

MECHANICAL NOTES:

GENERAL:

- VERIFY SHALL MEAN CHECK CONDITIONS ON SITE AGAINST DRAWINGS AND SPECIFICATION AND ADJUST WORK TO MATCH EXISTING. OBTAIN RULING FROM OWNER ON ANY ITEMS REQUIRING CLARIFICATION.
- PROVIDE A COMPLETE FUNCTIONAL HVAC SYSTEM WITH ALL ACCESSORIES REQUIRED FOR PROPER OPERATION ALL IN ACCORDANCE WITH THE APPLICABLE STATE AND LOCAL AUTHORITY CODES, LAWS & ORDINANCES AND STATE AND LOCAL AUTHORITY ACCESSIBILITY LAWS AND ORDINANCES.
- THE SYSTEMS SHALL BE FREE FROM ANY OBJECTIONABLE NOISES AND VIBRATIONS.
- ALL MECHANICAL WORK & EQUIPMENT SHALL CONFORM TO THE CURRENT REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION. MECHANICAL WORK SHALL COMPLY WITH THE 2003 EDITION OF THE INTERNATIONAL MECHANICAL CODE, STATE & LOCAL AMENDMENTS, NFPA-54, NFPA-90A, SMACNA & ASHRAE GUIDELINES.
- CONTRACTOR SHALL SECURE ALL PERMITS, INSPECTION CERTIFICATES, AUTHORITY APPROVALS AND PAY ALL RELATED FEES AND CHARGES.
- ALL NEW MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE BY THE OWNER. COMPRESSORS SHALL HAVE AN EXTENDED 4 YEAR COMPRESSOR (ONLY) WARRANTY.
- THE CONTRACTOR SHALL CONFIRM AND ENSURE THAT ALL MECHANICAL WORK CONFORMS TO THE CURRENT REQUIREMENTS OF THE LOCAL BUILDING INSPECTION DEPARTMENT.
- ALL MECHANICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS.
- THE CONTRACTOR SHALL PREPARE DUCT CONSTRUCTION SHOP DRAWINGS, TO SCALE, (MIN. SCALE 1/4" = 1 FT). SUBMIT TO THE OWNER FOR REVIEW PRIOR TO FABRICATION AND INSTALLATION. DUCT SHOP DRAWINGS SHALL BE UPDATED, DURING CONSTRUCTION, TO SHOW ANY CHANGES MADE DURING CONSTRUCTION AND SUBMITTED TO THE OWNER AT THE END OF THE PROJECT FOR "AS-BUILT" RECORD.
- THE MECHANICAL (SUB)CONTRACTOR SHALL COORDINATE THE SPACE REQUIREMENTS FOR ALL MECHANICAL EQUIPMENT AND DUCTWORK WITH THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ORDERING AND FABRICATION OF STRUCTURAL ELEMENTS, INCLUDING ROOF TRUSSES, TO SUIT THE PROPOSED ROUTING OF THE DUCTWORK AND LOCATION OF EQUIPMENT. PROVIDE ADEQUATE CLEARANCES AROUND, AND ACCESS TO, ALL EQUIPMENT FOR MAINTENANCE.
- WALL, FLOOR OR CEILING SURFACES DISTURBED DURING THE COURSE OF THE MECHANICAL WORK SHALL BE REPAIRED TO MATCH NEW &/OR EXISTING SURROUNDING CONDITIONS.
- REFER TO ARCHITECT'S REFLECTED CEILING PLANS FOR LOCATION OF LIGHTS AND OTHER CEILING MOUNTED DEVICES. COORDINATE AIR DISTRIBUTION DEVICES WITH THIS REFLECTED CEILING PLAN. IF A PARTICULAR ITEM CANNOT BE LOCATED APPROXIMATELY AS SHOWN ON THE HVAC LAYOUT THE CONTRACTOR SHALL PREPARE A DRAWING SHOWING A PROPOSED LOCATION AND SHALL SUBMIT IT TO THE OWNER FOR APPROVAL.
- COORDINATE THE INSTALLATION OF THE DUCTWORK, EQUIPMENT, PIPING, ETC., TO FIT WITHIN THE SPACE ALLOWED BY THE ARCHITECTURE AND STRUCTURAL CONDITIONS. CUTTING OR ALTERING ANY STRUCTURAL MEMBER SHALL NOT BE PERMITTED.
- DO NOT SCALE DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL SIZES, MATERIALS, TEMPERATURES AND PRESSURES BEFORE ORDERING OR FABRICATION OF ANY MATERIALS.
- WHERE DUCT OR PIPE SECTION SIZE IS NOT INDICATED, IT SHALL BE THE SAME SIZE AS THE LAST SIZED UPSTREAM SECTION.
- PIPING, CONDUITS, CABLES, ETC. SHALL BE RUN NEATLY, PARALLEL TO PIPING AND TO BUILDING (WALLS, FLOOR).
- THE SCHEDULED "BASIS OF DESIGN" IS INTENDED TO INDICATE THE PERFORMANCE REQUIRED FOR THE PARTICULAR ITEM OF EQUIPMENT. SUBSTITUTIONS WILL BE PERMITTED. SUBSTITUTIONS SHALL BE DEEMED TO INCLUDE ALL ASSOCIATED CHANGES TO BUILDING, STRUCTURE, MECHANICAL AND ELECTRICAL WITHOUT ANY ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT SUBSTITUTIONS FIT INTO THE SPACE AVAILABLE WITH PROVISIONS FOR PROPER ACCESS, MAINTENANCE, PARTS REPLACEMENT, WEIGHT ALLOWANCE & FOR COORDINATION WITH OTHER TRADES (INCLUDING ELECTRICAL, PLUMBING, STRUCTURAL, AND ARCHITECTURAL).
- MANUFACTURER CATALOG SHOP DRAWINGS SUBMITTED SHALL BE MARKED TO INDICATE PROJECT SPECIFIC INFORMATION. FULL MODEL NUMBERS; IDENTIFY AND HIGHLIGHT SCHEDULED ITEM CAPACITIES; HIGHLIGHT INCLUDED OPTIONS AND EDIT OUT THOSE THAT ARE NOT PROVIDED; CLEARLY IDENTIFY DEVIATIONS FROM SPECIFIED AND SCHEDULED CAPACITIES.
- ALL EQUIPMENT PROVIDED SHALL BE COMMERCIALLY AVAILABLE PRODUCTS SPECIFICALLY MADE FOR THE APPLICATION FOR WHICH IT IS INTENDED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION AND START-UP INSTRUCTIONS.
- A TECHNICIAN, FACTORY TRAINED AND CERTIFIED BY THE MANUFACTURER OF THE HVAC EQUIPMENT PROVIDED SHALL PERFORM PRE START-UP CHECKS AND SHALL SUBMIT A REPORT TO THE OWNER ON EACH ROOF TOP UNIT. THIS REPORT SHALL INCLUDE CERTIFICATION, IN WRITING, THAT EQUIPMENT IS CORRECTLY INSTALLED, INCLUDING PROPER DRAINAGE FROM DRAIN PANS AND SEALING OF ALL AIR LEAKS, ELECTRICAL CONNECTIONS AND TERMINALS TIGHTNESS, GAS PIPING IS LEAK FREE, INDOOR FILTER ARE CLEAN, IN PLACE AND EASILY REPLACEABLE, FANS AND COMPRESSORS ROTATE CORRECTLY, ELECTRICAL AMP DRAWS SHALL BE RECORDED AND CERTIFIED WITHIN MANUFACTURERS RECOMMENDED LIMITS, REFRIGERANT SUCTION AND DISCHARGE PRESSURES FOR ALL CIRCUITS WITH STATEMENT THAT SYSTEMS ARE CORRECTLY CHARGED.

ELECTRICAL/CONTROLS:

- THE CONTRACTOR SHALL VERIFY THE ELECTRICAL SUPPLY VOLTAGES AND PHASES ON THE ELECTRICAL PLANS AND ON SITE BEFORE ORDERING ANY ELECTRICALLY OPERATED EQUIPMENT. ALL MECHANICAL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE PROVIDED & INSTALLED WITH SUITABLY PROTECTED AND RATED DISCONNECT SWITCHES.
- MOUNT THERMOSTATS AS INDICATED ON PLANS 48" A.F.F. UNLESS OTHERWISE NOTED OR AS REQUIRED FOR ACCESSIBILITY CODE COMPLIANCE. COORDINATE LOCATION OF THERMOSTATS WITH CABINETRY AND OTHER SERVICES. THE THERMOSTATS SHALL NOT BE INSTALLED ON OUTSIDE WALLS, IN THE DIRECT AIR STREAM FROM ANY DIFFUSER OR WHERE IT MAY BE INFLUENCED BY HEAT GIVEN OFF FROM EQUIPMENT.
- ALL CONTROL WIRING & TRANSFORMERS SHALL BE SUPPLIED UNDER THE MECHANICAL CONTRACT. ALL MECHANICAL CONTROLS SHALL BE SUPPLIED BY THE MECHANICAL CONTRACTOR.
- SMOKE DETECTORS SHALL BE SIMPLY, NOTIFIER, EDWARDS, FENWALL OR OTHER APPROVED BY THE LOCAL AUTHORITY. INSTALL IN THE RETURN AIR DUCTS AND WIRE TO AUTOMATICALLY SHUT DOWN THE AIR HANDLING EQUIPMENT UPON DETECTION OF SMOKE AS REQUIRED BY NFPA 90A. PROVIDE ACCESS FOR INSPECTION OF DUCT PROBES. PROVIDE AN AUXILIARY CONTACT FOR INTERLOCKING WITH A FIRE ALARM SYSTEM. REMOTE INTERLOCK WIRING SHALL BE DONE BY THE FIRE ALARM CONTRACTOR. IF THERE IS NO BUILDING FIRE ALARM SYSTEM PROVIDE AUDIBLE/VISIBLE INDICATION PER NFPA 90A.

DUCTWORK:

- SUPPLY, RETURN, OUTDOOR AND EXHAUST AIR DUCTWORK SHALL BE GALVANIZED SHEET METAL, FABRICATED AND INSTALLED PER THE LATEST ISSUE OF THE SMACNA DUCT HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, FIRST EDITION, 1985 CONSTRUCTION MANUAL. SEAL ALL SUPPLY AIR DUCT JOINTS TO SMACNA SEAL CLASS "A". DUCT LEAKAGE SHALL NOT EXCEED 1 PERCENT OF THE SPECIFIED AIR FLOWS WHEN TESTED AT 1" WG.
- MANUAL VOLUME DAMPERS:
 - DAMPERS WITH LOCKING AND INDICATING QUADRANTS TO BE INSTALLED IN EACH BRANCH OF DUCTS INDICATED ON THE DRAWINGS IN ADDITION TO VOLUME CONTROL AT OUTLETS.
 - AFTER FINAL ADJUSTMENT OF SYSTEM, LOCK QUADRANTS AND MARK CLEARLY SHOWING DAMPER POSITION, (OPEN AND SHUT POSITIONS).
 - DAMPERS IN ROUND DUCT SHALL BE SINGLE BLADE TYPE.
 - DAMPERS IN RECTANGULAR DUCTS: DUCTS EQUAL TO OR LESS THAN 11" SHALL BE SINGLE BLADE; DUCTS 12" AND LARGER IN HEIGHT SHALL BE OPPOSED BLADE TYPE.
- DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
- ALL DUCTWORK, AND EQUIPMENT SHALL BE SUPPORTED INDEPENDENTLY FROM STRUCTURAL MEMBERS. PROVIDE ADDITIONAL SUPPORT MEMBERS WHERE REQUIRED TO ACHIEVE SMACNA RECOMMENDED SUPPORT SPACING.
- ALL DUCT TRANSITION FROM SQUARE TO ROUND SHALL BE SMOOTH SQUARE TO ROUND TRANSITION. SPIN-IN FITTINGS AT THE END OF CAPPED DUCTS ARE NOT ACCEPTABLE.
- DUCTWORK SHALL BE RIGID SHEETMETAL EXCEPT FOR 12 FOOT MAXIMUM FLEXIBLE DUCTS AT AIR REGISTERS.
- WHERE FLEXIBLE DUCT IS CONNECTED TO CEILING DIFFUSERS, THE CONTRACTOR SHALL USE ONE OF THESE THREE METHODS:
 - INSULATED FLEXIBLE DUCT WITH TITUS FLEXRIGHT FLEXIBLE DUCT SUPPORT UL LISTED, TO FORM DUCT ELBOW.
 - A SHEET METAL ELBOW, EXTERNALLY INSULATED.
 - INSULATED FLEXIBLE METAL DUCT CONSISTING OF FLEXIBLE METAL DUCT OF CORRUGATED ALUMINUM WITH EXTERNAL INSULATION.
- IN ALL CASES DUCT CONNECTION/ELBOW SHALL BE MADE WITH A BEND THAT HAS NOT LESS THAN ONE DUCT DIAMETER CENTERLINE RADIAL.
- TRANSITION RECTANGULAR DUCTWORK TO ROUND SHALL BE MADE WITH A BEND THAT HAS NOT LESS THAN ONE DUCT DIAMETER CENTERLINE RADIAL. MAINTAIN DUCTWORK LEVEL AND AS HIGH AS POSSIBLE UNLESS OTHERWISE NOTED.
- THE FINISH ON SUPPLY DIFFUSERS, RETURN GRILLES & EXHAUST GRILLES SHALL BE APPROVED BY THE ARCHITECT.
- CHANGES IN ELEVATION, ACCESS DOORS AND TRANSITIONS IN DUCT SIZES ARE, OR MAY NOT, ALL BE SHOWN ON THE DRAWINGS. DUCT CROSS-OVERS IMPLY CHANGES IN ELEVATION IN ONE OR BOTH DUCTS; TRANSITIONS IN DUCT SIZE AND SHAPE ARE IMPLIED BY SIZES SHOWN ON DRAWINGS. BIDDERS SHALL MAKE ALLOWANCE FOR THESE IN THEIR PRICE.
- TRANSFORM DUCT SIZE SHOWN TO SUIT EQUIPMENT CONNECTION SIZE AT CONNECTIONS TO EQUIPMENT.
- PROVIDE A FLEXIBLE DUCT CONNECTION ON INTAKE AND DISCHARGE OF FANS, AIR HANDLING UNITS, ETC.
- ALL RIGID SHEETMETAL SUPPLY & RETURN DUCTWORK, SHALL BE INSULATED WITH 2" THICK, 1 LB DENSITY DUCT INSULATION WITH FIRE RATED VAPOR BARRIER (INSTALLED R-6).

- ALL INSULATION SHALL HAVE FLAME AND SMOKE RATING OF 25 AND 50 RESPECTIVELY. OVERLAP BUTTING EDGES, FOLD, SEAL AND TAPE AND PROVIDE A CONTINUOUS VAPOR BARRIER.
- EXHAUST DUCT SHALL NOT BE INSULATED UNLESS OTHERWISE NOTED.
- FLEXIBLE DUCT BE UL LISTED, CLASSIFIED AS A CLASS 1 AIR DUCT, TESTED UNDER UL STANDARD 181 AND MEET LOCAL CODE REQUIREMENTS. FLEXIBLE SUPPLY DUCTS SHALL HAVE FACTORY INSTALLED FIBER GLASS INSULATION AND A FIRE RETARDANT VAPOR BARRIER JACKET WITH A PERM RATING OF NOT OVER 0.1, A MINIMUM TYPICAL VALUE OF 6, AND WHICH COMPLY WITH NFPA STANDARD 90A.
- SPIN-IN COLLARS SHALL BE PROVIDED AT ALL ROUND TAPPINGS FROM RECTANGULAR DUCTS. SHALL BE CONSTRUCTED OF GALVANIZED STEEL AND SHALL BE CONICAL TYPE EQUIPPED WITH A MANUAL BALANCING DAMPER. DO NOT PROVIDE AIR SCOOP.
- DUCT BRANCH RUN-OUTS TO THE DIFFUSERS UNLESS OTHERWISE NOTED SHALL BE THE SAME AS THE DIFFUSER NECK SIZES.
- THE CONTRACTOR SHALL PROVIDE ALL FRAMING REQUIRED FOR THE INSTALLATION OF CEILING, WALL AND FLOOR AIR REGISTERS TO SUIT THE CONSTRUCTION.
- ROOF CURBS, RAILS AND PENETRATIONS: ALL ROOF PENETRATIONS SHALL BE WATERPROOF AND GUARANTEED FREE FROM LEAKS FOR ONE YEAR. USE CURBS AND RAILS MANUFACTURED BY THE MANUFACTURER OF THE EQUIPMENT PROVIDED OR BY PATE, CUSTOM CURBS OR APPROVED EQUAL. INSTALL ROOF MOUNTED AIR HOODS AND EQUIPMENT CURBS AND RAILS IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURERS' INSTRUCTIONS AND THE "GUIDELINES FOR ROOF MOUNTED OUTDOOR AIR-CONDITIONER INSTALLATIONS" AS PREPARED BY ARI, SMACNA AND THE NATIONAL ROOFING CONTRACTORS ASSOCIATION, AUGUST 1985.
- THE CURBS FOR THE ROOF MOUNTED EQUIPMENT SHALL BE SELECTED BY THE MANUFACTURER OF THE CURB TO SUIT THE TYPE OF ROOF AND STRUCTURE AND SHALL BE FABRICATED TO MATCH THE FOOTPRINTS AND INSTALLATION REQUIREMENTS OF THE EQUIPMENT PROVIDED. ALL ROOFING WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS, AND TO THE APPROVAL OF THE MANUFACTURER OF THE BUILDING AND ROOFING SYSTEMS PROVIDED.
- PRIOR TO FINAL CONNECTION TO EQUIPMENT, BRANCH DUCTS, DIFFUSERS, ETC. ALL OPENINGS IN DUCTWORK SHALL BE SEALED TO PREVENT DIRT, DUST, DEBRIS FROM ENTERING THE AIR DISTRIBUTION SYSTEM.

EXHAUST HOOD (GREASE) DUCT NOTES

- ALL EXHAUST CURBS AND EXHAUST DUCTWORK ARE SIZED TO MAINTAIN MINIMUM 1500 FPM EXHAUST AIR VELOCITY. GREASE EXHAUST DUCT WORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH NFPA-96. GREASE EXHAUST DUCTWORK SHALL HAVE ALL SEAMS, JOINTS AND PENETRATIONS LIQUID TIGHT.
- ALL HORIZONTAL RUNS OF EXHAUST DUCT, GREASE OR CONDENSATE, SHALL SLOPE BACK TOWARD THE HOOD AT A SLOPE OF 0.25" PER FOOT. PROVIDE A RESIDUE TRAP AT THE BASE OF EACH VERTICAL RISER. THE CONTRACTOR SHALL PROVIDE ALL DRAINS REQUIRED.
- THE MECHANICAL CONTRACTOR IS TO PROVIDE CLEANOUTS, PER NFPA 96, IN GREASE EXHAUST DUCTWORK AT A MINIMUM OF 10' INTERVALS; AT EACH CHANGE OF DIRECTION AND AT EACH RESIDUE TRAP.
- ALL GREASE EXHAUST DUCTS SHALL HAVE RADIUS ELBOWS.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE BEFORE ORDERING DUCTWORK.
- GREASE EXHAUST DUCTS SHALL BE METALBESTOS TYPE "IPS" OR 16 GAUGE SHEET STEEL (BLACK IRON), ASTM A569, OR 18 GAUGE STAINLESS STEEL. USE STAINLESS STEEL FOR EXPOSED DUCT IN OCCUPIED AREAS. CONSTRUCTION SHALL BE LIQUID TIGHT WITH CONTINUOUS EXTERNAL WELD FOR ALL SEAMS AND JOINTS. PROVIDE NEOPRENE GASKETS AT FLANGED CONNECTIONS. WHERE DUCTS ARE NOT SELF DRAINING BACK TO THE EQUIPMENT, PROVIDE LOW POINT DRAIN POCKET WITH COPPER DRAIN PIPE TO SANITARY SEWER. PROVIDE ACCESS DOORS OR PANELS FOR DUCT CLEANING INSIDE OF HORIZONTAL DUCT AT DRAIN POCKETS. INSTALL WITH THE CLEARANCES FROM COMBUSTIBLE MATERIALS AS REQUIRED BY NFPA 96 IN ACCORDANCE WITH THE TYPE OF FIRE PROTECTION PROVIDED AROUND THE DUCTS. FIRE PROOFING PROTECTION SHALL BE UL APPROVED FIRE BARRIER DUCT WRAP 154 BY 3M" INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS UL APPROVED/LISTED INSTALLATION INSTRUCTIONS.

PIPING:

- ROUTE CONDENSATE FROM RTU'S TO DISCHARGE OVER AND INTO NEAREST ROOF DRAIN. THE CONDENSATE P-TRAP SHALL HAVE A REMOVABLE CAP (SEE DETAIL). SUPPORT PIPE AS SHOWN (SEE DETAIL) WITH SUPPORT HEIGHTS GRADED TO PROVIDE A TOTAL PITCH OF 6" FROM TRAP TO ROOF DRAIN. DO NOT DISCHARGE CONDENSATE ONTO THE ROOF.

OWNERS MANUAL:

- FOUR COPIES OF AN OWNERS MANUAL SHALL BE FORWARDED TO THE OWNER WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE. OWNERS MANUAL SHALL INCLUDE AS MINIMUM:
 - DATA STATING EQUIPMENT SIZE AND ALL INSTALLED OPTIONS FOR EACH ITEM OF MECHANICAL EQUIPMENT PROVIDED.
 - COPIES OF THE INSTALLATION & PERFORMANCE REPORT BY THE REPRESENTATIVE OF THE ROOF TOP UNITS PROVIDED.
 - COPIES OF THE TEST & BALANCE REPORT. NOTATIONS OF CORRECTIVE ACTION SHALL BE INCLUDED.
 - COPIES OF THE MECHANICAL SUBCONTRACTOR'S FIRST YEAR INSTALLATION AND EQUIPMENT WARRANTIES. NOTATION SHALL BE INCLUDED TO SHOW THE EXPIRATION DATE OF THE FIRST YEAR PARTS & LABOR GUARANTEE, & OF THE EXTENDED 4-YEAR COMPRESSOR (ONLY) WARRANTY.
 - OPERATION AND MAINTENANCE MANUALS FOR EACH ITEM OF EQUIPMENT REQUIRED. MAINTENANCE, EXCEPT FOR EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT, SHALL BE ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.
 - NAMES AND ADDRESS OF AT LEAST ONE SERVICE AGENCY.
 - HVAC CONTROLS SYSTEMS MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS AND CONTROL SEQUENCE DIAGRAM (REQUIRED OR FIELD DETERMINED SET POINTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS AT CONTROL DEVICES OR FOR DIGITAL CONTROL SYSTEMS, IN THE PROGRAMMING COMMENTS).

TEST AND BALANCE:

- THE CONTRACTOR SHALL OBTAIN THE SERVICES OF AN INDEPENDENT TEST, ADJUSTMENT AND BALANCE (TAB) AND COMMISSIONING AGENCY TO TEST, ADJUST, BALANCE AND COMMISSION:
 - EACH SUPPLY AIR, RETURN, EXHAUST AND OUTDOOR AIR DISTRIBUTION SYSTEM.
 - EACH CONTROL SYSTEM INCLUDING CALIBRATE ALL CONTROL ELEMENTS AND CHECK OPERATION INCLUDING ALL INTERLOCKS.
- TESTING AND BALANCING OF AIR DISTRIBUTION SYSTEMS SHALL BE PERFORMED, AT MINIMUM, IN ACCORDANCE WITH ASHRAE MANUAL SUNDRAWING, FIFTH EDITION, 1989. TEST AND BALANCE SHALL INCLUDE ALL EQUIPMENT AND DISTRIBUTION SYSTEMS AND SHALL BE REPORTED, AS A MINIMUM, ON FORMS AS PUBLISHED BY THE ASHRAE (FORMS 213 AND 214 OF THE STANDARDS MANUAL); NEBB EQUIVALENT OR OTHER APPROVED EQUAL.
- THE AGENCY SHALL, UNLESS APPROVED OTHERWISE BY THE OWNER, BE AN ASHRAE OR NEBB MEMBER AND THE TAB WORK SHALL BE DONE BY AN ASHRAE OR NEBB CERTIFIED TEST AND BALANCE TECHNICIAN AND THE COMMISSIONING.
- THE CONTRACTOR'S SYSTEM OPERATION SHALL BE CHECKED FOR PROPER CALIBRATION AND OPERATION AND A REPORT ON THE OPERATION AND ADJUSTMENT SHALL BE SUBMITTED TO THE OWNER. THE TAB AGENCY SHALL VERIFY BY CHECK MEASUREMENTS USING INDEPENDENT INSTRUMENTS IN THE FIELD TO ENSURE THAT THE CONTROLS INDICATION IS ACCURATE; EVERY SAFETY AND ALARM INTERLOCK SHALL BE CHECKED. THE INTERFACE WITH THE BUILDING FIRE ALARM SYSTEM SHALL BE CHECKED.
- INSTRUMENTS USED FOR TESTING AND BALANCING SHALL HAVE BEEN CALIBRATED WITHIN A PERIOD OF SIX MONTHS OF THE TIME OF THE TESTING AND BALANCING AND SUCH INSTRUMENTS SHALL BE CHECKED FOR ACCURACY PRIOR TO START OF WORK. SUBMIT VERIFICATION OF CERTIFICATION TO THE OWNER.
- FOUR COPIES OF THE COMPLETE TEST REPORT SHALL BE SUBMITTED TO THE OWNER PRIOR TO FINAL INSPECTION OF THE PROJECT.
- THE TAB REPORT SHALL INCLUDE A LIST OF ALL DEFICIENCIES FOUND DURING THE PRELIMINARY TESTING AND A CONTRACTOR RESPONSE INDICATING REMEDIAL ACTION TAKEN FOR EACH ITEM. THE TAB WORK SHALL NOT BE DEEMED DONE WITHOUT THIS REPORT.

SYMBOL	MECHANICAL LEGEND
	SUPPLY AIR DIFFUSER – SEE DIFFUSER SCHEDULE.
	PERFORATED FACE SUPPLY AIR DIFFUSER – SEE DIFFUSER SCHEDULE.
	RETURN AIR GRILLE – SEE DIFFUSER SCHEDULE.
	EXHAUST AIR GRILLE – SEE DIFFUSER SCHEDULE.
	RIGID SHEET METAL DUCTWORK
	RIGID ROUND DUCTWORK
	FLEXIBLE DUCT
	MANUAL VOLUME DAMPER
	SMOKE DETECTOR
	REGISTER DESIGNATION, AREA, & FACE NECK SIZE TAB CFM NECK/FACE SIZE
	REMOTE TEMPERATURE SENSOR
	THERMOSTAT
	SPIN-IN WITHOUT AIR SCOOP

ABBREVIATIONS:

- ADJ = ADJUSTABLE
- AF = ATTIC FAN
- AFF = ABOVE FINISHED FLOOR
- BFC = BELOW FINISHED CEILING
- BTUH = BRITISH THERMAL UNITS PER HOUR
- CFM = CUBIC FEET PER MINUTE
- DB = DRY BULB
- F = DEGREES FAHRENHEIT
- DIA = DIAMETER
- EA = EXHAUST AIR
- EER = ENERGY EFFICIENCY RATIO
- EF = EXHAUST FAN
- ESP = EXTERNAL STATIC PRESSURE
- EUH = ELECTRIC UNIT HEATER
- FLA = FULL LOAD AMPS
- HP = HORSEPOWER
- HZ = HERTZ
- MAX = MAXIMUM
- MBH = 1000 BTUH
- MCA = MINIMUM CIRCUIT AMPS
- MOPP = MAXIMUM OVERCURRENT PROTECTION
- MVD = MANUAL VOLUME DAMPER
- OA = OUTDOOR AIR
- RA = RETURN AIR
- RH = RELATIVE HUMIDITY
- SA = SUPPLY AIR
- SEER = SEASONAL ENERGY EFFICIENCY RATIO
- TAB = TEST AND BALANCE
- TYP = TYPICAL
- WB = WET BULB
- Ø = PHASE OR DIAMETER

R-2002

DATE	RELEASE FOR CONSTRUCTION
04.17.20	

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Bojangles RESTAURANT
MECHANICAL NOTES, LEGEND & ABBREVIATIONS