

MECHANICAL SPECIFICATIONS

GENERAL

- 1. GENERAL CONDITIONS: a. CONFORM TO APPLICABLE PROVISIONS OF THE GENERAL CONDITIONS... b. DEFINITIONS: FURNISH MEANS TO SUPPLY AND DELIVER TO PROJECT SITE... 2. SCOPE OF WORK: a. PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, TOOLS... b. PROVIDE EQUIPMENT INDICATED ON THE DRAWINGS... 3. RULES AND REGULATIONS: a. ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS... b. WHERE THE STANDARDS OF THE DRAWINGS AND SPECIFICATIONS FOR MATERIALS AND/OR WORKMANSHIP ARE HIGHER THAN THE REQUIREMENTS CITED ABOVE... 4. WARRANTY: a. PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS... 5. COORDINATION: a. COORDINATE WITH THE WORK OF OTHER SECTIONS... b. CONTRACTOR SHALL EXECUTE WORK SO THAT PROGRESS WILL HARMONIZE WITH THAT OF THE OTHER TRADES... 6. LOCATION AND SPACE REQUIREMENTS: a. VERIFY SPACES, DIMENSIONS, LOCATIONS, AND CONDITIONS REQUIRED FOR INSTALLATION... b. OBTAIN NECESSARY ROOM-IN DATA AND DIMENSIONS OF FIXTURES, EQUIPMENT, TENANT FURNISHED EQUIPMENT... c. NO EXPOSED DUCTS WILL BE PERMITTED TO SHOW ON INTERIOR OF BUILDING IN FINISHED ROOMS... d. MAINTAIN SUFFICIENT CLEARANCE AND ACCESSIBILITY INTERFERENCES BETWEEN WORKS OF VARIOUS TRADES... e. IF NOT PRECISELY LOCATED ON DRAWINGS, OBTAIN LOCATION OF FIXTURES, EQUIPMENT, AND APPLIANCES... 7. MEASUREMENTS: a. ALL DIMENSIONS OF WORK OF OTHER TRADES WHICH REQUIRE VERIFICATION SHALL BE VERIFIED FROM SHOP DRAWINGS OF SUCH WORK OR FROM ACTUAL MEASUREMENTS AT BUILDING... PRODUCTS: 1. GENERAL MATERIALS: a. ALL MATERIALS SHALL CONFORM TO APPLICABLE ASHRAE AND SMACNA STANDARDS... b. BRANDS OF MATERIALS MENTIONED ARE USED AS A STANDARD AND REQUESTS FOR SUBSTITUTIONS WILL BE CONSIDERED WHEN SUBMITTED TO THE ENGINEER... c. APPROVED EQUAL REFERS TO MATERIALS WHICH, IN THE OPINION OF THE ENGINEER, ARE SIMILAR AND EQUAL IN ALL RESPECTS TO MATERIAL OR METHOD INDICATED ON DRAWINGS... d. COMBINATION FIRE/SMOKE DAMPERS: PROVIDE COMBINATION FIRE/SMOKE DAMPERS CONSTRUCTED AND TESTED IN ACCORDANCE WITH CURRENT EDITION OF UL STANDARD 555... e. FIRE DAMPERS AND FUSIBLE LINKS SHALL BE ACCESSIBLE THROUGH ACCESS DOORS OR PANELS IN DUCTS AND ACCESS PANELS IN THE BUILDING STRUCTURE OR CEILINGS... f. FIRE DAMPERS FURNISHED AS AN INTEGRAL PART OF DIFFUSERS OR GRILLES SHALL BE ACCESSIBLE BY MEANS OF REMOVABLE GRILLE OR DIFFUSER FACE

- 2. DUCTWORK: a. DUCT DIMENSIONS, UNLESS OTHERWISE NOTED, DUCT DIMENSIONS ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS... b. SHEET METAL DUCTWORK: PROVIDE SHEET METAL DUCTWORK FABRICATED AND INSTALLED IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS... c. ROUND SHEET METAL DUCT: PROVIDE SPIRAL SEAM (ALL SIZES) OR SNAP LOCK (DUCT SIZES UP TO 10") GALVANIZED STEEL... d. FLEXIBLE DUCT: PROVIDE FACTORY ASSEMBLED CLASS 1 AIR DUCT (UL 181) WITH 1" THICK 1 PCF FIBERGLASS INSULATION... e. EXPOSED DUCTWORK: EXPOSED DUCTWORK SHALL BE CLEANED OF DEBRIS AND OIL... f. DUCT SEALANT: PROVIDE POLYMERIC RUBBER TYPY SEALANT FOR USE ON BOTH INTERIOR LOCATED DUCTWORK AND DUCTWORK EXPOSED TO OUTDOOR CONDITIONS... g. DUCT TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS... h. DUCTWORK ACCESSORIES: a. FLEXIBLE DUCT CONNECTORS: PROVIDE UL LABELED 30 OUNCE NEOPRENE COATED FIBERGLASS FABRIC DUCT CONNECTORS... b. DUCT ACCESS DOORS: PROVIDE HINGED ACCESS DOORS IN DUCTWORK WHERE REQUIRED FOR ACCESS TO EQUIPMENT... c. ROUND VOLUME DAMPERS: PROVIDE MINIMUM 20 GAUGE GALVANIZED STEEL FRAME PROVIDED WITH 12" HEXAGONAL AXLE... d. RECTANGULAR VOLUME DAMPERS: PROVIDE MINIMUM 16 GAUGE GALVANIZED STEEL CHANNEL FRAME... e. CURTAIN FIRE DAMPERS: PROVIDE CURTAIN TYPE FIRE DAMPERS, SUITABLE FOR VERTICAL OR HORIZONTAL INSTALLATION... f. CEILING FIRE DAMPERS: PROVIDE CEILING FIRE DAMPERS CONSTRUCTED AND TESTED IN ACCORDANCE WITH CURRENT EDITION OF UL STANDARD 555... g. COMBINATION FIRE/SMOKE DAMPERS: PROVIDE COMBINATION FIRE/SMOKE DAMPERS CONSTRUCTED AND TESTED IN ACCORDANCE WITH CURRENT EDITION OF UL STANDARD 555... h. PROVIDE APPROVED FIRE DAMPERS AT ALL LOCATIONS INDICATED ON THE PLANS AND/OR REQUIRED BY BUILDING CODE... i. FIRE DAMPERS AND FUSIBLE LINKS SHALL BE ACCESSIBLE THROUGH ACCESS DOORS OR PANELS IN DUCTS AND ACCESS PANELS IN THE BUILDING STRUCTURE OR CEILINGS... j. FIRE DAMPERS FURNISHED AS AN INTEGRAL PART OF DIFFUSERS OR GRILLES SHALL BE ACCESSIBLE BY MEANS OF REMOVABLE GRILLE OR DIFFUSER FACE

- 5. DUCT INSULATION: c. BLANKET TYPE DUCT INSULATION: PROVIDE MINIMUM 1-1/2" THICK BLANKET TYPE FIBERGLASS INSULATION... d. DUCT LINER: PROVIDE MINIMUM 1" THICK, 2 PCF DENSITY, NEOPRENE COATED, LONG TEXTILE FIBER TYPE DUCT LINER... e. CONCEALED CONDITIONED DUCTY: PROVIDE RETURN AIR DUCTS SHALL BE INSULATED WITH BLANKET TYPE DUCT INSULATION... f. CONDITIONED SUPPLY AIR AND RETURN AIR DUCTS AND PLENUMS EXPOSED TO VIEW OR WHERE REQUIRED FOR ACOUSTICAL PURPOSES SHALL BE LINED WITH DUCT LINER... 6. CONTROL SYSTEMS: a. PROVIDE COMPLETE CONTROL SYSTEMS, INCLUDING ALL INSTRUMENTS, CONTROLS, THERMOSTATS, TEMPERATURE SENSORS, LOW VOLTAGE WIRING, TRANSFORMERS, AND ALL NECESSARY APPURTENANCES... 7. EXECUTION: a. TESTING, ADJUSTING, AND BALANCING: a. TEST, ADJUST, AND BALANCE ALL MECHANICAL SYSTEMS AND EQUIPMENT TO ENSURE PROPER BALANCE AND OPERATION... b. VIBRATION AND NOISE: a. ELIMINATE VIBRATION AND NOISE FROM THE OPERATION OF FANS, MOTORS, AND EQUIPMENT... c. OPERATING AND MAINTENANCE MANUALS: a. PROVIDE COMPLETE OPERATIONS AND MAINTENANCE MANUALS FOR ALL MECHANICAL EQUIPMENT... d. CLEANING: a. MACHINERY AND EQUIPMENT: THOROUGHLY CLEAN CEMENT AND PLASTER AND OTHER MATERIALS... b. EXPOSED METALWORK: THOROUGHLY CLEAN WITH STEEL BRUSH... c. FINAL CLEANING: REMOVE ALL DEBRIS AND SCRAP AND INSTALLATION-RELATED DEBRIS FROM AREA... 8. EXCEPTIONS: THE FOLLOWING EQUIPMENT IS NOT REQUIRED TO BE EQUIPPED WITH A MEANS FOR BALANCING OR MEASURING FLOW: 1. PUMPS WITH PUMP MOTORS OF 5 HP (3.7 KW) OR LESS... 2. WHERE THROTTLING RESULTS IN NO GREATER THAN 5 PERCENT OF THE NAMEPLATE HORSEPOWER DRAW ABOVE THAT REQUIRED IF THE IMPELLER WERE TRIMMED... 9. C408.2.3 FUNCTIONAL PERFORMANCE TESTING: FUNCTIONAL PERFORMANCE TESTING SPECIFIED IN SECTIONS C408.2.3.1 THROUGH C408.2.3.3 SHALL BE CONDUCTED... 10. C408.2.3.1 EQUIPMENT: EQUIPMENT FUNCTIONAL PERFORMANCE TESTING SHALL DEMONSTRATE THE INSTALLATION AND OPERATION OF COMPONENTS, SYSTEMS, AND SYSTEM-TO-SYSTEM INTERFACING RELATIONSHIPS... 11. C408.2.3.2 CONTROLS: HVAC AND SERVICE WATER-HEATING CONTROL SYSTEMS SHALL BE TESTED TO DOCUMENT THAT CONTROL DEVICES, COMPONENTS, EQUIPMENT AND SYSTEMS ARE CALIBRATED AND ADJUSTED AND OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS... 12. C408.2.3.3 ECONOMIZERS: AIR ECONOMIZERS SHALL UNDERGO A FUNCTIONAL TEST TO DETERMINE THAT THEY OPERATE IN ACCORDANCE WITH MANUFACTURERS' SPECIFICATIONS

2018 FECC (FLORIDA ENERGY CONSERVATION CODE) COMMISSIONING REQUIREMENTS

- PRIOR TO FINAL INSPECTION, ELECTRICAL CONTRACTOR TO PROVIDE ENGINEER (AS A SUBMITTAL SENT THROUGH THE ARCHITECT/BUILDER) A SIGNED LETTER ON COMPANY LETTERHEAD STATING THAT ANY ALL APPLICABLE ITEMS/SYSTEMS LISTED IN 2018 IECC SECTION C408.3 (AND ALL SUBHEADINGS) HAVE BEEN TESTED AND COMPLY WITH THE CODE FOR REFERENCE... C408.2 MECHANICAL SYSTEMS AND SERVICE WATER-HEATING SYSTEMS COMMISSIONING AND COMPLETION REQUIREMENTS: PRIOR TO THE FINAL MECHANICAL AND PLUMBING INSPECTIONS, THE REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY SHALL PROVIDE EVIDENCE OF MECHANICAL SYSTEMS COMMISSIONING AND COMPLETION IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION... CONSTRUCTION DOCUMENT NOTES SHALL CLEARLY INDICATE PROVISIONS FOR COMMISSIONING AND COMPLETION REQUIREMENTS IN ACCORDANCE WITH THIS SECTION AND ARE PERMITTED TO REFER TO SPECIFICATIONS FOR FURTHER REQUIREMENTS... 1. MECHANICAL SYSTEMS AND SERVICE WATER HEATER SYSTEMS IN BUILDINGS WHERE THE TOTAL MECHANICAL EQUIPMENT CAPACITY IS LESS THAN 480,000 BTUH (140.7 KW) COOLING CAPACITY AND 600,000 BTUH (175.8 KW) COMBINED SERVICE WATER-HEATING AND SPACE-HEATING CAPACITY... 2. SYSTEMS INCLUDED IN SECTION C408.3 THAT SERVE INDIVIDUAL DWELLING UNITS AND SLEEPING UNITS... 3. A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING... 4. TESTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED... 5. MEASURABLE CRITERIA FOR PERFORMANCE... C408.2.2 AIR SYSTEMS BALANCING: EACH SUPPLY AIR OUTLET AND ZONE TERMINAL DEVICE SHALL BE EQUIPPED WITH MEANS FOR AIR BALANCING IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 OF THE INTERNATIONAL MECHANICAL CODE... C408.2.2.2 HYDRONIC SYSTEMS BALANCING: INDIVIDUAL HYDRONIC HEATING AND COOLING COILS SHALL BE EQUIPPED WITH MEANS FOR BALANCING AND MEASURING FLOW... EXCEPTIONS: THE FOLLOWING EQUIPMENT IS NOT REQUIRED TO BE EQUIPPED WITH A MEANS FOR BALANCING OR MEASURING FLOW: 1. PUMPS WITH PUMP MOTORS OF 5 HP (3.7 KW) OR LESS... C408.2.3 FUNCTIONAL PERFORMANCE TESTING: FUNCTIONAL PERFORMANCE TESTING SPECIFIED IN SECTIONS C408.2.3.1 THROUGH C408.2.3.3 SHALL BE CONDUCTED... C408.2.3.1 EQUIPMENT: EQUIPMENT FUNCTIONAL PERFORMANCE TESTING SHALL DEMONSTRATE THE INSTALLATION AND OPERATION OF COMPONENTS, SYSTEMS, AND SYSTEM-TO-SYSTEM INTERFACING RELATIONSHIPS... C408.2.3.2 CONTROLS: HVAC AND SERVICE WATER-HEATING CONTROL SYSTEMS SHALL BE TESTED TO DOCUMENT THAT CONTROL DEVICES, COMPONENTS, EQUIPMENT AND SYSTEMS ARE CALIBRATED AND ADJUSTED AND OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS... C408.2.3.3 ECONOMIZERS: AIR ECONOMIZERS SHALL UNDERGO A FUNCTIONAL TEST TO DETERMINE THAT THEY OPERATE IN ACCORDANCE WITH MANUFACTURERS' SPECIFICATIONS

- C408.2.4 PRELIMINARY COMMISSIONING REPORT: A PRELIMINARY REPORT OF COMMISSIONING TEST PROCEDURES AND RESULTS SHALL BE COMPLETED AND CERTIFIED BY THE REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY AND PROVIDED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT... 1. ITEMIZATION OF DEFICIENCIES FOUND DURING TESTING REQUIRED BY THIS SECTION THAT HAVE NOT BEEN CORRECTED AT THE TIME OF REPORT PREPARATION... 2. DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF REPORT PREPARATION BECAUSE OF CLIMATE CONDITIONS... 3. CLIMATIC CONDITIONS REQUIRED FOR PERFORMANCE OF THE DEFERRED TESTS... 4. RESULTS OF FUNCTIONAL PERFORMANCE TESTS... 5. FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS... C408.2.4.1 ACCEPTANCE OF REPORT: BUILDINGS, OR PORTIONS THEREOF, SHALL NOT BE CONSIDERED COMPLETE UNTIL THE COMMISSIONING REPORT IS SUBMITTED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT... C408.2.5 DOCUMENTATION REQUIREMENTS: THE CONSTRUCTION DOCUMENTS SHALL SPECIFY THAT THE DOCUMENTS DESCRIBED IN THIS SECTION BE PROVIDED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT WITHIN 90 DAYS OF THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY... C408.2.5.1 SYSTEM BALANCE REPORT: A WRITTEN REPORT DESCRIBING THE ACTIVITIES AND MEASUREMENT COMPLETED IN ACCORDANCE WITH SECTION C408.2.2... C408.2.5.2 FINAL COMMISSIONING REPORT: A REPORT OF TEST PROCEDURES AND RESULTS IDENTIFIED AS "FINAL COMMISSIONING REPORT" SHALL BE DELIVERED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT... 1. RESULTS OF FUNCTIONAL PERFORMANCE TESTS... 2. DISPOSITION OF DEFICIENCIES FOUND DURING TESTING, INCLUDING DETAILS OF CORRECTIVE MEASURES USED OR PROPOSED... 3. FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS... EXCEPTION: DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF REPORT PREPARATION DUE TO CLIMATE CONDITIONS

Order Details

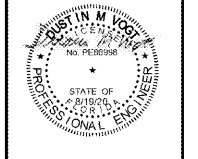
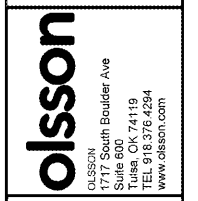
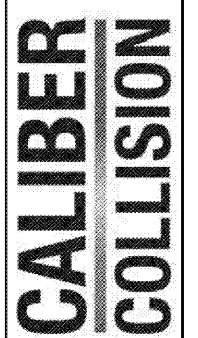
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MECHANICAL SPECS CALIBER COLLISION FILE NAME: 192006 DRAWN BY: BPH DATE: 08/19/2020 REVIEWED BY: MS PROJECT NO: 202002 timothy m. gallup architect of record 601 S. Boulder Ave., Suite 808 Tulsa, Oklahoma 74119 918.949.9600 olsson 1717 South Boulder Ave Suite 600 Tulsa, OK 74119 TEL: 918.376.4294 www.olsson.com



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MECHANICAL SPECS CALIBER COLLISION FILE NAME: 192006 DRAWN BY: BPH DATE: 08/19/2020 REVIEWED BY: MS PROJECT NO: 202002

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