OF SECTION 02361
SECTION 02553 - NATURAL GAS DISTRIBUTION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Summary: This Section includes gas piping outside the building. Service meter assembly is provided by the gas utility.
B. Comply with natural gas code.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

A. Steel Pipe: ASTM standards.
B. Malleable-Iron Fittings: ASME standards.

VALVES


PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NFPA 54, "Prevention of Accidental Ignition."
B. Install buried gas distribution system piping with a 3-foot minimum cover. Include underground warning tape.
C. Install containment conduits for buried gas piping where indicated. Vent conduits to atmosphere. Terminate vents with turned-down reducing-elbow fittings with corrosion-resistant insect screens in large ends.
D. Install underground, plastic, gas distribution piping according to ASTM standards.
E. Install aboveground, metal shutoff valves in accessible locations, protected from physical damage. Include metal tag indicating piping systems supplied, attached to valve with metal chain.

END OF SECTION 02553
SECTION 02751 - CEMENT CONCRETE PAVING

PART 1 - GENERAL

1 SECTION REQUIREMENTS
   A. Comply with ACI301. "Specification for Structural Concrete."

PART 2 - PRODUCTS

2.1 MATERIALS
   A. Portland cement shall conform to the requirements of ASTM C-150 (Type II of V shall be indicated).
   B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
   C. Welded Steel Wire Fabric: ASTM A 815.
   D. All reinforcing steel shall have a minimum yield strength of 60,000 psi and conform to local standards and codes. Reinforcing steel bends shall be made according to industry standards and local codes.

2.2 MIXES
   A. Proportion normal-weight concrete mixes to provide the following properties:
      1. Compressive Strength: For Foundations, slabs on grade 2500 psi and for Beams, joists, columns 3000 psi.

2.3 WORKMANSHIP
   A. All concrete shall conform and be designed, mixed, placed, tested in accordance with standard and local codes.
   B. All concrete shall be cured for a period of not less than 7 days after pouring.
   C. Footings to rest upon undisturbed soil or fill compacted 95% of maximum density at optimum moisture.

2.4 OTHER
   A. Provide min of 3 "x3 " landing area at all exterior doors.
SECTION 06100 - ROUGH CARPENTRY
PART 1 - GENERAL (Not Applicable)
PART 2 - PRODUCTS
1.1 MATERIALS

A. All structural lumber shall have the grade specified and be in conformance with the drawings. For that is not specified the following values shall apply.
   2x’s Douglas Fir/Larch #2
   4x’s Douglas Fir/Larch #2
   6x” Douglas Fir/Larch # 1 Studs & Posts Stud Grade

B. All plywood that is not specified otherwise shall be structural II (CDX or OSB) with an appropriate panel index rating.

C. All glu-laminated beams shall be fabricated with a strength of 2400 psi in bending.

D. All exterior walls to be 2x6 @ 16" oc.

E. All exterior sheathing to be ’A ” structural grade plywood or 7/16" OSB nailed w/8d or eq. @ 8"oc edges, 12" oc field.

F. All framing connectors to be Simpson Company or equal.

G. Provide 22"x30" attic and crawl access as required.

1.2 WORKMANSHP

A. All miscellaneous nailing that is not specifically detailed on the drawings shall conform to local building codes and standards.

B. Engineering data shall be submitted for approval for all pre-man, roof and floor trusses.

C. Provide blocking at all HVAC units and at HVAC support. Roof openings shall be reinforced w/blocking.

D. Provide cross-bridging & horizontal framing as required.

END OF SECTION 06100
SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A Submittals: Product Data for each type of insulation product specified.
B. Surface-Burning Characteristics: ASTME84, flame-spread ratings of 75 or less and smoke-developed ratings of 450 or less.

PART 2 - PRODUCTS

2.1 INSULATION PRODUCTS

A. Exterior Walls
   1. 2x6 ext. studs (a) 16" oc with min. R-1 1 insulation
B. Roof/Ceiling
   1. All trusses @ 24" oc with attic air space and min. R-26 insulation covering the bottom cord.
C. Floor
   1. Floor joists and/or trusses with min. R-19 insulation as required.

2.2 ACCESSORIES

A. Vapor Retarder

PART 3 - EXECUTION

3.1 INSTALLATION

A Install insulation in areas and in thicknesses indicated or required to produce R-values indicated. Cut and fit tightly around obstructions and fill voids with insulation.
B. Place loose-fill insulation to comply with ASTM C 1015.
C. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage.

END OF SECTION 07210
SECTION 07311 - ASPHALT SHINGLES
PART 1 - GENERAL
1.1 SECTION REQUIREMENTS
   A. Submittals: Product Data and Samples.
   B. Identify each bundle of shingles with appropriate markings of UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
PART 2 - PRODUCTS
2.1 ASPHALT SHINGLES
   1. Owner shall identify the shingles to be used.
22 ACCESSORIES
   B. Nails: Aluminum or hot-dip galvanized steel conventional roofing nails of sufficient length to penetrate 9/32" into solid decking or at least 1/8" through plywood sheathing.
PART 3 - EXECUTION
3.1 INSTALLATION
   B. Apply waterproof underlayment at eaves and in place of felt underlayment at valleys.
   C. Install valleys complying with ARMA and NRCA instructions.
   D. Install asphalt shingles with a weather-exposure pattern of 1/2 shingle offset at succeeding course.
   E. Install ridge vents according to manufacturer's written instructions.

END OF SECTION 07311
SECTION 08110 - STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and door schedule.
B. Comply with ANSI/SDI100.
C. Fire-Rated Door Assemblies: NFPA 80, tested per ASTM E 152, and labeled and listed by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Hot-Rolled Steel Sheets: ASTM A 569/A 569M.
B. Cold-Rolled Steel Sheets: ASTM A 366/A 366M or ASTM A 620/A 620M.

2.2 STEEL DOORS AND FRAMES

A. Owner shall identify Doors to be used.
B. Steel Doors: 1-3/4" thick of materials and ANSI/SDI100 grades and models indicated on Drawings or in schedules.
   1. Exterior Doors: Grade HI, extra heavy-duty. Model 2, seamless design, galvanized steel sheet faces.
C. Prepare doors and frames to receive mortised and concealed hardware according to SDI107.
D. Prime Coat: Uncoated steel, ANSI A224.1 shop primer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Place steel frames to comply with SDI 105.
B. Install steel doors accurately in frames, within clearances specified in ANSI/SDI 100.
   1. Fire-Rated Doors: Install with clearances specified in NFPA 80.
   2. Smoke-Control Doors: Comply with NFPA 105.
C. Prime Coat Repair: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and repair finish with compatible air-drying primer.

END OF SECTION 08110
SECTION 08211 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS
   A. Submittals: Samples for factory-finished doors.
   B. Quality Standard: NWWDA I.S.1-A.
   C. Fire-Rated Wood Doors: Labeled by a testing and inspecting agency acceptable to authorities having jurisdiction based on testing per NFPA 252. Test at atmospheric pressure.

PART 2 - PRODUCTS

2.1 FLUSH WOOD DOORS
   A. All doors indicated on Drawings or in schedules.
   B. Doors for Transparent Finish: Per Owner.
   C. Hollow Core Doors: Seven-ply, Standard hollow core with lock blocks both sides and top and bottom rail blocking.

PART 3 - EXECUTION

3.1 INSTALLATION
   A. Install doors to comply with referenced quality standard. Install fire-rated doors to comply with NFPA 80.
   B. Align and fit doors in frames with uniform clearances and bevels. Machine doors for hardware. Seal cut surfaces after fitting and machining.
   C. Align factory-fitted doors in frames for uniform clearances.
   D. Repair, refinish, or replace factory-finished doors damaged during installation, as directed by Architect.

END OF SECTION 08211
SECTION 08561 - VINYL WINDOWS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS
   A. Submittals: Product Data, Shop Drawings and color Samples.

PART 2 - PRODUCTS

2.1 VINYL WINDOWS
   A. Owner to Identify
   B. Provide vinyl windows that comply with AAMA/NWWDA 101/I.S.2.
   C. Glaze units with clear glass.
   D. Natural lighting to equal or exceed UBC requirements.
   E. Windows must exceed or be equal to the following types:
      Double pane with wood or approved vinyl frame.
      The same and LOW-E rating
      The same and LOW-E rating and argon gas.

PART 3 - EXECUTION

3.1 INSTALLATION
   A. Set units level, plumb, and true to line, without warp or rack of frames and panels
      and anchor securely in place.
   B. Set sill members in bed of sealant or with gaskets, as indicated, to provide
      weathertight construction
   C. Adjust operating panels, screens, and hardware for smooth operation and
      weathertight closure. Lubricate hardware and moving parts.

END OF SECTION 08561
SECTION 09680 - CARPET

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS
A. Submittals: Product Data and color Samples.
B. Comply with CRI104, Section 6, "Site Conditions."
C. Extra Materials: Deliver to Owner full-width carpet equal to 5 percent of each type and color carpet installed, packaged with protective covering for storage.

PART 2 - PRODUCTS

2.1 CARPET
A. Owner to Identify
   1. Color and Pattern
B. Fiber Content
C. Surface Pile Weight

2.2 CARPET CUSHION
A. Traffic Classification: CCC Class II, heavy traffic 1.

PART 3 - EXECUTION

3.1 INSTALLATION
A. Comply with CRI 104, Section 10. "Attached Cushion."
B. Maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position. Bind or seal cut edges as recommended by carpet manufacturer.
C. Install pattern parallel to walls and borders.

END OF SECTION 09680
SECTION 09720 - WALL COVERINGS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS
   A. Submittals: Product Data and material Samples.
   B. Surface-Burning Characteristics: Provide wall coverings with flame-spread and smoke-developed ratings of not more than 25 and 450, respectively, per ASTM E 84.
   C. Extra Materials: Deliver to Owner full-width rolls of wall covering equal to 5 percent of amount of each type installed, packaged with protective covering for storage.

PART 2 - PRODUCTS

2.1 WALLCOVERING
   A. Owner to Identify
      1. Pattern and Color

PART 3 - EXECUTION

3.1 INSTALLATION
   A. Comply with manufacturers' written instructions for surface preparation and installation. Cut panels in roll number sequence. Change run numbers at partition breaks and corners only
   B. Install seams vertical and plumb, with no horizontal seams.

END OF SECTION 09720
SECTION 09910 - PAINTING
PART 1 - GENERAL
1.1 SECTION REQUIREMENTS
A. Summary: Paint all exposed surfaces, unless otherwise indicated.
   Paint the back side of access panels.
   Color code mechanical piping in accessible ceiling spaces.
   Do not paint pre finished items, finished metal surfaces, operating parts, labels, and
   materials obviously intended to be left exposed such as brick and tile.
   Unless otherwise indicated do not paint concealed surfaces.
B. Submittals: Product Data and color Samples.
C. Mockups: Full-coat finish sample (benchmark sample) of each type of coating,
   substrate, color, and finish required in area of not less than.
D. Obtain block fillers, primers, and undercoat materials for each coating system from
   the same manufacturer as the finish coats.
E. Extra Materials: Deliver to Owner a 1-gal. container, properly labeled and sealed,
   of each color and type of finish coat paint used on Project.

PART 2 - PRODUCTS
2.1 PAINT
A. Owner to Identify
   1. Colors
B. Material Quality: Manufacturer's best-quality of coating types specified.
C. Material Compatibility: Complete system of compatible components that is
   recommended by manufacturer for application indicated.

PART 3 - EXECUTION
3.1 APPLICATION
A. Comply with paint manufacturer's written instructions for surface preparation,
   environmental and substrate conditions, product mixing, and application.
3.2 EXTERIOR PAINT APPLICATION SCHEDULE
A. Concrete, Stucco, and Masonry: As follows:
   1. Acrylic: Two coats over primer.
B. Concrete Masonry Units: As follows:
   1. Acrylic: Two coats over block filler.
3.3 INTERIOR PAINT APPLICATION SCHEDULE
A. Concrete and Masonry: As follows:
   1. Flat Acrylic: Two coats over primer.
B. Concrete Masonry Units: As follows:
   1. Flat Acrylic: Two coats over block filler.
C. Gypsum Board: As follows:
   1. Flat Acrylic: Two coats over primer.
D. Plaster: As follows:
   1. Flat Acrylic: Two coats over primer.

END OF SECTION 09910
SECTION 10750 - TELEPHONE SPECIALTIES
PART 1 - GENERAL (Not Applicable)
PART 2 - PRODUCTS
  2.1 MATERIALS
    A. Stainless-Steel Sheet: ASTM A 666, Type 302 or 304, with No. 4 finish.
    B. Wall-Mounted, Shelf-Type Telephone Enclosures: Owner to identify

PART 3 - EXECUTION
  3.1 INSTALLATION
    A. Install telephone specialties as indicated. Provide clips, grounds, backing materials, brackets, anchors, trim, and accessories for a complete installation.

END OF SECTION 10750
SECTION 10801 - TOILET AND BATH ACCESSORIES

PART 1 - GENERAL
1.1 SECTION REQUIREMENTS
A. Submittals: Product Data.

PART 2 - PRODUCTS
2.1 MATERIALS
A. All items in the bathroom will be identified by the Owner.

PART 3 - EXECUTION
3.1 INSTALLATION
A. Install accessories using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
1. Install grab bars to withstand a downward load of at least 250 lbs, when tested according to method in ASTM F 446.
B. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items. Remove temporary labels and protective coatings.

END OF SECTION 10801
SECTION 11460 - UNIT KITCHENS
PART 1 - GENERAL
1.1 SECTION REQUIREMENTS
A. Submittals: Product Data.
B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100. by a testing agency acceptable to authorities having jurisdiction.
C. Gas-Burning Appliances: Labeled with certification seal of the American Gas Association and comply with ANSI Z21 Series standards.

PART 2 - PRODUCTS
2.1 UNIT KITCHENS
A. Owner to Identify.
B. Cabinets
C. Sink
D. Faucet
E. Disposer
2.2 APPLIANCES
A. Freestanding, Upright, Two-Door Combination Refrigerator/Freezer
B. Electric Cooktop four burners, each element rated at least 1250 W.
C. Electric Oven 1500 W bake; 2000 W broil element rating.
D. Ventilating Exhaust Hood: For mounting below wall cabinets, with two-speed fan, permanent washable filter, and built-in lighting. Include exhaust duct and wall or roof cap and shutter.
E. Dishwasher: Built-in.

PART 3 - EXECUTION
3.1 INSTALLATION
A. Securely anchor components and appliances to supporting cabinets or countertops with concealed fasteners and anchor unit kitchens to adjacent walls and floor with concealed devices.
SECTION 12356 - KITCHEN CASEWORK

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data, Shop Drawings, and material Samples.

PART 2 - PRODUCTS

2.1 KITCHEN CASEWORK

A. Kitchen Cabinets: Owner to identify.
B. Solid Surface Material Countertops and Splashes: Owner to identify

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install cabinets with no variations in flushness of adjoining surfaces by using concealed shims. Where casework abuts other finished work, scribe and cut for accurate fit. Provide filler strips, scribe strips, and moldings in finish to match casework face.
B. Install cabinets without distortion so doors and drawers fit openings properly and are aligned.
C. Install level and plumb to a tolerance of 1/8" in 8".
D. Fasten each cabinet to adjacent unit and to structural members of wall construction. Fasten wall cabinets through back, near top and bottom, at ends and not less than 24" o.c.
E. Fasten plastic-laminate countertops by screwing through corner blocks in base units into underside of countertop. Spline and glue joints in countertops and use concealed mechanical clamps.
F. Fasten solid surface countertops by screwing through corner blocks in base units into underside of countertop. Align adjacent surfaces. Form seams 1/8" wide and adhere with manufacturer's recommended joint adhesive in color to match countertop. Dress joints smooth, remove surface scratches, and clean entire surface.

END OF SECTION 12356
SECTION 12492 - VERTICAL LOUVER BLINDS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS
A. Submittals: Product Data and color Samples.
B. Extra Material: Deliver to Owner vertical louver vanes equal to 5 percent of each type and color installed, packaged with protective covering for storage.

PART 2 - PRODUCTS

2.1 VERTICAL LOUVER BLIND
A. To be determined by the Owner

PART 3 - EXECUTION

3.1 INSTALLATION
A. Install blinds level and plumb.
B. Isolate metal parts from concrete or mortar to prevent galvanic action. Use tape or another method recommended by manufacturer.

END OF SECTION 12492
SECTION 15055 - COMMON PIPING REQUIREMENTS

PART 1 - GENERAL (Not Applicable)

PART 2 - PRODUCTS

2.1 SUPPORTING DEVICES

A. Hanger and Pipe Attachments: Factory fabricated with galvanized coatings; nonmetallic coated for hangers in direct contact with copper tubing.

B. Building Attachments: Powder-actuated-type, drive-pin attachments with pullout and shear capacities appropriate for supported loads and building materials; UL listing and FM approval for fire-protection systems.

C. Mechanical-Anchor Fasteners: Insert-type attachments with pullout and shear capacities appropriate for supported loads and building materials; UL listing and FM approval for fire-protection systems.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install piping free of sags and bends.

B. Install fittings for changes in direction and branch connections.

C. Install sleeves for pipes passing through concrete walls, and concrete floor.

D. Exterior Wall, Pipe Penetrations: Mechanical sleeve seals installed in steel or cast-iron pipes for wall sleeves.

E. Fire-Barrier Penetrations: Seal pipe penetrations with through-penetration firestop systems specified in Division 7.

F. Install unions adjacent to each valve and at final connection to each piece of equipment.

G. Install dielectric unions and flanges to connect piping materials of dissimilar metals in gas, compressed air, and vacuum piping.

H. Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals in water and steam piping.

3.2 HANGERS AND SUPPORTS

A. Install building attachments within concrete or to structural steel. Install additional attachments at concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at changes in direction of piping.

B. Install powder-actuated drive-pin fasteners in concrete after concrete is cured. Do not use in lightweight concrete or in slabs less than 4" thick.

C. Install mechanical-anchor fasteners in concrete after concrete is cured. Do not use in lightweight concrete or in slabs less than 4" thick.

D. Support fire-protection system piping independent of other piping.

E. Load Distribution: Install hangers and supports so piping live and dead loading and stresses from movement will not be transmitted to connected equipment.

END OF SECTION 15055
SECTION 15140 - DOMESTIC WATER PIPING

PART 1 - GENERAL
1.1 SECTION REQUIREMENTS
   A. Performance Requirements: Unless otherwise indicated minimum pressure requirements for water piping are as follows:
   B. Comply with NSF 14 "Plastic Piping Components and Materials,"
   C. Comply with NSF 61 "Drinking Water System Components - Health Effects."

PART 2 - PRODUCTS
2.1 PIPES AND TUBES
   A. Hard Copper Tube: ASTM B 88, Types L and M, water tube, drawn temper.

2.2 FITTINGS
   A. Wrought-Copper, Solder-Joint Pressure Fittings: ASMEB 16.22.

2.3 JOINING MATERIALS
   A. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

PART 3 - EXECUTION
3.1 VALVE APPLICATIONS
   A. Install gate valves close to main on each branch and riser serving two or more plumbing fixtures or equipment connections and where indicated.
   B. Install gate or ball valves on inlet to each plumbing equipment item, on each supply to each plumbing fixture not having stops on supplies, and elsewhere as indicated.
   C. Install drain valve at base of each riser, at low points of horizontal runs, and where required to drain water distribution piping system.
   D. Install swing check valve on discharge side of each pump and elsewhere as indicated.
   E. Install ball valves in each hot-water circulating loop and discharge side of each pump.

3.2 PIPING INSTALLATIONS
   A. Install hangers and supports at intervals indicated in the applicable plumbing code and as recommended by pipe manufacturer.
   B. Support vertical piping at each floor.

3.3 INSPECTING AND CLEANING
   A. Inspect and test piping systems following procedures of authorities having jurisdiction.
   B. Clean and disinfect water distribution piping following procedures of authorities having jurisdiction.

END OF SECTION 15140
SECTION 15410 - PLUMBING FIXTURES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS
A. Submittals: Product Data for each type of plumbing fixture.

PART 2 - PRODUCTS

2.1 WATER CLOSET
A. Toilet Seat Owner to identify

2.2 SHOWER
A. Cabinet Shower Unit: Enameled steel with slip-resistant floor surface.
B. Shower Base Receptor: Fiberglass plastic with threshold matching enclosure and slip-resistant surface. Include integral corrosion-resistant-metal drain with removable strainer.

2.3 BATHTUB
A. Enameled, Steel Bathtub: With slip-resistant bathing surface, 2'-6" x 5' custom tub 3'-9" x 5'-6" Tubs are on Sheet A-3.

2.4 SINK
A. Kitchen sink, Stainless Steel
B. Bathroom sink : Kohler Brookline self-rimming lavatory

2.5 LAUNDRY TRAY
A. Plastic Laundry Trays

PART 3 - EXECUTION

3.1 INSTALLATIONS
A. Install fitting insulation kits on fixtures for the disabled.
B. Install fixtures with flanges and gasket seals.
C. Install flushometer valves for accessible water closets and urinals with handle mounted on wide side of compartment. Install other actuators in locations that are easy for the disabled to reach.
D. Install tanks for accessible, tank-type water closets with lever handle mounted on wide side of compartment.
E. Fasten wall-hanging plumbing fixtures securely to supports attached to building substrate when supports are specified, and to building wall construction where no support is indicated.
F. Fasten floor-mounted fixtures to substrate. Fasten fixtures having holes for securing fixture to wall construction, to reinforcement built into walls.
G. Fasten wall-mounted fittings to reinforcement built into walls.
H. Fasten counter-mounting plumbing fixtures to casework.
L. Secure supplies to supports or substrate within pipe space behind fixture.
J. Set shower receptors and mop basins in leveling bed of cement grout.
K. Install individual supply inlets, supply stops, supply risers, and tubular brass traps with cleanouts at fixture.
L. Install water-supply stop valves in accessible locations.
M. Install traps on fixture outlets. Omit traps on fixtures having integral traps. Omit traps on indirect wastes, unless otherwise indicated.
N. Install disposers in sink outlets. Install switch where indicated, or in wall adjacent to sink if location is not indicated.
O. Install hot-water dispensers in back top surface of sink or in counter with spout over sink.
P. Install escutcheons at wall, floor, and ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons where
required to conceal protruding pipe fittings.

Q. Seal joints between fixtures and walls, floors, and counters using sanitary-type, one-part, mildew-resistant, silicone sealant. Match sealant color to fixture color.

R. Install piping connections between plumbing fixtures and piping systems and plumbing equipment. Install insulation on supplies and drains of fixtures for the disabled.

S. Ground equipment. Tighten electrical connectors and terminals according to UL 486A and UL 486B.

END OF SECTION 15410
SECTION 15480 - DOMESTIC WATER HEATERS

PART 1 - GENERAL
1.1 SECTION REQUIREMENTS
A. Submittals: Product Data.
B. Gas-Fired Water Heaters
C. Warranties: Submit a written warranty executed by manufacturer agreeing to repair or replace water heaters and accessories that fail in materials or workmanship within 5 years of Substantial completion. Failures include, but are not limited to, tanks and elements.

PART 2 - PRODUCTS
21 WATER HEATERS, GENERAL
A. Interior Finish: Materials that comply with requirements of applicable NSF, AWWA, or FDA and EPA regulatory standards for tasteless and odorless, potable-water-tank linings.
B. Insulation: Suitable for operating temperature and required insulating value. Include insulation material that surrounds entire tank except connections and controls.
C. Anode Rods: Factory installed, magnesium.
D. Combination Temperature and Pressure-Relief Valve: ASME rated and stamped and complying with ASME PTC 25.3. Include relieving capacity at least as great as heat input and pressure setting less than water heater working-pressure rating. Select relief valve with sensing element that extends into tank.
E. Drain Valve: ASSE 1005, factory or field installed.

PART 3 - EXECUTION
3.1 INSTALLATION
A. Install temperature and pressure-relief valves and extend to closest floor drain.
B. Install vacuum-relief valves in cold-water-inlet piping.
C. Install shutoff valves and unions at hot- and cold-water piping connections.
D. Make piping connections with dielectric fittings where dissimilar piping materials are joined.
E. Electrically ground units according to authorities having jurisdiction.
F. Connect gas water heaters according to NFPA 54. Connect gas vent and draft hoods and diverters where required. Extend to outside and terminate in vent cap.

END OF SECTION 15480
SECTION 15530 - FURNACES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS
A. Submittals: Product Data.
B. Gas Furnaces
C. Warranties: Submit a written warranty executed by manufacturer agreeing to repair or replace furnaces that fail in materials or workmanship within 5 years of Substantial completion.

PART 2 - PRODUCTS

2.1 GAS-FIRED FURNACES
A. Controls: Include components required for satisfactory operation of furnaces and auxiliary equipment in all seasons.
B. Filters: 1" thick, washable type in sheet metal rack.
C. Air Cleaners: Electronic packaged system, including sheet metal housing, prefilter, powersupply, and automatic control device, arranged for mounting in return-air duct at furnace; equip with on-off and test switches and pilot light.

PART 3 - EXECUTION

3.1 INSTALLATION
A. Install and connect gas-fired furnaces and associated fuel and vent features and systems according to NFPA 54, applicable local codes and regulations, and manufacturer's written installation instructions.
B. Vents, Outside-Air Pipe Connections, and Drains: Install vent terminal designed to protect against birds, insects, and dirt.
C. Base-Mounted Units: Secure units to substrate. Provide optional bottom closure base where installation conditions require.
D. Controls: Install thermostats and humidistats at mounting height of 60" above floor.

END OF SECTION 15530
SECTION 16100 - WIRING METHODS
PART 1 - GENERAL
1.1 SECTION REQUIREMENTS
   A. Summary: Building wire and cable and associated splices, connectors, and terminations for wiring systems rated 600 V and less, and twisted-pair cable; and raceways and boxes.

PART 2 - PRODUCTS
2.1 WIRES AND CABLES
   A. Conductors: Copper
   B. Connectors and Splices: Wiring connectors of size, ampacity rating, material, and type and class for application and for service indicated.

2.2 RACEWAYS
   A. Wireways: Screwed cover type, with manufacturers standard finish.

PART 3 - EXECUTION
3.1 INSTALLATION
   A. Install wires and cables according to the NECA's "Standard of Installation."
   B. Remove existing wire from raceway before pulling in new wire and cable.
   C. Wiring at Outlets: Install with at least 12" of slack conductor at each outlet.
   D. Install a separate green ground conductor in surface metal raceway from the junction box supplying the raceway to receptacle and fixture ground terminals.

END OF SECTION 16100
SECTION 16500-LIGHTING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS
A. Submittals: Product Data for each luminaire, including lamps.

PART 2 - PRODUCTS

2.1 FIXTURES AND FIXTURE COMPONENTS, GENERAL
A. Metal Parts: Free from burrs, sharp corners, and edges. Steel, unless otherwise indicated. Form and support to prevent warping and sagging.
B. Doors, Frames, and Other Internal Access: Smooth operating, free from light leakage under operating conditions, and arranged to permit relamping without use of tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent accidental falling during relamping and when secured in operating position.
C. Lenses, Diffusers, Covers, and Globes: 100 percent virgin acrylic plastic or annealed crystal glass, unless otherwise indicated.

2.2 LUMINAIRES
A. Fixture Type will be identified by Owner and will be according to sheet A-5.

PART 3 - EXECUTION

3.1 INSTALLATION
A. Set units level, plumb, and square with ceiling and walls, and secure.
B. Support for Recessed and Semi recessed Grid-Type Fluorescent Fixtures: Install ceiling support system rods or wires at a minimum of 4 rods or wires for each fixture, located not more than 6" from fixture corners.
C. Support for Suspended Fixtures: Brace pendants and rods over 48" long to limit swinging. Support stem-mounted, single-unit, suspended fluorescent fixtures with twin-stem hangers. For continuous rows, use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of chassis, including one at each end.
D. Air-Handling Fixtures. Install with dampers closed.
E. Lamping: Where specific lamp designations are not indicated, lamp units according to manufacturer's written instructions.

END OF SECTION 16500
SECTION 16715 - TELEPHONE SERVICE AND DISTRIBUTION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS
A. Summary: Includes premises wiring for telephone distribution, including installations for service by local telephone exchange earner.
B. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 CABLE AND WIRING COMPONENTS
A. Jack Assemblies: Four-position modular RJ14 jacks in flush-mounting wall plate, unless otherwise indicated.

2.2 TESTING
A. Test each pair or conductor of each cable run for continuity of pair loop.
B. Test each complete installed Category 5 wiring connection, including cable, connections, jacks, and terminal blocks, for compliance with Category 5 signal transmission criteria.

END OF SECTION 16715