

DIVISION 15 B - HEATING, VENTILATING AND AIR CONDITIONING

1.1 DESCRIPTION OF THE WORK

- A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
1. Heating, ventilation, and air conditioning equipment.
 2. Ductwork.
 3. Grilles and diffusers.
 4. Controls and control wiring.
 5. Condensate piping.

- B. All work under this contract shall be installed in compliance with the latest edition of the following codes and standards insofar as they apply:
1. ASHRAE Guide
 2. National Electric Code.
 3. 2012 NC State Building Code: Mech. Code.
 4. The Electrical Specifications for this project.
 5. SMACNA HVAC Duct Construction Standards.
 6. All local codes and ordinances.
 7. ARI ratings.
 8. 2012 NC State Building Code: Energy Conservation Code.

- C. These codes are minimum standards. If codes require a more stringent method of construction than the specifications require, the codes shall govern.

- D. The HVAC Contractor shall be licensed in North Carolina and have all local licenses required for the work.

1.2 INTENT

- A. The intent of these specifications and the accompanying drawing is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The HVAC Contractor shall take this into consideration and include in his bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.

1.3 COORDINATION

- A. Coordinate work with other contractors. Notify Owner of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Owner for a decision before resuming operations.

- B. Locations shown are approximate. The HVAC Contractor shall verify with owner, the placement of equipment, fixtures, outlets, etc. The drawings do not give exact details as to elevations and locations of various pipes, fittings, ducts, conduit, etc., and do not show all offsets and other installation details which may be required.

- C. Changes in duct or piping design caused by obstructions shall be submitted to Engineer in sketch form for study and comment prior to execution. Additional cost will not be allowed for this type of work.

1.4 SHOP DRAWINGS

- A. Shop drawings shall be submitted for all major items of equipment. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified. Shop drawings shall include but are not limited to the following:
1. All equipment and accessories.
 2. Grilles and diffusers.
 3. Unit sizes and requirements.

2.1 EQUIPMENT

- A. All air handling devices must have the manufacturer's recommended filter rack, for 1" thick filters.

2.2 PIPING

- A. Condensate drain piping shall be PVC pipe. Provide tee and plug at changes in direction. Route pipe to proper termination point. All condensate piping shall be insulated with flexible elastomeric insulation. Provide copper piping in plenum areas.

2.3 DUCTWORK

- A. Ductwork shall be built in accordance with SMACNA HVAC Duct construction standards. Furnish and install all supply, return, and ventilation ductwork shown, together with splitters, defectors, dampers, etc. This work shall be constructed of new galvanized prime grade steel sheets. The gauges of metal to be used and the construction and bracing of joints shall be in accordance with the SMACNA recommendations.

- B. Seal all sheet metal joints with fiber impregnated mastic.

- C. Support from building structure on strap hangers not over 8 feet apart.

- D. Use manufactured turning vanes in each elbow where required or where indicated on drawings.

- E. Flexible connectors shall be 3 inches wide, of fireproof material and used to isolate noise between equipment and ductwork on supply and return side of all units.

- F. Round runouts, where used, shall be built in accordance with the above standards, and each runout shall also have manufactured side take off, adjustable quadrant damper at all accessible locations and shall be of Owens Corning BL-25 flexible duct with UL label. Flex duct lengths allowed up to 14 feet. Duct must be supported with sufficient hangers in order to prevent sag. Serpentine routing will not be permitted. Quadrant damper to be 22 gauge easily adjustable manually with exterior handle (similar to H&C Kwik-set) and is not to be mounted in side take-off.

2.4 DUCT INSULATION (LOW PRESSURE)

- A. All insulation, linings, coverings and adhesives shall have a flame spread classification of 25 or less and a smoke developed rating of not more than 50, exposed exterior piping.

- B. All duct insulation shall comply with Section 804, of the N. C. Building Code: Mechanical Code.

- C. All supply and return ductwork shall be completely insulated, either internally or externally.

- D. Rectangular ductwork shall be lined with two-inch thick, 1.5 lb. per cubic foot density, duct liner, Armstrong, CSG Ultraliner, Johns Manville or approved equal.

- E. As an alternative to duct liner rectangular duct may be wrapped with Glass I - 2, 3/4" lb. density (R-8.5) thick reinforced foil back fiberglass insulation, Owens-Corning Series ED or equal. Tops shall be Kraft reinforced foil tape or equal.

- F. Exhaust air duct does not require insulation, unless otherwise noted on the plan.

- G. Insulation shall be held in place with adhesive and welding pipe 15" on center.

- H. Duct dimensions shown on the drawings are Net Inside Dimensions

2.5 THERMOSTATS

- A. Provide programmable electronic auto-changeover thermostats.

- B. Submit proposed thermostats for approval.

2.8 ROOF PENETRATIONS

- A. Provide pre-manufactured roof flashings compatible with equipment served.

- B. Coordinate roof work with roof system used. Provide proper flashing as required.

- C. Provide 1 year warranty on all roof work performed.

2.7 DUCT SMOKE DETECTORS

- A. Duct detectors are not required unless air flows are 2000 cfm or less per NCSCB: Mechanical Code, Section 806.2.

PART 3 - EXECUTION

3.1 PIPING

- A. The HVAC Contractor shall coordinate such routing with others, to tie his work true to adjacent spaces and in a workmanlike manner and to use only short runs 90 degree elbows. Where required, piping to be sturdily supported and separated in a manner satisfactory to the Engineer.

- B. The HVAC Contractor shall point all exterior refrigerant piping with UV resistant paint as recommended by the closed coil insulation manufacturer.

- C. Insulate all condensate lines for their entire length with 1/2" closed cell insulation. Install insulation per the manufacturers recommendations.

3.2 ELECTRICAL WORK

- A. The electrical contractor shall provide all switches, starters, wire conduit for the air conditioning, heating and ventilation equipment. Control wiring shall be by the heating and air conditioning contractor.

- B. HVAC Contractor is responsible for verifying that power terminals have been properly grounded prior to operating equipment and must find connections to all equipment including control wiring.

- C. All materials and workmanship shall be in accordance with the electrical specifications for the project. All wiring shall be color coded, and as-built wiring diagram prepared showing all connections and colors of wiring and delivered to the Owner.

- D. Furnish certification for acceptance of control wiring from local electrical inspector prior to acceptance.

3.3 CLEAN UP

- A. During construction, keep the site clean of debris. Upon completion, and before final inspection, clean up the premises to remove all evidence of work. In addition upon completion of construction leave equipment clean.

- B. Furnish one box of clean filters, for each size required, at the time of final inspection to the owner.

3.4 OPERATOR'S MANUAL AND DIAGRAM

- A. The HVAC Contractor shall prepare in one copy a manual describing the proper maintenance and operation of the systems. This manual shall not consist of standard factory instructions (although these may be included) but shall be prepared to describe this particular job.

- B. The manual shall be bound, indexed, dated and signed by the HVAC Contractor.

- C. Qualified representative of the HVAC contractor shall meet with the designated representatives of the Owner and the Owner's representative shall be instructed in the proper operation and maintenance of the control system and other systems.

3.5 GUARANTEE

- A. Guarantee of materials and labor included in the HVAC work for a period of one year from date of final acceptance by the owner. In addition, motor compressors shall be a warranted five year warranty. Any part or parts or equipment which prove to be defective during the guarantee period shall be replaced at no additional cost to the owner.

- B. All air flows must be measured and balanced to within 10% of design airflow. All equipment used must have a current certification. Provide two copies of the balance report to the owner. The HVAC contractor shall return and re-balance to occupant comfort after 90 days from close-out. Provide all balance dampers needed for satisfactory operation, regardless if shown on the drawings, not, and shift locations thermostats if required for occupant comfort.

DUCTLESS SPLIT SYSTEM HEAT PUMP SCHEDULE

DHP-1 OUTDOOR HEAT PUMP UNIT	* MITSUBISHI MODEL #MZ-3B30NA, 2.5 TON OUTDOOR HEAT PUMP UNIT, 16 SEER. 240 VOLT, 1 PHASE, CONDENSING UNIT 15A MCA, 20A MOCP. FAN COIL UNIT IS POWERED VIA FELD PROVIDED WIRING FROM OUTDOOR UNIT. SERVES (3) INDOOR FAN-COIL UNITS (DFC-1.1, DFC-1.2, DFC-1.3).
DFC-1.1 DIRECT EXPANSION FAN COIL UNIT	* MITSUBISHI MODEL #MSZ-GE21NA FAN COIL UNIT. NET COOLING CAPACITY = 12,000 BTUH, 145 CFM LO TO 400 CFM HI. 1.0 TON NOMINAL. PROVIDE WIRED PROGRAMMABLE THERMOSTAT, AND CONDENSATE PUMP. FAN MOTOR 0.76, FLA 240 VOLT, SINGLE PH.
DFC-1.2 DIRECT EXPANSION FAN COIL UNIT	* MITSUBISHI MODEL #MSZ-GE21NA FAN COIL UNIT. NET COOLING CAPACITY = 12,000 BTUH, 145 CFM LO TO 400 CFM HI. 1.0 TON NOMINAL. PROVIDE WIRED PROGRAMMABLE THERMOSTAT, AND CONDENSATE PUMP. FAN MOTOR 0.76, FLA 240 VOLT, SINGLE PH.
DFC-1.3 DIRECT EXPANSION FAN COIL UNIT	* MITSUBISHI MODEL #MSZ-GE08NA FAN COIL UNIT. NET COOLING CAPACITY = 6,000 BTUH, 145 CFM LO TO 400 CFM HI. 0.5 TON NOMINAL. PROVIDE WIRED PROGRAMMABLE THERMOSTAT, AND CONDENSATE PUMP. FAN MOTOR 0.76, FLA 240 VOLT, SINGLE PH.
DHP-2 OUTDOOR HEAT PUMP UNIT	* MITSUBISHI MODEL #MZ-GE24NA, 2 TON OUTDOOR HEAT PUMP UNIT, 19 SEER. 240 VOLT, 1 PHASE, CONDENSING UNIT 17.1A MCA, 20A MOCP. FAN COIL UNIT IS POWERED VIA FELD PROVIDED WIRING FROM OUTDOOR UNIT. SERVES (1) INDOOR FAN-COIL UNIT (DFC-2).
DFC-2 DIRECT EXPANSION FAN COIL UNIT	* MITSUBISHI MODEL #MSZ-GE24NA FAN COIL UNIT. NET COOLING CAPACITY = 22,500 BTUH, 368 CFM LO TO 735 CFM HI. 2 TON NOMINAL. PROVIDE WIRED PROGRAMMABLE THERMOSTAT, AND CONDENSATE PUMP. FAN MOTOR 0.76, FLA 240 VOLT, SINGLE PH.
DHP-3 OUTDOOR HEAT PUMP UNIT	* MITSUBISHI MODEL #MZ-3B24NA, 2 TON OUTDOOR HEAT PUMP UNIT, 16.25 SEER. 240 VOLT, 1 PHASE, CONDENSING UNIT 15A MCA, 20A MOCP. FAN COIL UNIT IS POWERED VIA FELD PROVIDED WIRING FROM OUTDOOR UNIT. SERVES (2) INDOOR FAN-COIL UNITS (DFC-3.1, DFC-3.2).
DFC-3.1 DIRECT EXPANSION FAN COIL UNIT	* MITSUBISHI MODEL #MSZ-GE12NA FAN COIL UNIT. NET COOLING CAPACITY = 12,000 BTUH, 145 CFM LO TO 400 CFM HI. 1.0 TON NOMINAL. PROVIDE WIRED PROGRAMMABLE THERMOSTAT, AND CONDENSATE PUMP. FAN MOTOR 0.76, FLA 240 VOLT, SINGLE PH.
DFC-3.2 DIRECT EXPANSION FAN COIL UNIT	* MITSUBISHI MODEL #MSZ-GE12NA FAN COIL UNIT. NET COOLING CAPACITY = 12,000 BTUH, 145 CFM LO TO 400 CFM HI. 1.0 TON NOMINAL. PROVIDE WIRED PROGRAMMABLE THERMOSTAT, AND CONDENSATE PUMP. FAN MOTOR 0.76, FLA 240 VOLT, SINGLE PH.

* OR APPROVED EQUAL

EXHAUST FAN SCHEDULE

EXHAUST FAN #1 (EF-1)	* CARNES MODEL #VDD040C EXHAUST FAN, 388 CFM @ 1/4" SP, 735 RPM, 1.6 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE A THERMOSTAT, 12" RIGID DUCT TO EXTERIOR WALL LOUVER. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EXHAUST FAN #2 (EF-2)	* CARNES MODEL #VDD040C EXHAUST FAN, 388 CFM @ 1/4" SP, 735 RPM, 1.6 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE A THERMOSTAT, 12" RIGID DUCT TO EXTERIOR WALL LOUVER. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EXHAUST FAN #3 (EF-3)	* CARNES MODEL #VDD040C EXHAUST FAN, 388 CFM @ 1/4" SP, 735 RPM, 1.6 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE A THERMOSTAT, 12" RIGID DUCT TO EXTERIOR WALL LOUVER. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EXHAUST FAN #4 (EF-4)	* CARNES MODEL #VDD040C EXHAUST FAN, 388 CFM @ 1/4" SP, 735 RPM, 1.6 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE A THERMOSTAT, 12" RIGID DUCT TO EXTERIOR WALL LOUVER. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EXHAUST FAN #5 (EF-5)	* CARNES MODEL #VDD040C EXHAUST FAN, 388 CFM @ 1/4" SP, 735 RPM, 1.6 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE A THERMOSTAT, 12" RIGID DUCT TO EXTERIOR WALL LOUVER. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EXHAUST FAN #6 (EF-6)	* CARNES MODEL #VDD040C EXHAUST FAN, 93 CFM @ 1/4" SP, 640 RPM, 1.1 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE A THERMOSTAT, 6" RIGID DUCT TO WALL LOUVER. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.

* OR APPROVED EQUAL
N.B. EXHAUST FANS SHALL HAVE GRAVITY BACKDRAFT DAMPERS PER NCSCB, ENERGY CONSERVATION CODE.

ELECTRIC WALL HEATER SCHEDULE

ELECTRIC WALL HEATER (WH-1)	* QMARK MODEL #QW11201DSF ELECTRIC FAN-FORCED WALL HEATER, 1800 WATTS, 15.7 AMPS 120 VOLT, 1 PHASE. PROVIDE WALL MOUNTING BOX, DISCONNECT SWITCH AND INTEGRAL THERMOSTAT.
ELECTRIC WALL HEATER (WH-2)	* QMARK MODEL #QW11201DSF ELECTRIC FAN-FORCED WALL HEATER, 1800 WATTS, 15.7 AMPS 120 VOLT, 1 PHASE. PROVIDE WALL MOUNTING BOX, DISCONNECT SWITCH AND INTEGRAL THERMOSTAT.

* OR APPROVED EQUAL

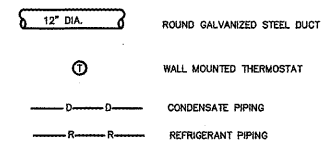
CIRCULATION FAN EQUIPMENT SCHEDULE

CF-1 CIRCULATION FAN #1	* BIG ASS FANS MODEL ESSENCE, 12"-0" DIA. BLADES, MOTOR, 10 FULL LOAD AMPS, 115 VOLT, SINGLE PHASE. PROVIDE WITH WALL MOUNTED CONTROLLER TO CONTROL EACH FAN. SUPPORT FAN PER MANUFACTURER'S INSTRUCTIONS. ENTIRE INSTALLATION SHALL MEET THE REQUIREMENTS OF THE FAN MANUFACTURER'S INSTRUCTIONS. VERIFY MOUNTED HEIGHT WITH ARCHITECT AND ENGINEER.
CF-2 CIRCULATION FAN #2	* BIG ASS FANS MODEL ESSENCE, 12"-0" DIA. BLADES, MOTOR, 10 FULL LOAD AMPS, 115 VOLT, SINGLE PHASE. PROVIDE WITH WALL MOUNTED CONTROLLER TO CONTROL EACH FAN. SUPPORT FAN PER MANUFACTURER'S INSTRUCTIONS. ENTIRE INSTALLATION SHALL MEET THE REQUIREMENTS OF THE FAN MANUFACTURER'S INSTRUCTIONS. VERIFY MOUNTED HEIGHT WITH ARCHITECT AND ENGINEER.
CF-3 CIRCULATION FAN #3	* BIG ASS FANS MODEL ESSENCE, 12"-0" DIA. BLADES, MOTOR, 10 FULL LOAD AMPS, 115 VOLT, SINGLE PHASE. PROVIDE WITH WALL MOUNTED CONTROLLER TO CONTROL EACH FAN. SUPPORT FAN PER MANUFACTURER'S INSTRUCTIONS. ENTIRE INSTALLATION SHALL MEET THE REQUIREMENTS OF THE FAN MANUFACTURER'S INSTRUCTIONS. VERIFY MOUNTED HEIGHT WITH ARCHITECT AND ENGINEER.
CF-4 CIRCULATION FAN #4	* BIG ASS FANS MODEL ESSENCE, 12"-0" DIA. BLADES, MOTOR, 10 FULL LOAD AMPS, 115 VOLT, SINGLE PHASE. PROVIDE WITH WALL MOUNTED CONTROLLER TO CONTROL EACH FAN. SUPPORT FAN PER MANUFACTURER'S INSTRUCTIONS. ENTIRE INSTALLATION SHALL MEET THE REQUIREMENTS OF THE FAN MANUFACTURER'S INSTRUCTIONS. VERIFY MOUNTED HEIGHT WITH ARCHITECT AND ENGINEER.

GENERAL NOTES - MECHANICAL

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE AND ALL LOCAL AND OTHER APPLICABLE CODES.
2. ANY PERMITS AND INSPECTION FEES SHALL BE SECURED AND PAID FOR BY THE MECHANICAL CONTRACTOR (MC).
3. ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE MC SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC) AND OTHER TRADES.
4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES.
5. THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. FOR DIMENSIONS REFER TO THE ARCHITECTURAL PLANS.
6. THE MC SHALL BE RESPONSIBLE FOR ALL ELECTRICAL STARTERS INTERLOCKS, CONTROL WIRING CONDUIT AND POWER WIRING FROM DISCONNECTS TO HIS EQUIPMENT, USING A LICENSED ELECTRICIAN.
7. THE MC SHALL USE FIRE DAMPERS FOR PROTECTION OF THE OPENING IN ACCORDANCE WITH STATE AND LOCAL CODES IN ALL LOCATIONS WHERE PENETRATIONS OF RATED WALLS AND FLOORS OCCUR. SEE ARCHITECTURAL PLANS FOR RATED WALL AND FLOOR LOCATIONS. PROVIDE ACCESS DOORS AT ALL DAMPER LOCATIONS. LOCATE DOORS FOR EASY ACCESS.
8. INSTALL FLEXIBLE CONNECTORS ON SUPPLY AND RETURN DUCTWORK AHI. ALL MECHANICAL EQUIPMENT SHALL OPERATE FREE OF OBJECTIONAL NOISE AND VIBRATION.
9. INSTALL TURNING VANES IN SUPPLY DUCTS AT ALL ELBOWS AND SPLITTER DAMPERS. PROVIDE BALANCING DAMPERS IN ALL DUCTS WHERE SHOWN OR REQUIRED FOR SYSTEM BALANCE.
10. DUCT DIMENSIONS ARE SHOWN INSIDE CLEAR.
11. THE MC SHALL KEEP THE PREMISES CLEAR OF DEBRIS FROM HIS WORK DURING CONSTRUCTION AND LEAVE THE AREA AND BUILDING CLEAN AT THE COMPLETION OF HIS WORK. HE SHALL ALSO LEAVE CLEAN ALL EXPOSED EQUIPMENT IN HIS CONTRACT.
12. PROVIDE ALL REQUIRED ROOF PENETRATIONS FOR THE INSTALLATION OF THE NEW EQUIPMENT. ALL FLASHINGS ARE BY THE MECHANICAL CONTRACTOR. ALL ROOFING WORK SHALL BE DONE BY A LICENSED ROOFING CONTRACTOR AS TO MAINTAIN THE WARRANTY.
13. THE M.C. SHALL COORDINATE WITH AND PROVIDE EQUIPMENT SPEC. SHEETS TO THE GENERAL AND ELECTRICAL CONTRACTORS FOR REVIEW PRIOR TO ORDERING EQUIPMENT.
14. PROPERLY SUPPORT ALL DUCTWORK, AND EQUIP FROM STRUCTURE. PROVIDE ALL STRUCTURAL SUPPORT FOR THE UNITS AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

LEGEND - MECHANICAL



MECHANICAL SYSTEMS AND EQUIPMENT

METHOD OF COMPLIANCE:
(OFFICE BUILDING ONLY)

Prescriptive Energy Cost Budget

Thermal Zone 3A

Exterior Design Conditions
winter dry bulb 23F
summer dry bulb 84F

Interior Design Conditions
winter dry bulb 72F
summer dry bulb 76F
relative humidity 50%

Building Heating Load 55,000 BTU/hr

Building Cooling Load 60,800 BTU/hr

Mechanical Spacing Conditioning System

- Unitary - The building is served the following systems:
(1) 2 ton ductless split system heat pump with (2) 1 ton indoor fan-coil units.
(2) 2.5 ton ductless split system heat pump with (2) 1 ton indoor fan-coil units and (1) 0.5 ton indoor fan-coil unit.
(3) 2 ton ductless split system heat pump with (1) 2 ton indoor fan-coil unit.

Boiler - Not applicable to this project.
Chiller - Not applicable to this project.

Equipment efficiencies
Efficiencies and outputs are listed on equipment schedules - See drawings.

Equipment schedules with motors.
Motors used on this project are included in the efficiency rating of the unit. See drawings for efficiencies.

DESIGNER STATEMENT:

To the best of my knowledge and belief, the design of this building complies with the mechanical system and equipment requirements of the 2012 North Carolina State Building Code: Energy Conservation Code.

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PROJECT TITLE
**SUGG FARM
PICNIC SHELTER**
2401 GRIGSBY AVE.
HOLLY SPRINGS, NORTH CAROLINA

PROJECT NO.
1732
DRAWING TITLE
HVAC SCHEDULES

M1

PLOT DATE 3/25/18
REVISION 11/27/18
OWNER COMMENTS 12/17/18
OWNER COMMENTS 4/6/19

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OA SCHEDULE OUTDOOR VENTILATION PROVIDED PER TABLE 403.3 NCSCB MECHANICAL CODE.

APPLICATION	CFM
TOILETS	75 TO 100 PER FLUSHING FIXTURE
21 FLUSHING FIXTURE X 70 CFM	1470 CFM
EXHAUST PROVIDED BY TWO EXHAUST FANS. MAKE UP AIR BY TRANSFER AIR	
APPLICATION	EXHAUST CFM PER SQ./FT.
COOKING KITCHENS	0.7 CFM PER SQ.FT.
400 SQ. FT. X 0.7 CFM PER SQ.FT. = 280 CFM	
888 CFM EXHAUST PROVIDED BY 1 KITCHEN FAN	