McKee and Associates
Architecture and Interior Design

Addendum

No. TWO Date: 8.16.19

Project:

**A NEW BASEBALL AND SOFTBALL COMPLEX FOR
RUSSELL COUNTY HIGH SCHOOL FOR THE
RUSSELL COUNTY BOARD OF EDUCATION
SEALE, ALABAMA**

**MCKEE PROJECT NO. 19.102
ALABAMA BUILDING COMMISSION NO. 2019313**

The following changes and/or substitutions to the plans and specifications are hereby made a part of same and are incorporated in full force as part of the contract.

Bidders shall acknowledge receipt of this Addendum in writing on his Proposal Form.

A2.1 GENERAL MODIFICATIONS:

A. Refer to the **Advertisement for Bids**, **Change** as follows:

1. Sealed proposal will be received for the above referenced project by Dr. Brenda Coley, Superintendent, at The Russell County Board Of Education, 506 14th Street, Phenix City, Alabama, until **Thursday, August 22, 2019 @ 2:00 PM (Eastern Standard Time)**, then opened and read aloud

A2.2 SPECIFICATION MODIFICATIONS:

A. See the attached **Section 07500, Membrane Roof**, herein.

B. See the attached **Section 15400, Plumbing with Cover Sheet (Revised 7.29.19)**, herein.

C. See the attached **Letter from Gunn & Associates, P.C. Consulting Engineers, dated August 16, 2019**, herein.

A2.3 DRAWING MODIFICATIONS:

A. See Sheet AF2.1; Chain Link Fence Notes – Change fabric size from 1 ¾" as indicated to 2" as specified in specification Section 02831, Vinyl Coated Chain Link Fences and Gates.

B. See sheet C-3; Clarification: the pipe from inlet G-9 to W-3 is to be 8". The size of the pipe from W-3 to the west (outlet) is to be 18".

C. Clarification: The Storage Rooms 201 and 202 are served with a 2" waterline. The irrigation for the baseball and softball fields are to be ran from the respective storage room locations. A backflow preventer is to be installed as recommended for the irrigation line for each field and the irrigation controllers are to be wall mounted on the interior of the storage rooms.

D. See sheet A2.1; Coiling grilles 101A and 101B are to be 8'-0" in width in lieu of 6'-0" as shown on Door Schedule

E. See sheets AF1.1 and AF2.2; at all turf edge conditions, refer to edge details as shown on sheet AF2.2 with concrete curbing where protective netting, fencing, and other transitions occur at field edges and perimeter edges for bullpen areas as shown on plans. Concrete curbs are to be used for all turf transitional areas at field and bullpens.

END OF ADDENDUM

SECTION 07500 – MEMBRANE ROOFING

PART 1 – GENERAL

RELATED DOCUMENTS:

Drawing and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

DESCRIPTION

The roofing contractor shall be fully knowledgeable of all requirements of the contract documents and shall make themselves aware of all job site conditions prior to the bid that will affect their work.

Provide all labor, material, tools, equipment, and supervision necessary to furnish and install a **60** mil white reinforced TPO (Thermoplastic Polyolefin) or a **60** mil **PVC** (polyvinyl chloride) membrane.

Provide and Install New Roof as follows:

1. Roof Insulation
    a. Cover board
        i. 1/2", 100 psi. ISO HD board
            a) Mechanically Attached
2. Membrane
    a. **60** mil white reinforced **TPO or PVC** membrane
        i. Adhered in accordance with the manufacturer's most current specifications and details.
    b. **60** mil TPO or PVC membrane flashings and associated metal components as required.
3. Warranties
    a. Provide a **20**-year NDL manufacturer's warranty
    b. Provide a **5**-year General Contractor's Roofing Guarantee workmanship warranty found in Contract Forms section of this manual.

SUBMITTALS

Prior to starting work, the roofing contractor must submit the following:

1. Shop drawings showing layout of insulation, details of construction and identification of materials.
2. Sample of the manufacturer's Membrane System Warranty.
3. Submit a letter of certification from the manufacturer which certifies the roofing contractor is authorized to install the manufacturer's roofing system.
4. Certification of the manufacturer's warranty reserve.

Upon completion of the installed work, submit copies of the manufacturer's final inspection to the specifier prior to the issuance of the manufacturer's warranty.

PRODUCT DELIVERY, STORAGE, AND HANDLING

Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption. Comply with the manufacturer's written instructions for proper material storage.

1. Store the **TPO and PVC** membranes in the original undisturbed plastic wrap in a cool, shaded

area and cover with light-colored, breathable, waterproof tarpaulins. Thermoplastic membrane that has been exposed to the elements for approximately seven (7) days must be prepared with appropriate cleaner prior to hot air welding.
2. Store curable materials (adhesives and sealants) between 60°F and 80°F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60°F minimum temperature before using.
3. Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.
4. Insulation must be on pallets, off the ground and tightly covered with waterproof materials.
5. Any materials, which are found to be damaged, shall be removed and replaced at the applicator's expense.

WORK SEQUENCE

Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath any completed sections of the membrane system.

Do not disrupt activities in occupied spaces.

JOB SITE PROTECTION

The roofing contractor shall adequately protect building, paved areas, service drives, lawn, shrubs, trees, etc. from damage while performing the required work. Provide all materials as necessary for protection and remove protection material at completion. The contractor shall repair or be responsible for costs to repair all property damaged during the roofing application.

Do not overload any portion of the building, by either use of or placement of equipment, storage of debris, or storage of materials.

Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.

Take precautions to prevent drains from clogging during the roofing application.

Remove debris at the completion of each day's work and clean drains, if required. At completion, test drains to ensure the system is free running and drains are watertight. Remove strainers and plug drains in areas where work is in progress. Install flags or other telltales on plugs. Remove plugs each night and screen drain.

Store moisture susceptible materials above ground and protect with waterproof coverings.

Remove all traces of piled bulk materials and return the job site to its original condition upon completion of the work.

SAFETY

The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state, and federal requirements that are safety related. Safety shall be the responsibility of the roofing contractor. All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment for the facility's occupants including staff, visitors, customers, and the occurrence of the public on or near the site.

WORKMANSHIP

Applicators installing new roof, flashing and related work shall be factory trained and approved by the manufacturer they are representing.

All work shall be of highest quality and in strict accordance with the manufacturer's published

specifications and to the building owner's satisfaction.

There shall be a supervisor on the job site at all times while work is in progress.

QUALITY ASSURANCE

The roofing contractor shall be fully knowledgeable of all requirements of the contract documents and shall make themselves aware of all job site conditions prior to the bid that will affect their work.

The Contractor will provide an approved and certified independent third-party inspection firm. The inspection firm will provide a certificate of compliance in a start-up, in progress and final inspection mode, certifying that the roof system will be approved to receive a **20-year manufacturer's warranty**.

Recognized approved independent firms will consist of:

1. Hixson Consultants, Inc.,
   947 1st Avenue West,
   Alabaster, AL. 35007
   (205) 663-2220, attention Mr. Tyler Hixson

   or

2. Roof Asset Management, Inc.
   David Lee
   4950 Woodfield Drive
   Millbrook, Alabama 36054
   (334) 590-7999

The Contractor shall provide signed certification from the Roofing Manufacturer that the roof design provided for this project complies with the performance requirements as set forth by applicable applications in IBC Chapter 15, Section 1504.

1. The certification shall be attached to the Roof Warranty provided at the close out of the project.
2. Contractor shall submit a copy of his Manufacturer's Warranty Notification prior to purchase of materials and start of work.

Roof system will meet the requirements of all federal, state and local code bodies having jurisdiction.

The TPO or PVC membrane roofing system must achieve a UL Class A and the appropriate FM rating.

Unless otherwise noted in this specification, the roofing contractor must strictly comply with the manufacturer's current specifications and details.

Impact Resistance: Roof coverings installed on low-slope roofs (roof slope <2:12) shall resist impact damage based on the results of tests conducted in accordance with ASTM D 3746, ASTM D 4272, CGSB 37-GP-52M or the "Resistance to Foot Traffic Test "FM 4470.

Drainage: Provide a roof system with positive drainage where all standing water dissipates within 48 hours after precipitation ends.

All roof curbs and penetrations shall have a minimum height of 8" above the completed roof system.

Roof curbs shall be installed in accordance with roofing system manufactures instructions.

Unless otherwise noted in this specification, the roofing contractor must strictly comply with the manufacturer's current specifications and details.

The roofing system must be installed by an applicator authorized and trained by the manufacturer

in compliance with shop drawings as approved by the Architect /owners representative.

Provide adequate number of experienced workers regularly engaged in this type of work who are skilled in the application techniques of the materials specified. Provide at least one thoroughly trained and experienced superintendent on the job at all times roofing work is in progress.

There shall be no deviations made from this specification or the approved shop drawings without the prior written approval of the Architect. Any deviation from the manufacturer's installation procedures must be supported by a written certification on the manufacturer's letterhead and presented for the Architects consideration.

Upon completion of the installation, the applicator shall arrange for an inspection to be made by a non-sales technical representative of the membrane manufacturer in order to determine whether corrective work will be required before the warranty will be issued. Notify the Architect and General Contractor seventy-two (72) hours prior to the manufacturer's final inspection.

JOB CONDITIONS, CAUTIONS, AND WARNINGS

Material Safety Data Sheets (MSDS) must be on location at all times during the transportation, storage, and application of materials.

When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.

When loading materials onto the roof, the Authorized Roofing Applicator must comply with the requirements of the building owner to prevent overloading and possible disturbance to the building structure.

Proceed with roofing work only when weather conditions comply with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.

Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage.

Provide protection, such as 3/4 inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.

The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.

New roofing shall be complete and weather tight at the end of the workday.

Contaminants such as grease, fats, and oils shall not be allowed to come in direct contact with the roofing membrane.

PRE-ROOFING CONFERENCE

A pre-roofing conference is required before any roofing materials are installed. This conference shall be conducted by a representative of the Architect and attended by representatives of the Owner, Building Commission Inspector, General Contractor, Roofing Contractor, Sheet Metal Contractor, Roof Deck Manufacturer (if applicable), and the Roofing Materials Manufacturer (if warranty is required of this manufacturer). If equipment of substantial size is to be placed on the roof, the Mechanical Contractor must also attend this meeting. Provide at least 72 hours advance notice to participants prior to convening pre-roofing conference.

The pre-roofing conference is intended to clarify demolition and application requirements for work to be

completed before roofing operations can begin. This would include a detailed review of the specifications, roof plans, roof deck information, flashing details, and approved shop drawings, submittal data, and samples. If conflict exists between the specifications and the Manufacturer's requirements, this shall be resolved. If this pre-roofing conference cannot be satisfactorily concluded without further inspection and investigation by any of the parties present, it shall be reconvened at the earliest possible time to avoid delay of the work. In no case should the work proceed without inspection of all roof deck areas and substantial agreement on all points.

The following are to be accomplished during the conference:

1. To review all Factory Mutual and Underwriters Laboratories requirements listed in the specifications and resolve any questions or conflicts that may arise.
2. To establish trade-related job schedules, including the installation of roof-mounted mechanical equipment.
3. To establish roofing schedule and work methods that will prevent roof damage.
4. Require that all roof penetrations and walls be in place prior to installing the roof.
5. To establish those areas on the job site that will be designated as work and storage areas for roofing operations.
6. To establish weather and working temperature conditions to which all parties must agree.
7. To establish acceptable methods of protecting the finished roof if any trades must travel across or work on or above any areas of the finished roof.

The Architect shall prepare a written report indicating actions taken and decisions made at this pre-roofing conference. This report shall be made a part of the project record and copies furnished to the General Contract, the Owner, the Building Commission, and the Building Commission Inspector.

WARRANTY

Compatibility: Provide products which are recommended by manufacturers to be fully compatible with indicated substrates or provide separation materials as required to eliminate contact between incompatible materials.

Provide manufacturer's 20-year NDL total system warranty covering both labor and material with no dollar limitation and cover all penetrations.

General Contractor shall provide the General Contractor's 5-year Roofing Guarantee included in this manual.

Pro-rated system warranties shall not be accepted.

Evidence of the manufacturer's warranty reserve shall be included as part of the project submittals for the specifier's approval.

All roof warranties shall be provided to the Owner, by the Contractor at the Final Inspection to obtain the Substantial Completion.

The roof insulation shall be covered under the roof warranty as required by the manufacturer.

Standard manufacturer's roofing guarantees which contain language regarding the governing of the guarantee by any state other than the State of Alabama, must be amended to exclude such language, and substituting the requirement that the Laws of the State of Alabama shall govern all such guarantees.

The roofing manufacturer shall be required to provide documentation certifying that the roof design provided complies with the performance requirements as set forth in IBC Chapter 15, Section 1504. The documentation shall be attached to the roof warranty at the close out of the project.

PART 2 – PRODUCTS

GENERAL

All components of the specified roofing system shall be products of the manufacturer of the roofing system or accepted by the manufacturer as compatible. All products (including insulation, fasteners, fastening plates and edgings) must be manufactured and supplied by the roofing system manufacturer and covered by the warranty.

1. TPO 60 Mil Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

    a. Versico Roofing - Versiweld with Octguard XT (Basis of Design)
    b. GAF – Everguard
    c. Firestone – Ultraply
    d. Johns Manville, Inc.
    e. Carlisle Syntec Systems

2. PVC 60 Mil Manufactures: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

    a. Versico Roofing - VersiFlex Roofing (Basis of Design)
    b. DuroLast Roofing
    c. Johns Manville, Inc.
    d. Sarnafil Roof Membrane Roofing
    e. Fibertite Roofing
    f. Carlisle Syntec Systems

Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

ADHESIVES AND CLEANERS

All products shall be furnished by the roofing manufacturer and specifically formulated for the intended purpose.

1. Bonding Adhesive: **60** Mil: Manufactures recommended Bonding Adhesive
2. Edge Sealant: Cut Edge Sealant
3. Sealer: Water Cut-Off Mastic
4. Pocket Sealant: Manufactures recommended Molded Pocket Sealant
5. Cleaner: Manufactures recommended Membrane Cleaner

The Contractor shall be responsible for ensuring all existing curbs / flashings shall be raised as necessary to ensure proper flashing heights.

PART 3 – EXECUTION

GENERAL

Comply with the manufacturer's published instructions for the installation of the membrane roofing system including proper substrate preparation, jobsite considerations, and weather restrictions.

Position sheets to accommodate contours of the roof deck and shingle splices to avoid bucking water.

INSULATION PLACEMENT AND ATTACHMENT

Install insulation or membrane underlayment over the substrate with boards butted tightly together with no

joints or gaps greater than 1/4 inch. Stagger joints both horizontally and vertically if multiple layers are provided.

Secure insulation to the substrate with the required fasteners and plates in accordance with manufacturers specifications.

60 Mil TPO or PVC MEMBRANE PLACEMENT AND ATTACHMENT

1. Unroll and position membrane without stretching. Provide and secure both perimeter and field membrane sheets in accordance with the manufacturer's most current specifications and details.
2. Secure the membrane with the required Fasteners and Plates spaced as required per the manufacturer's requirements to meet the appropriate up-lift.
3. Install adjoining membrane sheets in the same manner in accordance with the manufacturer's specifications.
4. Hot air weld the membrane using an Automatic Hot Air Welding Machine or Hot Air Hand Welder in accordance with the manufacturer's specifications. At all splice intersections, roll the seam with a silicone roller prior to membrane seam cooling. All splice intersections shall be overlaid with membrane non-reinforced flashing
5. Probe all seams once the hot air welds have thoroughly cooled (approximately 30 minutes).
6. Repair all seam deficiencies the same day they are discovered.
7. Apply Cut Edge Sealant on all cut edges of reinforced membrane (where the scrim reinforcement is exposed) after seam probing is complete.

FLASHING

Flashing of parapets, curbs, expansion joints and other parts of the roof must be performed using TPO or PVC reinforced membrane. Non-reinforced membrane can be used for flashing pipe penetrations, Sealant Pockets, scuppers, as well as inside and outside corners when the use of pre-fabricated accessories is not feasible.

Follow manufacturer's typical flashing procedures for all wall, curb, and penetration flashing including metal edging/coping and roof drain applications.

WALKWAYS

Install walkways at all traffic concentration points (such as roof hatches, access doors, rooftop ladders, etc.) and all locations as identified on the drawings.

Hot air weld walkway pads to the membrane in accordance with the manufacturer's specifications.

DAILY SEAL

On phased roofing, when the completion of flashings and terminations is not achieved by the end of the workday, a daily seal must be performed to close temporarily the membrane to prevent water infiltration.

Complete an acceptable membrane seal in accordance with the manufacturer's requirements.

CLEAN UP

Perform daily clean up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.

Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

END OF SECTION

These specifications sections were prepared by and under the direct supervision of the Engineer of Record for this project.

Division 15 – MECHANICAL
15010 Mechanical General Provisions
15400 Plumbing
15700 Heating, Ventilating and Air Conditioning

July 29, 2019

SECTION 15400

PLUMBING

PART 1. GENERAL & MISCELLANEOUS

1.1. **General Provisions:** Section 15010 is applicable in full hereto. **No building materials or products that contain asbestos, formaldehyde, lead or mercury, in excess of limits mandated and defined by OSHA, LEED and the EPA, shall be utilized**.

1.2. **Scope:** Include all equipment, material and labor required for a complete operating plumbing system even though every item involved is not indicated. Refer to architectural drawings and verify all plumbing fixtures, locations and mounting heights. Notify the architect prior to bid of any discrepancies. Do not attach any items to other trades' assemblies. Items shall be attached to building structural system. Advisory provisions listed in all Codes referenced in the Contract Documents are mandatory. Where conflicts occur between a Code, Standard, the contract drawings or specifications, the more stringent requirements shall govern and be applicable.

Manufacturers not named in the specifications require prior approval, seven (7) days prior to bid date. Follow procedures set forth in Division 1 of the specifications.

1.3. **Warranty:** Guarantee work as set forth in Section 15010 and Division 1. Guarantee in writing to make good without cost any defects in materials and workmanship for one year following the date of acceptance of the project unless specified otherwise. Provide free maintenance and service during the guarantee period. Refer to other parts for additional requirements and extended warranty requirements.

1.4. **Site Visits / Inspections:** It is the contractor's responsibility to have the job ready for site visits / inspections when they are scheduled. If the project is not ready for the requested inspection and the Architect, any governmental agency or any other entity requires a re-inspection, the contractor shall pay Zgouvas, Eiring & Associates a re-inspection fee of $1,500. The payment shall be made directly to Zgouvas, Eiring & Associates 5 days prior to the scheduled re-inspection.

The Contractor is cautioned to carefully review the extensive requirements of Paragraph "Identification" in Section 15010 of the specifications and note that **identification is required to be completed before certain inspections.**

1.5. **Miscellaneous:** The Contractor shall carefully examine the contract documents during the bidding phase. Any missing information in the contract documents that is required for obtaining accurate pricing shall be brought to the attention of the Architect, **prior to bid date**, so all may be clarified and/or corrected. Failure to identify and resolve the issues prior to bid shall require the Contractor to provide said items, complete, without additional cost to the Owner or the Owner's Project Design Professionals, using materials and methods specified by, and as directed by, the Owner's Design Professionals.

1.6. **Qualifications:** Must be properly licensed and established as a Plumbing Contractor at location of the work and shall maintain locally adequate service facilities. He shall have had previous experience in the satisfactory installation of at least six (6) systems of this type, size and scope.

1.7. **Spare Parts:** Manufacturer of any equipment specified shall have a wholesale outlet for readily available replacement parts in the nearest major USA city.

1.8. **Electrical Work:** All electric power wiring required for installation of equipment under this Section is specified under Electrical Division. Plumbing Contractor shall furnish and install all controls and control wiring as specified or required to properly complete the installation. Control conduit is specified under Electrical Division or shown on electrical drawings; all other control conduit shall be provided under this Section of the work. Electrical work performed under this Section shall meet requirements set forth in the Electrical Division. Refer to Section 15700, Part 2, Electrical Work and Equipment for requirements not specified in Electrical Division.

1.9. **Submittals:** Refer to Section 15010 for **strict** requirements especially as it applies to Project cost constraints, addendums or Value Engineering (VE) items.

1.10. **Identification: Refer to Section 15010 for identification requirements. There are specific requirements prior to the above ceiling and final inspections, respectively, that are mandatory.** The identification section of the specification is extensive. The Contractor shall refer to Section 15010, review and provide all identification requirements specified. **Failure to comply with this provision will be cause for cancellation of the inspection with all costs of the re-inspection to be borne by the respective Contractor responsible.**

1.11. **Firestopping:** Refer to Section 15010 for requirements. **Note that Division 15 firestopping specifications require firestopping of all penetrations regardless of wall/ceiling/floor construction. Refer to Division 1 for additional requirements.** Where there is a conflict between Division 1 specifications and Division 15 specifications, the most stringent requirements shall govern, be applicable and shall be provided.

1.12. **Motors:** All motors furnished shall be designed, manufactured, and tested in accordance with the current applicable standards of NEMA, ANSI, IEEE, and ASTM. As a minimum requirement, all motors shall conform to the current applicable sections of NEMA Standard No. MG-1. Motors must meet or exceed The Consortium for Energy Efficiency (CEE) Premium Efficiency full load efficiencies. All motors shall be listed under UL recognized component file as applicable. All motors shall be suitable for installation according to the requirements of NEC. Motors shall be wound for the specified voltage and a 1.5 service factor, 1750 RPM open drip proof construction unless otherwise shown or specified.

All motors shall be provided with overload protection and phase protection on all legs. Do not run motors until correct overload elements are installed in starters, as applicable. Premium efficient motors shall be **warranted for 36 months** from date of acceptance of the project. Motors shall be by Allis Chalmers, General Electric Goulds, Louis Allis, and Westinghouse or approved equivalent. All motors serving outdoor equipment exposed to weather shall have TEFC motors meeting the requirements set forth previously.

1.13. **Bound and Framed Instructions: Two weeks before final inspection**, furnish three complete sets of operating and maintenance instructions, bound in hard cover, indexed and tabbed. The first sheet in the bound instructions shall be a list with each product, name, address and telephone number of:

a. Subcontractor or installer.

b. Table of Contents listing all products numbers in the order which they appear in the specifications and label the tab accordingly. Include all “P” numbers also.
c. Provide a summary page that lists each item with its respective warranty listed
d. Local source of supply for parts and replacement
e. Include wiring and control diagrams with explanatory data describing start-up, operation and shutdown; operating and maintenance instructions for each piece of equipment; manufacturer's bulletins and catalog data; parts list and recommended spare parts. Fold in large sheets of drawings.
f. Provide a list indicating all routine maintenance procedures based on the respective manufacturer’s recommended intervals. As a minimum, maintenance shall be grouped and individually tabbed to indicate maintenance operations required:

    1. Once a month
    2. Quarterly
    3. Once every six months
    4. Once a year

g. Provide drawings of system and wiring diagrams, condensed operating instructions and include in binder. All components shall be numbered and identified on diagram.
h. Record drawings of the Plumbing drawings in hard copy and PDF format.
i. Provide copy of Section 15400 Specifications
j. Provide written results of all tests specified.
k. Copies of all Site Visit / Inspection Reports including Contractor’s written response that items listed were corrected.
l. Provide domestic water samples testing and results specified.
m. Provide copy of valve chart required in Section 15010, Identification. Include all dielectric unions on chart.
n. All cleanouts and dielectric unions shall be indicated on record/as-built drawings.

Additionally, the Contractor shall provide all of the aforementioned information, in digital Adobe Acrobat PDF format, on a CD-R CD. The PDF file shall be provided with an embedded index for each item specified. It shall appear in the left hand window of the opened document so that the Owner or his maintenance personnel can “click” on the indexed item and move immediately to that specific item.

PART 2. TESTS

2.1. **General:** Perform all tests in the presence of the Architect. Refer to Division One for Fuel, water and power required therefore. In absence of specific testing procedure comply with code requirements and/or nationally acceptable industry standards. Furnish written reports of all tests results specified to Architect.

2.2. **Drainage and Vent System:** Plug all openings, fill entire system with water to point of overflow and hold for a minimum of twenty-four (24) hours without pressure loss before inspection. System must remain full during the test without leakage. Each vertical stack with its branches may be tested separately, but any portion tested must have minimum ten-foot head.

2.3. **Water Supply System:** Test and secure acceptance of entire system before the piping or hot water storage heaters are insulated or otherwise concealed. Test as follows: disconnect and cap all outlets to plumbing fixtures and all other equipment not designed for the full test pressure. Fill the system with water; apply 150 psi hydrostatic

pressure and hold for a minimum of twenty-four (24) hour period without pressure loss. All piping throughout shall be tight under test. Water piping shall remain under normal water pressure during construction except when freezing weather is expected.

2.4. **Fixtures:** Test for soundness, stability of support and satisfactory operation.

2.5. **Gas System:** Apply 75 psi air test for a twenty-four (24) hour period without pressure loss through leakage. Test before tanks, equipment, appliances, etc. are connected.

PART 3. SANITARY PIPING

3.1. **Scope:** Provide a system of soil, waste and vent piping connecting all plumbing fixtures, equipment, etc. to the house sewer, with **consolidated vent connections** extending through the building roof, all as shown on the drawings and as required for complete installation. **Do not begin work until elevation of final connection point is verified and grading of entire system can be determined (even if final connection is specified under another Section).** Rework existing waste roughing as required to facilitate renovation work.

3.2. **Utility Connection:** See Division 2. Make sanitary connection as indicated.

3.3. **Soil, Waste and Vent Piping Inside the Building Walls, All Piping Associated With a Grease Trap and to Points Outside the Building as Indicated:** Provide service weight hub-and spigot cast iron soil pipe and fittings for underground service and hubless for above ground service, meeting ASTM A-74 for hub and spigot and ASTM A-888 for hubless, coated inside and out. Pipe exposed within the building shall be uncoated outside and left clean for painting. Fittings to receive screwed pipe arms shall be recessed drainage type. Soil and waste pipe shall have long sweep connections. All cast iron soil pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute (CISPI) and be listed by NSF International.

Joints for hub and spigot pipe shall be made with compression gaskets meeting ASTM C-564. Joints for hubless pipe and fittings shall be equivalent to MG couplings meeting ASTM A-48 and C-564, or Anaco Husky SD 4000, super-duty, shielded couplings of Type 304 AISI stainless steel, meeting ASTM C1540 standard or equivalent by Ideal Tridon Heavy Duty HD or Mission Rubber Company, Heavy Weight, shielded.

Option: Contractor may use solid wall PVC schedule 40 DWV pipe and fittings meeting ASTM Standard D2665 and 1785 for above ground service and underground service with the following exceptions. Use cast iron as specified hereinbefore or PVDF (Polyvinylidene Fluoride) piping and fittings in areas used as return air platforms, all piping associated with a grease trap or where passing through or within a fire rated assembly.

PVDF piping and fittings, where specified and required, shall be Orion Super Blue PVDF (Polyvinylidene Fluoride) or equivalent products as manufactured by Enfield, Zurn, GEO or Fisher. The PVDF material shall conform to ASTM D3222 ASTM F1673, ASTM E-84 and UL 723. Pipe shall be marked with its UL Classification to indicate compliance with UL723 (ASTM E84). All fittings shall meet or exceed Schedule 40 dimensions.

All vents thru roof shall be cast iron pipe (minimum 12” both sides of the roof). Secure the cast iron VTR to structure with heavy gauge 1-hole strap.

All floor drains shall have **cast iron** deep seal p-traps. Piping and fittings above the floor shall be solid wall PVC schedule 40 DWV pipe and fittings or PVDF as specified hereinbefore and with exceptions as noted.

THE USE OF "CELLCORE" OR "FOAMCORE" PIPING IS EXPRESSLY FORBIDDEN.

3.4. **Laying Out Work:** Vents from any fixture, when connected to a vent line serving other fixtures, shall be extended at least 6 inches above flood level rim of highest of such fixtures to prevent use of vent lines as a waste. Make changes in direction by appropriate use of 45 degree Y's, 1/2 Y's, or long sweep 1/4, 1/6, 1/8 or 1/16 bends. Sanitary T's or short 1/4 bends may be used on vertical stacks or drainage lines where change in direction of flow is from horizontal to vertical; except that long-radiused TY's shall be used when two fixtures are installed back to back with common drain. Straight T's, Ells and Crosses may be used on vent lines. Make no change in direction of flow greater than 90 degrees. Where different sizes of drainage pipe or fittings are connected use standard increasers and reducers of proper size. Do not reduce size of drainage piping in direction of flow. Drilling and tapping of house drains, soil, waste or vent pipes, and use of saddle hubs and bands are prohibited. **All plumbing vents through the roof shall be located a minimum of 10'-0" away from all outside air intakes**. Coordinate all plumbing vents locations with the HVAC plans.

3.5. **Hangers and Sway Bracing:** Refer to Section 15010 for requirements.

3.6. **Grading:** Uniform and not less than 1/8" PLF for pipe 4" and over, and not less than 1/4" PLF for 2" and 3" piping.

3.7. **Roof Flashing:** Roof penetrations are to be flashed by the roofing contractor, using materials as recommended by the roofing manufacturer and approved by the Architect. Coordinate work with Roofing Contractor. Offset vents as required to clear gravel guards and flashing courses. Extend vents 6" to 8" above roof level.

3.8. **Waste Arms:** Type K copper or IPS brass pipe typical; Schedule 40 PVC or IPS brass pipe at urinals.

3.9. **Test Fittings:** Not shown on the drawings; provide where required for partial tests.

3.10. **Miscellaneous Joints:** Where cast iron pipe joins clay pipe, make joint by caulking with jute and filling (at one pouring) with hot compound meeting FS SS-C-608.

Use slip joints and unions only upstream from a trap seal.

PART 4. DRAINAGE SPECIALTIES

4.1. **Equivalent Products:** Specialties by J.R. Smith, Josam, Sioux Chief, Zurn, Watts or Wade. Except as noted, catalog numbers are from J.R. Smith.

4.2. **Cleanouts:** Provide in sanitary piping at all changes in direction, at ends of branches, at intervals not exceeding 40 feet on straight runs, and elsewhere as shown. Cleanouts shall be full opening type and completely accessible without obstruction. Size same as lines in which they occur, but not larger than 4 inch. Tees and extensions shall be of same weight as soil pipe. Plugs countersunk or raised

head type with lead-free seals. **Provide flashing clamps and flashing flanges in all areas where cleanouts are accessible from floor below or above, as applicable. All cleanouts shall be indicated on the record/as-built drawings.**

In Tile Floors: 4051, adjustable, cast iron body with bronze plug and satin finished square scoriated Polished bronze top; where soft tile occurs provide 4160 recessed square Polished bronze cover.

In Concrete Floors: 4237, adjustable head, cast iron head and ferrule with bronze plug, round loose-set scoriated tractor cover.

In Outside Lines: 4263L-NB cast iron head and ferrule with bronze plug. Terminate at grade in 18"x18"x12" deep concrete pad with tooled edges or flush in pavement as applicable.

In Accessible Unfinished Spaces: 4400 or 4510 cast iron with bronze plug, as appropriate.

In Finished Walls: 4530 cast iron cleanout tee with bronze plug and 16 ga. stainless steel, flat, wall plate cover. Where distance from plug to finish wall will exceed 4 inches provide extension from sanitary tee to bring plug within 4 inches.

In Terrazzo Floors: 4185, adjustable cast iron head and ferrule, bronze plug and round brass terrazzo cover and rim.

4.3. **Typical Drains:** Size outlets same as pipe to which they connect. Install temporary closures during construction. Each drain connected to sanitary sewer shall have **cast iron** deep seal P-trap. Provide types as scheduled below. Where indicated on the drawings and elsewhere required by local and/or state Codes. **Provide trap primer connection on floor drain and trap primer as specified below.**

Where drains occur above finished spaces, furnish with clamping collar to secure waterproof membrane.

Floor Drain (FD): Series 2010BB two-piece cast iron drains with caulk type outlet and adjustable polished bronze strainer and rim. Strainer tops for 2" drains 5" x 5", for 3" drains 6" x 6", for 4" drains 8" x 8". Provide trap primer connection as indicated on the plans.

Shower Drain (SD): Series 2010BB two-piece cast iron drains with caulk type outlet and adjustable stainless steel strainer and rim. Provide clamping collar to secure waterproofing membrane. Strainer tops for 2" drains shall be 5" round diameter, and for 3" drains, 6" diameter.

Floor Sinks (FS): Series 3120 with nickel bronze strainer clamp, aluminum dome, acid-resisting enameled inside finish. Provide 3/4 grate for sinks receiving single waste and no grate when under equipment. Provide deep seal cast iron p-trap.

PART 5. WATER PIPING

5.1. **Scope:** Connect to water main as indicated and extend to all plumbing fixtures, hose bibbs, water heaters, etc.; and to HAC, kitchen, laboratory, laundry and special equipment as indicated or required. Rework existing water roughing as required to

facilitate renovation work. Refer to Section 15010 for hanger rods, hangers, spacing and uni-strut support assembly requirements.

5.2. **General Workmanship:** Cut accurately to measurements established at site and work into place without springing or forcing, properly clearing all openings, finished ceilings, etc. All piping not in an accessible attic that contain valves and other items which may require maintenance access shall be located no more than 24" above the finished ceiling and no more than 10'-0" in areas without ceilings. Piping located in attics shall be supported such that maintenance access can be accomplished without the use of a ladder. Route all piping through previously built in sleeves and avoid excessive cutting or other weakening of the structure. Make changes in direction and size with fittings. Cap or plug open pipe ends during installation to keep out foreign material. Make connections carefully to insure unrestricted flow, eliminate air pockets, and to permit complete drainage of the systems. Supply piping to fixtures, faucets, hydrants, shower heads and flush valves shall be anchored to prevent movement. Install all buried piping with at least 36" of earth cover. All piping below slab-on-grade construction shall be installed in plastic jacket equivalent to Plasti-sleeve, as manufactured by Plastic Products Co. of Stanton, California.

5.3. **Freeze Protection: Do not install piping or any device in spaces subject to freezing. Install piping within building insulation envelope.**

5.4. **Grading:** Grade pipe upward from source to facilitate drainage and air relief. Where low points are required because of long runs or where sections may be valved off, provide with 3/4" globe valve and hose nipple for drainage at low point. Make all connections to risers and fixtures from top of mains.

5.5. **Nipples:** Of same material as pipe in which they are installed; provide extra strong when unthreaded portion is less than 1 inch long.

5.6. **Piping and Fittings:** Typical lines to be of copper tubing meeting ASTM B-88, Type "L" hard above ground and Type "K" soft below ground. Make up joints with sweat fittings of wrought copper, and 95-5 or Harris "BRIDGIT" lead free solder complying with ASTM B-32-89. Surfaces shall be cleaned with steel wool or emery cloth before applying. Do not make joints or branch connections below a slab on grade. **All 90º and 45º elbows and fittings shall be full radius, long sweep, with radius 1.5 times the pipe diameter. All offsets of water piping shall be made with 45º fittings in lieu of 90º fittings wherever possible**.

5.7. **Utility Connection:** See Division 2. Make water connection as indicated.

5.8. **Water Pressure:** Supply system is designed for static pressure of 50 to 75 psi. Gauge city water supply adjacent to building to verify that pressure is within those limits. Submit report in writing. Provide water pressure reducing valve, if required, to meet designed water pressure. See Water Piping Specialties for pressure reducing valve specification.

5.9. **Disinfection:** New potable water systems shall be purged of deleterious matter and disinfected prior to utilization. The method to be followed shall be that prescribed by the health authority or water purveyor having jurisdiction or, in the absence of a prescribed method, the procedure described in either AWWA C651 or AWWA C652, or as described in this section. The pipe system shall be flushed with clean, potable water until dirty water does not appear at the points of outlet. The system or part thereof shall be filled with a water/chlorine solution containing not less than 50 parts

per million of chlorine, and the system or part thereof shall be valved off and allowed to stand for 24 hours; or the system or part thereof shall be filled with a water/chlorine solution containing not less than 200 parts per million of chlorine and allowed to stand for 3 hours. Following the required standing time, the system shall be flushed with clean potable water until the chlorine is purged from the system. Upon completion of the disinfection procedure, the Plumbing Contractor shall engage the services of the Alabama Department of Public Health Clinical Laboratories or a certified, licensed, testing laboratory to provide a bacteriological water analysis to include a standard heterotrophic plate count (HPC), microbial, bacterial, pathogens and coliform count. Test a minimum of two (2) samples of domestic water from two (2) separate locations within the facility. Where the project has multiple buildings indicated, the requirement shall be two (2) samples for EACH building. If multiple buildings are finalized and turned over for the Owner's use and tested portion of the system is interrupted to plumb in remaining buildings, water shall be re-tested after each building release. Test each sample for Coliform Present, Fecal Present and E. Coli present. Test locations shall be selected by the Architect and shall be noted on the Testing Laboratory's report. In addition to the two (2) locations required for testing, the supply line feeding a food cleaning area sink (if project contains a Kitchen) shall also be tested, thereby requiring a total of three (3) test locations. If the lab results indicate positive results for Total, Fecal, or E. Coli coliform per 100 ml respectively, or an HPC greater than 500 CFU/mL, the Contractor shall disinfect the system in its entirety, as specified above, and obtain new test results as outlined hereinbefore until levels are reached as required by AWWA C651 or AWWA C652.

Prior to the final site visit, the Contractor shall provide to the Architect, certified test results on the testing facility letterhead. The report shall indicate the name of the project, the locations from where the samples were taken, the testing laboratory findings and indication whether the water is safe for consumption. **No Certificate of Occupancy will be provided to the Owner without the required lab results indicating the potable water system is safe for consumption.**

5.10. **System Drainage:** Provide valves and hose nipple to allow for drainage of all risers and other system low points.

PART 6. WATER PIPING SPECIALTIES

6.1. **General:** Seal the opening where the stem, nipple, etc., penetrates the insulation as required to maintain the continuity of the insulation and vapor barrier. All specialties in potable water distribution shall be certified "lead free" as required by Code, Regulations and Standards.

6.2. **Unions:** 150 lb. rated; cast brass ground-joint type in copper pipe, galvanized malleable iron in wrought iron or galvanized pipe. Provide in all sizes of threaded pipe, and in sweat-jointed pipe over 1 inch, to facilitate easy repairs. In such lines install adjacent to water heaters, pumps, tanks, etc. into which piping is terminated; and on at least one side of valves, cocks, strainers, etc. and other devices which occur in piping runs.

6.3. **Dielectric Unions:** Provide dielectric unions between ferrous and non-ferrous piping as required, including piping and water heater stubs where different and stainless steel water hammer arrestors. Dielectric unions shall be constructed using lead free materials as required by all Governmental Agencies, Codes and Standards and shall comply with ASTM 1545. Dielectric unions shall be Watts Series LF or equivalent by

Mueller or Matco Norca. Where dielectric unions are installed, they shall be provided with brass tag, identified same as specified for valves in Section 15010 "Identification", and indicated on the record drawings. **Contractor shall provide a ball valve on both sides of each dielectric union to allow for proper maintenance of the union**.

6.4. **Valves:** Provide where shown and/or specified, including all fixtures or equipment not furnished with stops. **All valves shall be bronze, lead free** and shall be the product of one American Manufacturer and shall meet the Buy American Act 41, USC 10a-10d as specified hereinbefore. Nibco units as indicated below. All valves shall be rated equivalent to Nibco Figure numbers. Arrange and install valves to be readily accessible for servicing. Where piping is insulated, provide thermal insulating T-handles with preformed holes for identification tags. Coordinate handle height requirement with specified insulation thickness. Provide height as required to clear insulation and properly operate without causing damage to piping insulation. All handles shall comply with UL 2043 and shall be UL listed for installation in air-handling spaces (return air plenums). Handles shall be Nibco Nib Seal, Jomar Long Neck T-Handle, Apollo Thermal seal or Hammond/Milwaukee Valve Insulator MS.

6.5. **Gate Valves 2" and smaller:** #S-134 Class 150 WSP bronze solder-joint #T-134 for threaded pipe.

6.6. **Globe Valves 2" and Smaller:** #S-235-Y bronze solder-type with replaceable disc, T-235-Y for threaded pipe, 150 WSP.

6.7. **Check Valves 2" and Smaller:** T-473-B bronze threaded, Y-Pattern swing check, 200 WSP.

6.8. **Ball Valves for Water Piping in Size 1/2" through 3":** Valve shall be "Lead-Free" forged bronze, 600 PSI CWP, 150 PSI WP, two-piece body, full port, blowout proof stem, stainless steel ball, stainless steel stem, PTFE seats, plastic covered handle. Valve shall meet NSF, ANSI, FM, UL and MSS SP-110 standards. Note that ball valves are also required on both sides of each dielectric union. Approved valve manufacturers are Nibco, Watts, Hammond, Apollo and Kitz.

6.9. **Strainers:** 2" and smaller shall be Crane No. 988-1/2, iron body screwed, Y-Pattern, 125 WSP sediment separators with a 20 mesh model screen. Over 2" shall be Crane No. 989 1/2 of same construction as above. Equivalent strainers by Mueller, Chase, Nibco, Watts or Jenkins will be approved.

6.10. **Thermometers:** "Any angle" type with 7 inch scale and suitable temperature range, as manufactured by Trerice AX7. Thermometers shall be "blue liquid" actuated with Phenol Condensate, and lead free cast aluminum or lead free brass cases and socket with extension neck. Locate for convenient reading. Equivalent product by Blue Ribbon, Weskler, March or Maxwell Moore will be accepted.

6.11. **Pressure Gages:** Bourdon tube type, equivalent to Trerice No. 600, each complete with cast aluminum case, lead free wetted parts, #870 vibration or pulsation snubber, #735 needle valve. Gage dials shall be not less than 4-1/2" and cases shall be of aluminum alloy. Furnish with suitable pressure ranges for each application. Equivalent products by Blue Ribbon, Weskler, Marsh or Trerice will be accepted. Wetted parts shall be lead free.

6.12. **Wall Hydrants (Typical):** Bronze, nickel plated, quarter turn, self-draining, non-freeze hydrant with hose connection, integral vacuum breaker, loose "T" handle key, stainless steel recessed box, with full 180°, polished bronze face, integral cylinder lock, and “Water” inscribed on the face. Seal all interior joints, seams, gasket seams/closures including around the hydrant box flange with an appropriate sealant recommended by a sealant manufacturer. Wall hydrant shall be JR Smith 5509 QT or approved equivalent. Install approximately 24 inches above finished grade.

6.13. **Indoor Hose Bibbs/Wall Hydrant:** Bent nose, rough brass finished body with flange, machined brass vandal-resistant lock shield bonnet, removable wheel handle, anti-siphon, dual check valve, ASSE 1052 backflow preventer, 3/4” NPT female threaded inlet and 3/4” hose connection. Faucet shall be JR Smith 5673 or approved equivalent.

6.14. **Water Hammer Arrestors:** Certified by the American Society of Sanitary Engineers and in compliance with current edition of ASSE 1010, ANSI A112.26.1M, Plumbing and Drainage Institute Standard PDI-WH201, heavy-duty construction and designed for a minimum 150 PSI working pressure. Arrestors shall consist of a Type 304 stainless steel casing and bellows. The device shall be pre-charged and sealed at the factory. Install on both hot and cold-water branch lines in an upright position as close as possible to the valve or valves being served. Arrestors shall be installed at all solenoid, remote operated or quick closing valves and at each plumbing fixture or battery of plumbing fixtures as recommended by the Manufacturer. Plumbing Contractor shall provide a dielectric union at connection of this device to the copper water piping. Manufacturer shall size and determine location of the arrestors. Furnish for approval a Manufacturer’s approved diagram indicating size, quantity and location for all arrestors required for the project. Arrestors shall be Zurn Z1700, J.R. Smith Hydrotrol Series 5005-5050, Watts Series SS or MIFAB Series WHB.

6.15. **Automatic Drain Trap Primer Units Where Water Closets or Lavatories Occur:** Units shall be provided for all floor drains and indirect drains. Trap primers shall comply with International Plumbing Code and local codes. Allow for required modifications to meet local codes. Units shall be accessible for service. Provide required piping and drainage. Provide trap primer line to every floor drain, hub drain and floor sink. Provide isolation valve for all trap primers. Equivalent to Sloan VBF-72-A1.

6.16. **Automatic Drain Trap Primer Units:** Units shall be provided for all floor drains and indirect drains. Automatic type trap primers shall be provided **ONLY** where there are no water closets or lavatories in the area. Units shall be lead-free and self-contained within a surface mounted panel on a partition wall above the ceiling. Housing shall be a NEMA 1, UL 50, 16 gauge steel enclosure. It shall contain a distribution unit with copper waterway, brass atmospheric vacuum breaker, transformer, brass ball type stop valve, slow closing solenoid valve with integral strainer, anti-scaling copper header, and complete with all required accessories. Where units are mounted on fire rated wall, it shall be within a fire rated housing. Units shall comply with International Plumbing Code and local codes. Allow for required modifications to meet local codes. Units shall be accessible for service. Provide required piping and drainage. Provide trap primer line to every floor drain, hub drain, floor sink, etc. as shown or required by Code. Provide isolation valve for each trap primer line. Unit shall be Zurn Series Z1020XL, Precision Plumbing Products, Inc. Series MPB-500-24V. Plumbing Contractor shall coordinate all power requirements with Electrician, prior to bid, and provide as required. Provide all required transformers, fittings, etc as required for a complete and functional installation.

6.17. **Pressure-Reducing Valve and Strainer:** Zurn/Wilkins 500XL-YSBR or equivalent by Apollo or Watts. Provide full size valved bypass around PRV, two pressure gauges, hose bibb and a valve and union on each side of PRV. Provide if required to meet designed water pressure (not to exceed 75 psi).

6.18. **Stop and Waste Valve:** Nibco Series 700.

6.19. **Backflow Preventer:** Provide as indicated or required by International Plumbing Code.

Units shall be Watts LF009 or equivalent by Apollo or Wilkins complete with strainer, double check valves and ball valves.

The backflow preventer shall be tested at job site by an individual certified by the American Backflow Prevention Association (ABPA). Testing procedure shall be as published in the Manual of Cross-Connection Control, Tenth Edition by the Foundation for Cross-Connection Control and Hydraulic Research. Furnish test results to the Architect. Testing results shall include the tester's name, ABPA certificate, certificate number and expiration date.

PART 7. PIPE HANGERS AND SUPPORTS

7.1. **General:** Refer to Section 15010. Refer to PEX-A requirements when applicable.

7.2. **Painting:** Clean and paint with two coats of black latex paint all exposed ferrous metal parts of hangers, unistrut and other assemblies used for supporting of ducts (except duct straps/band hangers), piping and plumbing related items in mechanical rooms, crawl space, above ceilings, etc. Include black steel pipe, uncoated cast iron pipe, hangers, brackets, etc. **Bare, unprotected/uncoated steel or galvanized hangers, brackets, unistrut, supports, etc., are not allowed**. In lieu of painting, the Contractor may substitute factory painted, powder coated or epoxy coated items to prevent rusting of the items listed above. All paints and coatings shall have a fire hazard rating not to exceed 25 for flame spread and 50 for fuel contributed and smoke developed as determined by ASTM E84. Also, see specification section, "Identification" for additional requirements.

PART 8. NATURAL GAS DISTRIBUTION SYSTEM

8.1. **Scope:** Make house supply connection as indicated and extend to all gas fired equipment as well as other locations shown.

8.2. **Utility Connection:** Arrange with local Gas Company for service, with meter to be located as indicated. Meter and all piping upstream of meter/regulator by Gas Company. Pay for all costs in connection with installation. Provide main cut-off valve and dielectric insulating union in service lines to building.

8.3. **Installation Generally:** In accordance with local gas code, requirements of local utility company, AGA, International Fuel Gas Code and NFPA Standard #54. Cut pipe accurately to measurements established at site and work into place without springing or forcing. Avoid runs through solid walls or floors. Route through previously built in sleeves and avoid excessive cutting or other weakening of the

structure. Ream all pipes to remove burrs. Make changes in direction and size with fittings. Make take-offs from top or sides of mains, not from bottoms. Cap or plug open pipe ends during installation to keep out foreign material. Lay out and grade work (1/4" in 15 feet min.) to avoid trapped lines; where unavoidable provide 4 inch drip leg with removable cap at low point. Provide complete system testing per NFPA 54. Provide combination stop valve and insulating union at each point piping drops to underground or rises above grade from underground.

Use joint compound sparingly, applying to male threads only.

Provide unions and hangers same as specified under Water Piping Specialties. Refer to Section 15010 for pipe hangers, supports, rods and uni-strut requirements.

8.4. **Interior and Above Grade Piping:** ASTM A53, Grade B, seamless or ERW, Schedule 40 black steel pipe with black malleable iron screwed fittings for 2" and smaller, 2-1/2" and larger, ANSI B16.25 butt-weld. Welders shall be American Welding Society (AWS) certified. **Welders shall submit current AWS certificate** and shall affix AWS Certificate number and identification adjacent to each weld made.

8.5. **Lines Below Grade and Exposed to Ambient Conditions (Including Crawl Space):** Republic X-Tru-Coat steel pipe with plastic coating

8.6. **Lines Under Slab or in Unvented Spaces:** Install in mill coated vented steel pipe in accordance with International Gas Code. Vent pipe shall be equivalent to Republic X-Tru-Coat steel pipe with plastic coating.

8.7. **Electrical Bonding and Grounding:** The gas piping system shall be bonded to the electrical service grounding electrode system or, when provided, lightning protection grounding electrode system, at the point where the gas service enters the building, all as required by NFPA 54. The bonding jumper shall not be smaller than 4 AWG copper wire and shall be a maximum of 75 feet in length. Devices used for the bonding connection shall be listed for the application in accordance with ANSI/UL 467, Grounding and Bonding Equipment. Bonding of gas piping systems is electrical work and shall be provided by a qualified licensed Electrical Contractor who is recognized by the Authority Having Jurisdiction as capable of doing such work. Point of connection shall comply with the current edition of NFPA 70, National Electric Code. **It is the responsibility of the Plumbing Contractor to engage a qualified, licensed Electrical Contractor to provide the bonding and grounding as specified**. **Coordinate prior to bid and provide as specified.**

8.8. **Connections:** Provide AGA listed and approved plug cock and pipe union in supply connection to each piece of equipment, RESUN #1430 semi-steel or equivalent for sizes 2" and smaller and 1431 flanged for sizes over 2". Where final connection is specified under another Section, cap off within 3 feet of input point. Provide flanges for piping 2 1/2" and larger, 150 lb., black forged steel, welding ASTM A181, Grade I, 1/16" raised face. (Use flat face when connected to flat face companion flange). Provide service cut-off valve in each service line to the building. Provide engraved brass valve tag at each cock identifying gas pressure. Tag shall be brass with black lettering and be attached adjacent to each cock with a chain.

8.9. **Gas Pressure Regulators:** Standard service type gas regulators meeting job and Gas Company requirements with automatic safety shut-off valves, cast iron body, regulators meeting job and Gas Company requirements, with automatic safety shut-

off valves equal to Security Corp, aluminum orifice and chromate covered casting, e-coated or primed with enamel topcoat and tamper proof seals. Regulator shall be equivalent to Security Corporation or equivalent by Sensus, Emerson/Fisher, Pietro Firoentini or American as required by job conditions. Verify supply (inlet) pressure prior to selecting regulators. All regulators shall be vented to the outside with copper line (up to 1/2" relief valve discharge outlet) and steel pipe as specified below for gas piping (1/2" and larger relief vent discharge outlet) full size of regulator valve discharge fitting. Where total vent piping exceeds 30'-0" in total equivalent length (each elbow equals 4'-0" equivalent length), vent line shall be increased one nominal pipe size. Terminate vent line with 90º elbow pointing down toward the ground. Termination shall be a minimum of 6'-0" horizontally from any ignition source, window, outside air intake, sidewalk or other opening into the facility and a minimum of 7'-0" above finish grade. Provide insect screen over open end of vent line to prevent the entry of insects and debris. **Internally vented regulators are not allowed.** Provide brass engraved tag at each regulator identifying the contents of the associated piping and the contents entering and leaving gas pressure.

8.10. **Shutoff Valve:** Main gas shutoff valve controlling the gas piping system shall be easily accessible for operation and shall be installed in each service line as indicated, protected from physical damage, and marked with a metal tag to clearly identify the piping system controlled and pressure of the gas line. Tag shall be brass with black lettering and attached to piping with chain adjacent to the shut-off valve.

PART 9. PIPE INSULATION

9.1. **General Provisions: All work by experienced insulation subcontractor** whose primary business is the installation of insulating materials in accordance with insulation manufacturers' recommendations. Piping must be clean, dry and pressure tested before covering is applied. Size pipe hangers to fit insulated pipe size. **No installation of pipe hangers for insulated piping will be allowed to be in contact with piping or penetrate the piping insulation. Piping insulation shall be continuous through partitions/sleeves and shall not be cut away for installation of clamps, etc.** Refer to details on plans and Section 15010, "Pipe Hangers and Supports" for additional requirements. Cover fittings, valves and flanges with insulation material as hereinafter specified to same thickness as adjacent pipe covering except screwed unions in hot piping and other specifically named items. Neatly bevel covering edges adjacent to unions and other points of termination and seal ends. All insulation material (including coatings, mastics, jackets and adhesives) shall have a composite flame spread rating not to exceed of 25 (with no fuel contributed and smoke developed) as determined by ASTM E-84, NFPA 255 and UL 723.

9.2. **Scope:** Insulate all hot and cold water piping except that below grade, and excluding plated brass fixture connections. All piping shall be routed within the building insulation envelope to prevent freezing. Insulate rainwater drainage system as noted in that Part. Insulate all p-traps located in return air plenums, horizontal overhead drain lines, including p-traps, from mechanical room floor drains, ice machine drains, cooler drains, condensate drainage piping located in return air platform plenums and other condensate receiving drains, to the respective riser same as cold water piping.

9.3. **Insulation:** No installation of pipe hangers for insulated piping will be allowed to be in contact with piping or penetrate the piping insulation. Refer to details on plans for additional requirements. Size hanger loops to fit **over** insulation. Glass fiber

insulation, CertainTeed Snap-on, ASJ-SSL with Kraft-foil-laminated jacket, or equivalent by Owens-Corning or JM. Provide 3" wide jacket material butt strips at joints and at mid-points of lengths. Apply by sealing longitudinal jacket flaps and jacket bands (butt strips) with adhesive. Staple jacket flaps with nominal 3/4" wide stainless steel or Monel outward-clinching insulation staples on 4" centers. Insulation staples shall have a vapor retarder coating or covered with greater than 3 ply laminate jacket (less than 0.0001 perms) adhesive tape or vapor barrier mastic that conceals the entire staple.

Cold Water/Domestic Water Insulation thickness: 1"
Hot Water Insulation thickness: 2"

9.4. **Insulation for Piping Within Concrete Block Walls:** Insulate with 1" or 2" thickness insulation for the respective piping as specified above. Insulation shall be black, flexible foamed, elastomeric, closed cell pipe insulation with a fire hazard rating not to exceed 25 for flame spread and 50 for fuel contributed and smoke developed as determined by ASTM E84. It shall be GreenGuard certified tubular insulation with Microban antimicrobial protection. Insulation shall have a 'k' factor of not more than 0.26 at 90°F mean temperature and a water vapor transmission rate of 0.05 perm-inches or less. Slip insulation onto pipe prior to installation. **Longitudal cutting of the insulation is prohibited. Do not stretch or bend insulation, nor slide insulation over sweat fittings.** Insulate sweat fittings with miter-cut pieces of insulation as recommended in Armaflex installation instructions, the same size as on adjacent piping. Seal all butt joints with Armaflex BLV, Black, low VOC, air drying contact adhesive. After gluing joints, wrap joint with 3" wide, 1/8" thick AP/Armaflex self-adhering tape. Insulation shall be AP Armaflex or equivalent by K-Flex or Aerocel AC EPDM.

9.5. **Fittings:** Insulate with Fiberglas insulation mitered to fit snugly or with PVC covers with integral **rigid** fiberglass insulation of the same thickness and density as the adjacent pipe insulation. Loose insulation in premolded covers is not allowed. Premolded PVC covers shall have a flame spread index of 0-25 and a smoke developed index of 0-50 when tested in accordance with ASTM E84.

9.6. **Exposed Ends:** Finish open ends of sectional covering by rounding off with cement, and sizing with fiberglass cloth jacket around the pipe and finish with Foster 30-36 mastic cement.

9.7. **Partitions and Floors:** Refer to Section 15010 Pipe Sleeves. In any case, insulation shall extend through floors, partitions and walls and firestopped. Note that Section 15010, Firestopping, requires firestopping of all penetrations, regardless of rating. Refer to Section 15010, Firestopping, for specifics and additional requirements.

9.8. **Electric Water Coolers:** Insulate drain connections and traps with 1/8" thick insulating tape by AP Armaflex, K-Flex or Aerocel AC EPDM.

9.9. **Piping At Hangers and Unistrut:** For all piping, provide a preformed, pre-insulated 6" long saddle assembly consisting of an integral 22 gauge G-90 metal saddle for piping up to 1 1/2" and, 12" long integral 18 gauge G-90 saddle for piping up to 5". The assembly shall be a 360-degree section of 3.0 pcf density polyisocyanurate pipe insulation with a minimum of 45-psi compressive strength. The assembly shall have a 6-mil thickness, .01 perms rated industrial grade vapor retarder film. The insulation shield shall be 360 degree self-clamping and be integral with the insulation. The assembly shall also be provided with an insulation lock joint longitudal seam. The

assembly shall meet the requirements of ASTM D1622 for insulation density, ASTM C518 for thermal conductivity, ASTM D1621 for 50 PSI compressive resistance, and ASTM D374. The insulation jacket shall have a hazard rating not to exceed 25 flame spread and 50 for fuel contributed and smoke developed as determined by ASTM E-84, NFPA 255 and UL 723. The assembly shall be Tru-Balance/Buckaroo's, Model 3300E or equivalent by Thermal Pipe Shields, Inc or Pipe Shields, Inc.

9.10. **Painting:** Paint exposed insulation after insulation is completed as specified in Section 15010.

9.11. **Identification:** Refer to Section 15010 for identification of piping systems.

PART 10. WATER HEATING EQUIPMENT

10.1. **Water Heater:** RHEEM Series ELD or approved equivalent, glass-lined tank with heating elements designed for current shown on the Electrical Drawings, copper dip tube, drain pan, storage capacity not less than indicated on the drawings, UL labeled and covered by a 3 year manufacturer's warranty. Equivalents by A.O. Smith, Lochinvar or Bradford-White will be acceptable.

10.2. **Power Wiring:** Specified under Electrical Division.

10.3. **Circulating Pump:** Furnish and install, as shown on the plans an all lead-free bronze (0.25% or less lead content of all wetted surfaces) or stainless steel construction, pipe-mounted centrifugal pump with high efficiency ECM motor in eight (8) modes of control and stainless steel flanges. Pump shall be ETL or UL listed and be NSF 372 compliant. Provide a strap-on aquastat and wire to control the pump through a 7-day program clock, which shall be programmed to the Owner's requested operating schedule. Clock shall be equivalent to Grasslin digital 2-72 with 24-hour minimum battery back-up power. Provide required control wiring. Pump power shall be as shown on the electrical plans. Pump shall be Armstrong Compass Series or equivalent by Taco or Grundfos.

10.4. **Relief Valve:** Provide Watts, Apollo or McDonnell and Miller properly sized, ASME T & P relief valve on the water heater with copper relief line piped to nearest floor drain or to outside. Do not pipe/connect relief discharge line and auxiliary drain pan lines together.

10.5. **Expansion Tank:** Provide ASME, diaphragm type designed for 150 PSIG working pressure. Tank shall have a minimum acceptance as recommended by heater manufacturer. Expansion tank shall be supported at the wall by a QS-5 or QS-12 Quick Strap tank stainless steel and galvanized assembly as manufactured by HoldRite or approved equivalent.

10.6. **Auxiliary Drain Pan:** Provide 1 1/2 "deep, 24 ga. (0.025" thickness) galvanized steel or 18 ga. (0.04") thickness aluminum auxiliary drain pan with seamless, welded or soldered water tight joints, of sufficient size and shape to receive drippings. Provide 3/4" copper drain line in bottom of pan to floor drain with dielectric separation. Do not pipe relief discharge line and auxiliary drain pan lines together.

PART 11. GREASE TRAP (INTERCEPTOR)

11.1. **General:** Grease trap in accordance with requirements of State Department of Public Health and County Health Department. See plans for details. It shall be provided with traffic rated, locking cover and integral extension as required.

PART 12. FIXTURES SUPPORTS, CONNECTIONS AND MOUNTING HEIGHTS

12.1. **General:** Verify exact size and location of water, vents, waste and supply connections from approved rough-in drawings and/or catalog data sheets. Allow for modifications required by the shop drawings without additional cost to the Owner or the Owner's Project Design Professionals.

All fixtures including lavatories, urinals, water closets, electric water coolers, etc., must be securely fastened to the walls or floor. **Coordinate all mounting heights with Architectural plans prior to rough-in.**

12.2. **Wall Mounted Fixtures:** Support all wall mounted fixtures that are specified without carriers using 1/4" thick 6" high plates full length and with of fixture, mounted behind wall. Where fixtures are back to back on a solid wall, mount with bolts from fixture hanger to fixture hanger. Do not use toggle bolts or expansion bolts except unless noted.

Hangers for wall supported water closets are specified with fixtures.

Where fixtures are mounted on solid (single wythe) walls finished both sides, install fixtures with plated toggle bolts.

Where fixtures are mounted on wood or light gauge steel studs, employ pressure treated blocking of 2" x 12" nominal size well secured into stud line with non-corrosive, dielectric separation fasteners. Fit behind stud flanges, using especially placed studs as required.

Provide wall carriers where specified or required by the fixture Manufacturer.

Coordinate demolition and repairing of existing walls with General Contractor prior to bid to allow for installation of carriers as applicable.

12.3. **Floor Connections:** Provide cast iron or galvanized malleable iron floor flanges at least 3/16" thick, screwed or caulked to drainage pipe. Bolt the connection and make tight to fixture with plumbing fixture setting compound, wax setting ring or polyethylene gasket flange. Offset flanges for water closets are not allowed.

12.4. **Water Supply Connections:** Provide rigid, lead-free brass nipple from water riser to fixture stop valve threaded connections. Steel pipe is unacceptable. Exposed portion of nipple shall be chromium plated. **Stops' risers shall be lead-free, threaded with chrome over copper pipe. Quick connect fittings are not allowed**.

12.5. **Waste Arms to Fixtures:** As specified hereinbefore. Where copper or brass pipe is specified, all joints downstream from the trap shall be soldered joints.

12.6. General Mounting Heights - Coordinate With Architectural Plans Prior to Roughing in Fixtures:

Urinals (unless indicated otherwise) – 24" to lip
Urinals for ADA adults – 17" to lip

EWC for ADA adults – 34" to spout

Lavatories (unless indicated otherwise) – 31" to rim
Lavatories designed for men – 32" to rim
Lavatories for ADA – 34" to rim

Shower heads (unless indicated otherwise) – 72" to 78"
Shower heads (women only) – 66"

EWC (unless indicated otherwise) – 40" to rim

Water closets (ADA) 17" to 19" to top of seat

PART 13. SCHEDULED FIXTURES AND MISCELLANEOUS ITEMS

13.1. Acceptable Manufacturers: Fixtures listed are from American Standard (AS) and Elkay Catalogs. Equivalent products by Toto, Kohler, Zurn, Beneke, Just or Sloan will be accepted. Where three (3) Manufacturers are listed for fixtures below, use only those Manufacturers. Manufacturers not listed require 7-day prior approval.

13.2. Fixture Trim: Exposed metal parts to be of heavy weight polished brass, heavily chromium plated, of best quality as regularly furnished by the plumbing fixture manufacturer. Provide stop valve in supply to all fixtures and equipment.

13.3. Compliance with Americans Disabilities Act: All ADA fixtures, faucets, flush valves, clearances, and installation shall comply with requirements of the Americans Disabilities Act.

13.4. Guarantee: Guarantee in writing to make good without cost any defects in materials and workmanship for one year following the date of acceptance of the project unless specified otherwise. Provide free maintenance and service during the guarantee period.

Scheduled Items:

P – 1 Water Closet: American Standard New Madera 2234.015, 1.6 GPF vitreous china, siphon jet, elongated bowl with 1-1/2" top spud, fully glazed trapway, china bolt caps, Zurn Z6000AV-WS1 flush valve and Bemis 1655SSCT white open-front seat with self sustaining stainless steel check hinge. Provide chrome plated split-ring wall bracket for supply pipe.

P – 2 ADA Water Closet: American Standard Madera #3043.102, 1.6 GPF 17" high vitreous china, siphon jet, fully glazed trapway, elongated bowl with 1-1/2" top spud, china bolt caps, Zurn Z6000-AV-WS1 flush valve and Bemis 1655SSCT white open-front seat with self sustaining stainless steel check hinge. Provide

chrome plated split-ring wall bracket for supply pipe. Coordinate flush valve installation with grab bar. Flush valve control/handle shall be mounted for use from the wide side of the toilet stall. Finished floor to top of seat shall be 17" to 19".

P – 3 Urinal: American Standard Allbrook 6550.001, 1.0GPF, vitreous china siphon jet, 3/4" top spud, flushing rim urinal, Zurn Z6003-AV-WS1 flush valve with vacuum breaker and Zurn series Z-1222 carrier. Provide chrome plated split-ring wall bracket for supply pipe.

P – 4 Lavatory: American Standard Lucerne 0355.012, 20" x 18", wall hung vitreous china lavatory with Delta 523LF-HDF faucet and drain, McGuire #LF2165 supplies with stops, and McGuire 8872C, 1 1/4", 17 ga., chrome plated cast brass, seamless tubular wall bend, p-trap with neoprene gasketed cleanout and cast brass, chrome plated slip nuts and 17 ga. chrome wall escutcheon. Supplies shall be lead-free, AB1953 certified by recognized authority and bear manufacturer and testing mark. Provide lead-free mixing valve (ASSE 1070) with tempered water line to faucet. Mixing valve shall be provided with wall bracket, dual check valves and 40-mesh stainless steel screen. Mixing valve shall be Watts Series LFUSG-B-SC-M2 or approved equivalent. Provide heavy-duty floor support equivalent to J.R. Smith 0710 chair carrier with concealed arms. Insulate supplies, trap and drain with premolded ADA compliant protectors with internal fasteners as Manufactured by Truebro Lav Guard 2, Oatey/Dearborn or McGuire Pro-Wrap only.

P – 5 Mop Basin: American Standard 7741.000 Florwell, acid resisting enameled cast iron corner model floor type service sink, complete with 8354.112 wall mounted faucet with offset shanks with integral stops, vacuum breaker, integral check valves, adjustable wall brace, pail hook, 3/4"hose thread on spout, four foot rubber hose, hose bracket, 7745.811 rim guard, strainer for 3" screw connection, 304 stainless steel wall guards and silicone sealant at all points where basin meets wall and floor.

P – 6 Bi-Level Outdoor Electric Water Cooler: Elkay # VRCTLFR8SC, unfiltered, wall mounted, frost resistant heating element, vandal resistant front pushbutton activation, ADA compliant with stainless steel cane apron, stainless steel cabinet and receptor, heavy duty one-piece vandal resistant bubbler, rated for outdoor use and 5-year warranty. It shall provide 8 gal/hr of unfiltered water at 50°F based on 80ºF inlet water and 90ºF ambient temperature, per ASHRAE 18 testing. Unit shall be certified to UL 399 and CAN/CSA C22.2 No. 120 and NSF/ANSI 61 & 372 for lead free design. Furnish with 1-1/4" rough brass p-trap, 17 gauge brass tailpiece and waste with wheelless stop valve, concealed J.R. Smith 0834 floor mounted support, related support plates and base for applicable wall construction. Refer to Architectural plans for wall type. Equivalent units by Halsey Taylor, Oasis or Murdock will be considered.

P – 7 Washing Machine Connection Box: Guy Grey, no lead, Catch-A-Drip or Safety Drip, washing machine connection box with 2-inch trapped standpipe and Watts Duo-Cloz valve (washing machine NIC) and water hammer arrester. Box and faceplate shall be 20 ga., 304 stainless steel.

P – 8 ADA Shower Unit: Shower enclosure shall be equivalent to Comfort Designs model XSS 3637 BF RRF -1-CVS-CRS-DR "Acrylx" finish, ADA compliant transfer shower with fold up seat, Stainless L-Bar and vertical bar. Outside dimensions shall be 40.25" x 38.5" x 77.65" with pre leveled easy base. **Verify all dimensions with Architectural plans prior to ordering shower**. Furnish no caulk

drain and curtain rod. Furnish Zurn Z7120 LH MT SS HW pressure balanced shower valve with stainless steel center guided piston and brass body. Supply Z 7000 GBH grab bar hand wall shower head holder, Z7000 GB24 stainless steel grab bar in lieu of slide bar, Z7000 H9 head, 60" metal shower hose with integral vacuum breaker and integral soap holder. Furnish Manufacturer's Color Chart to Architect for color selection. Equal units by Symmons or Leonard will be considered.

P – 9 Shower Unit: Comfort Designs model XSS 3636 SH 4.0-1 shower with sanitary grade applied acrylic. Unit shall meet CSA B43.5-11 and HUD-UM73. Shower to have molded leg ledge, soap dish and 4.0" threshold. Outside dimensions 35.75" x 37.25" x 77.5". **Verify all dimensions with Architectural plan prior to ordering shower.** Provide curtain rod and no caulk drain. Equal units by Hamilton or Aquarius will be considered. Furnish Zurn Tempgard model Z 7100-MT-SS-I2 pressure balanced shower valve with metal trim, service stops, institutional wall mounted brass head. Valve shall have stainless steel center guided piston and bronze body. Equal units by Symmons BP 56 1X B L with 4-385 head or Leonard 4501S-H-06.

P – 10 3 - Compartment Sink: Furnished by the General Contractor. Installed by the Plumbing Contractor

P – 11 Ice Machine: Furnished by the General Contractor. Installed by the Plumbing Contractor

P – 12 Concessions Hand Sink: American Standard Lucerne 0355.012, 20" x 18", wall hung vitreous china lavatory complete with Delta 501LF-HDF faucet, McGuire #2167, 1/2" supplies with stops, McGuire #155WC offset drain, McGuire 8872 p-trap and heavy-duty floor supported JR Smith Series 0710 chair carrier with concealed arms. The entire assembly shall comply with ADA and ANSI standards. Provide lead-free mixing valve (ASSE 1070) with tempered water line to faucet. Mixing valve shall be provided with wall bracket, dual check valves and 40-mesh stainless steel screen. Mixing valve shall be Watts Series LFUSG-B-SC-M2 or approved equivalent. Insulate supplies, trap and drain with premolded, ADA compliant, protectors as Manufactured by Truebro Lav Guard 2 or McGuire Pro-Wrap only. Mounting height to rim shall be 34".

PART 14. MISCELLANEOUS EQUIPMENT FURNISHED UNDER OTHER SECTIONS

14.1. General: Equipment indicated hereunder is to be furnished and set in place under another Section of the Specifications (or is to be so provided under a separate contract). Verify exact size and location of water, vents, waste and supply connections from approved rough-in drawings and/or catalog data sheets. Allow for modifications required by the shop drawings without additional cost to the Owner or the Owner's Project Design Professionals.

All water and gas connections are to be complete with stop valves.

Kitchen Equipment: Rough in, provide fittings and make connections for scheduled items as required for a complete installation ready for operation.

Three Compartment Sink: Provide two T&S B-231 mixing swing faucets with removable seats, one T&S B-700 faucet with removable seat and insulated handle (for sink heater compartment), Brasscraft XR1720A 1/2" chrome plated stops and

supplies, Elkay LK 60 1-1/2" chrome plated brass continuous waste with center outlet, and three Elkay LK-24-R 1-1/2” waste outlets with brass body, 8” roto-handle and stainless steel strainer. Coordinate all requirements with the General Contractor prior to bid and provide all as required.

Lever handle waste fittings and drilling for trim is specified under Kitchen Equipment Section.

Ice Machine: Provide cold water supply with stop and PDI Symbol “A” shock absorber. Provide drain line to floor sink and insulate with 3/4” thick “Armaflex” by Armstrong. Seal all joints.

Gas Cooking Equipment: Rough-in gas piping and make connections. Provide brass plug cock in line to each separate item. Install automatic cut-off valve (see Automatic Extinguisher Section) in supply line.

END OF SECTION

Gunn & Associates, P.C.
Consulting Engineers
3102 Highway 14
Millbrook, AL 36054
Tel: 334.285.1273
Fax: 334.285.1274

August 16, 2019

McKee and Associates
631 South Hull Street
Montgomery, AL 36104

Attention: Mr. Kevin Singleton

RE: Russell County HS New Baseball & Softball Complex
Seale, AL

Kevin:

Please see below for addendum items:

ELECTRICAL ADDENDUM :

1. SHEET E3.1:

    a. Contractor shall provide a Nema L6-15 type receptacle for a Single belt countertop conveyor oven. Location determined by owner. Contractor shall homerun with 2#10 & 1#10 GRD – 3/4 "conduit to panel RP1 and provide a 20 amp 2 pole circuit breaker. If the location is in the middle of room contactor shall run conduit under slab. If the equipment is located under the hood contractor shall provide shunt trip circuit breaker. Verify exact location and requirements prior to rough in.

End of Responses

If you have any questions about this letter or wish to discuss it please call me.

Sincerely,

Jason Tillery, Electrical Designer