ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITIES HAVING JURISDICTION
APPROX	APPROXIMATE
BLDG	BUILDING
CLG	CEILING
CONST	CONSTRUCTION
CD	CEILING DIFFUSER
CO2	CARBON DIOXIDE
CXA	COMMISSIONING AGENT
DEG	DEGREES
DTL	DETAIL
DM	STARBUCKS DESIGN MANAGER
DN	DOWN
DWG(S)	DRAWING(S)
EA	EACH
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRICAL
EM	EMERGENCY
(E) OR (EX)	EXISTING
EXT	EXTERIOR
EG	EXHAUST GRILLE
F&I	FURNISH & INSTALL
FLR	FLOOR
FT	FOOT/FEET
G	GAS PIPING
GC	GENERAL CONTRACTOR
HR	HOUR
HVAC	HEATING, VENTILATION, AIR CONDITIONING
I.D.	INSIDE DIMENSION
LL	LANDLORD
LV	LOW VOLTAGE
MAX	MAXIMUM
MECH	MECHANICAL
MC	MECHANICAL CONTRACTOR
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MFG	MANUFACTURER
MIN	MINIMUM
NTS	NOT TO SCALE
O.D.	OUTSIDE DIMENSION
OSA	OUTSIDE AIR
PM	PROJECT MANAGER
REF	REFERENCE
REQ'(D)	REQUIRE(D)
REV	REVISION
RG	RETURN GRILLE
RT	ROOFTOP
SHT	SHEET
SPECS	SPECIFICATION(S)
SF	SQUARE FEET
SST	STAINLESS STEEL
TEMP	TEMPORARY
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
WH	WATER HEATER
WSHP	WATER SOURCE HEAT PUMP

MECHANICAL SYMBOL LEGEND

- TYPICAL SUPPLY DUCT UP/DN
- TYPICAL RETURN OR EXHAUST DUCT UP/DN
- TURNING VANES
- EF-1 — EQUIPMENT DESIGNATION
- T — THERMOSTAT
- S — THERMOSTAT SENSOR
- SUPPLY AIR ARROW
- RETURN AIR ARROW
- DUCT HEATER
- MANUAL VOLUME DAMPER
- BDD — BACK DRAFT DAMPER
- SD — SMOKE DETECTOR
- S — COMBINATION SMOKE AND FIRE DAMPER
- SPIN-IN TAKE-OFF AND VOLUME DAMPER
- UNDERCUT DOOR
- CONNECT TO EXISTING
- 12 X 8 — INDICATES UNLINED 12" X 8" O.D. SHEETMETAL; 1ST FIGURE = SIDE SHOWN; 2ND FIGURE = SIDE NOT SHOWN
- 12 X 8 — INDICATED 14" X 10" O.D. SHEETMETAL W/ 1" SOUNDLINER (U.N.O), 12" X 8" I.D. NET
- FLEXIBLE DUCT CONNECTION
- FLEXIBLE DUCT
- 12" Ø / CD-1 / 400 — NECK SIZE; CFM WHERE APPLICABLE; DIFFUSER TYPE (REFER SCHEDULE)
- CEILING DIFFUSER (FLOW ARROWS SHOWN ONLY IF AIR FLOW NOT SYMMETRICAL)
- CEILING RETURN / EXHAUST GRILLE

MECHANICAL SPECIFICATION

GENERAL

SCOPE:
THE INTENT OF THE SPECIFICATIONS AND THE DRAWINGS IS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL MECHANICAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO COMPLETE THE MECHANICAL WORK.

SITE EXAMINATION:
THE MECHANICAL CONTRACTOR SHALL THOROUGHLY EXAMINE ALL AREAS WHERE EQUIPMENT, DUCTWORK, AND PIPING WILL BE INSTALLED AND WILL REPORT ANY CONDITION THAT, IN HIS OPINION, PREVENTS THE PROPER INSTALLATION OF THE MECHANICAL WORK.

STANDARDS:
EQUIPMENT AND MATERIALS SHALL CONFORM WITH THE APPROPRIATE PROVISIONS OF CSA, ULC, ARI,, ASME, ASTM, UL, NEMA, ANSI, SMACNA, ASHRAE, NFPA, AS APPLICABLE TO EACH INDIVIDUAL UNIT OR ASSEMBLY.

CODES:
ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE PROVINCIAL AND LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS AND THE CODES AND ORDINANCES, THE HIGHEST STANDARD SHALL APPLY. THE MECHANICAL CONTRACTOR SHALL SATISFY CODE REQUIREMENTS AS A MINIMUM STANDARD WITHOUT ANY EXTRA COST TO STARBUCKS.

PERMITS AND FEES:
THE MECHANICAL CONTRACTOR SHALL PROCURE AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY TO COMPLETE THE MECHANICAL WORK.

WARRANTY:
THE MECHANICAL CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY STARBUCKS AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.

LEED:
ALL WORK, MATERIALS AND EQUIPMENT SHALL MEET LEED REQUIREMENTS & CODE. IN CASE OF CONFLICT, THE HIGHER STANDARD SHALL APPLY.

HVAC EQUIPMENT AND MATERIALS

FILTERS
PROVIDE THREE (3) SETS OF PLEATED DISPOSABLE FILTERS. USE ONE SET UNTIL COMPLETION OF CONSTRUCTION. INSTALL ONE SET AT COMPLETION OF CONSTRUCTION AND DELIVER ONE SET OF FILTERS TO STARBUCKS LABELED TO DENOTE THEIR RESPECTIVE AIR HANDLING UNIT. FILTERS TO BE FARR, OR SIMILAR.

EXHAUST FANS
PROVIDE EXHAUST FAN(S) MANUFACTURED BY GREENHECK (OR APPROVED EQUAL). THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING DISCHARGE LOCATION WITH NEW AND EXISTING VENTS AND INTAKES. PROVIDE A COMPLETE INSTALLATION INCLUDING DUCTWORK FROM RESTROOM GRILLES TO UNIT AND NECESSARY ACCESSORIES. EXHAUST FAN(S) TO BE OPERATED IN CONJUNCTION WITH AIR HANDLING UNIT(S). CONTRACTOR SHALL PROVIDE ONE YEAR WARRANTY ON ALL PARTS AND LABOR.

AIR CURTAINS
AIR CURTAINS, WHEN REQUIRED, SHALL BE FURNISHED AND INSTALLED BY THE GENERAL CONTRACTOR. COORDINATE WITH ELECTRICAL CONTRACTOR FOR LOCATION OF POWER CONNECTION.

DUCTWORK AND ACCESSORIES

SHEETMETAL DUCTWORK
ALL DUCTWORK TO BE RIGID SHEETMETAL CONSTRUCTED FROM GALVANIZED SHEET STEEL IN ACCORDANCE WITH SMACNA LOW VELOCITY DUCT CONSTRUCTION STANDARDS. FIBERGLASS DUCTBOARD IS NOT ALLOWED. ALL EXPOSED DUCTWORK TO BE SPIRAL ROUND, OR RECTANGULAR LOCK-SEAM TYPE, AS SHOWN ON HVAC PLAN SHEET. ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICE FOR ACHIEVING AIRTIGHT (6% LEAKAGE) AND NOISELESS (NO OBJECTIONABLE NOISE) SYSTEMS, CAPABLE OF PERFORMING EACH INDICATED SERVICE. FURNISH AND INSTALL ALL REQUIRED DAMPERS, TRANSITIONS, CONNECTIONS TO AIR TERMINALS, AND OTHER ACCESSORIES NECESSARY FOR COMPLETE OPERATING SYSTEM. NO VARIATION OF DUCT CONFIGURATION OR SIZES WILL BE PERMITTED EXCEPT BY PERMISSION FROM THE ENGINEER.

DUCTWORK SHALL BE NEW GALVANIZED PRIME GRADE STEEL WITH GAUGES AND BRACING CONFORMING TO THE LATEST ASHRAE GUIDE AND DATA BOOK. ALL PANELS OF RECTANGULAR OR SQUARE DUCT 12" AND LARGER SHALL BE CROSS-BROKEN.

AT CONTRACTOR'S OPTION, FLEXIBLE DUCTWORK MAY BE USED FOR RUNOUTS TO SUPPLY DIFFUSERS IN CONCEALED DUCTWORK LOCATIONS. PRODUCT SHALL BE AS MANUFACTURED BY OWENS CORNING, CERTAIN-TEED, OWL-FLEX, OR APPROVED EQUAL AND SHALL MEET REQUIREMENTS OF UL 181 CLASS 1. FLEXIBLE DUCTWORK SHALL HAVE INNER SLEEVE, INSULATION (MIN 1/2" THICK, R-5), OUTER MOISTURE BARRIER JACKET, AND SELF-SUPPORTING FORM. DUCTWORK SHALL BE INSTALLED WITH MINIMUM OF TURNS & SHALL NOT BE BENT OR KINKED. AIR DISTRIBUTION SYSTEM AS SHOWN ON DRAWINGS IS DESIGNED FOR METAL DUCTWORK. FLEX SYSTEMS SHALL BE MODIFIED AS REQUIRED TO MEET OR EXCEED AIR QUANTITIES SHOWN. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN STRETCHED LENGTH.

EXPOSED DUCTWORK:
WHERE DUCTWORK IS TO BE EXPOSED TO VIEW IN OCCUPIED SPACES, PROVIDED MATERIALS WHICH ARE FREE FROM VISUAL IMPERFECTIONS INCLUDING PITTING, SEAM MARKS, ROLLER MARKS, STAINS AND DISCOLORATIONS, AND OTHER IMPERFECTIONS, INCLUDING THOSE WHICH WOULD IMPAIR PAINTING. SHEET METAL FOR EXPOSED DUCTWORK SHALL BE GALVANIZED AND MILL PHOSPHATIZED WITH SURFACES PREPARED FOR PAINTING.

DO NOT USE METAL STRAPS OR WIRE TO SUPPORT DUCTWORK EXPOSED IN FINISH SPACES. EXPOSED DUCTWORK SHALL BE SUPPORTED BY ALL-THREAD RODS, AND CIRCUMFERENTIAL STRAPS (FOR ROUND DUCTS) OR UNISTRUT TRAPEZE HANGERS (FOR RECTANGULAR DUCTS).

ALL EXPOSED DUCTWORK SHALL BE GALVANIZED STEEL DOUBLE WALL INSULATED ROUND, OVAL OR RECTANGULAR LOCK-SEAM TYPE. THERMAL DOUBLE WALL DUCTWORK REQUIRED FOR CONDENSATION CONTROL. DUCT TO BE CONSTRUCTED OF A SOLID INNER SURFACE LINED BY A LAYER OF INSULATION (R-6.0) AND PROTECTED BY A SOLID OUTER SHELL WHERE A COMBINATION ACOUSTICAL/THERMAL INSULATION IS EXPOSED BETWEEN SHELLS INSTEAD OF AN INNER ACOUSTICAL LINER WITHIN 10' FROM DISCHARGE OR INTAKE OPEN HANDLING. INNER SHELL SHALL BE PERFORATED FOR ACOUSTICAL FUNCTION. SEE ACOUSTICAL LINER SPECIFICATION SECTION.

DO NOT USE FLEX DUCTWORK IN EXPOSED AREAS ON THE RETURN OR EXHAUST DUCTWORK.

DUCT SEALANT:
SEAL ALL LONGITUDINAL AND TRANSVERSE JOINTS WITH A NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT, WITH VOC CONTENT NO GREATER THAN 250G/L AND OF A TYPE RECOMMENDED BY THE MANUFACTURER FOR SEALING JOINTS AND SEAMS IN SHEET METAL DUCTWORK. COVER ALL FIELD JOINTS, JOINTS AROUND SPIN-IN FITTINGS, AND FASTENING SCREWS WITH MASTIC.

SUPPORTS:
PROVIDE HOT-DIPPED GALVANIZED STEEL, FASTENERS, ANCHORS, RODS, STRAPS, TRIM, AND ANGLES FOR SUPPORT OF DUCTWORK.

DAMPERS:
PROVIDE OPPOSED-BLADE, MULTI-LEAF VOLUME CONTROL DAMPERS WHERE INDICATED ON DRAWINGS AND AT POINTS ON LOW PRESSURE SUPPLY, RETURN, AND EXHAUST DUCTS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS. PROVIDE CONVENIENTLY LOCATED ACCESS DOORS OF AMPLE SIZE AND QUANTITY FOR SERVICING INACCESSIBLE VOLUME CONTROL DAMPERS (BLOCKED BY OBSTRUCTIONS LIKE HARD CEILINGS) OR PROVIDE DURODYNE (OR EQUAL) CABLE OPERATED DAMPERS. PROVIDE UL LISTED FIRE OR FIRE/SMOKE DAMPERS WHERE REQUIRED AND IN ACCORDANCE WITH NFPA AND LOCAL CODES. PROVIDE CONVENIENTLY LOCATED ACCESS DOORS OF AMPLE SIZE AND QUANTITY FOR SERVICING THE FIRE OR FIRE/SMOKE DAMPERS. PROVIDE MOTORIZED DAMPERS AT ALL INTAKE & EXHAUST BUILDING OPENINGS IN ACCORDANCE WITH LOCAL CODES. COORDINATE WITH OTHER TRADES FOR ACCESS PANELS, POWER & FIRE ALARM INTERFACES.

CONTINUED

GRILLES, REGISTERS, AND DIFFUSERS:
GRILLES, REGISTERS, AND DIFFUSERS SHALL BE AS SPECIFIED AND SHALL BE MECHANICAL CONTRACTOR SUPPLIED, UNLESS OTHERWISE NOTED. DIFFUSERS SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS AND SCHEDULES. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS ITEMS NECESSARY FOR A COMPLETE AND PROPER INSTALLATION IN THE TYPE OF CEILING AND WALLS USED IN THIS PROJECT.

THERMAL INSULATION:
PROVIDE EXTERNAL THERMAL INSULATION WITH AN INTEGRAL VAPOR BARRIER FACING OF SUFFICIENT THICKNESS TO MEET LOCAL ENERGY CODE REQUIREMENTS OR ASHRAE 90.1-2013, WHICHEVER IS MORE STRINGENT. PROVIDE INSULATION ON EXHAUST AND OUTSIDE AIR DUCTS, AND ON CONCEALED PORTIONS OF SUPPLY AND RETURN AIR DUCTS. DO NOT EXTERNALLY INSULATE EXPOSED DUCTWORK AND PORTIONS OF DUCTWORK THAT ARE INTERNALLY LINED WITH CODE REQUIRED THICKNESS. THERMAL INSULATION TO COMPLY WITH AN NFPA FLAME SPREAD OF 25 OR LESS, AND SMOKE DEVELOPED NO GREATER THEN 50. INTERNALLY INSULATE EXTERIOR DUCTWORK PER CODE.

ACOUSTICAL DUCT LINER:
UNLESS OTHERWISE INDICATED ON THE PLANS, PROVIDE 1.5" (38MM) GLASS FIBER ACOUSTICAL DUCT LINER ON SUPPLY AND RETURN DUCTWORK WITHIN 10'-0" (305CM) OF THE DISCHARGE AND INTAKE OF AIR HANDLING UNITS. INCREASE DUCT SIZE INDICATED ON PLANS AS NEEDED TO ACCOMMODATE LINER. LINER SHALL BE FASTENED TO DUCT WITH MECHANICAL LINER FASTENERS IN ACCORDANCE WITH SMACNA. COMBINATION THERMAL/ACOUSTICAL LINER MEETING CODE MAY BE USED FOR 10'-0" IN DOUBLE WALL EXPOSED DUCT IN LIEU OF INNER ACOUSTICAL DUCT LINER. SEE EXPOSED DUCTWORK SPECIFICATION SECTION.

FLEXIBLE DUCTWORK:
FLEXIBLE DUCT WORK SHALL ONLY BE INSTALLED FOR SUPPLY DUCT AS SHOWN IN PLAN AND NOT ABOVE HARD LID CEILINGS UNLESS SHOWN ON PLAN. FLEXIBLE DUCTWORK SHALL NOT BE USED FOR EXHAUST OR RETURN OR EXCEED 5'-0" (152CM) IN LENGTH AND TWO 45° ELBOWS. IT SHALL BE PULLED TAUT AND APPROPRIATELY FASTENED TO RIGID BRANCH DUCT & DIFFUSER. BENDS SHALL BE MINIMIZED AND WHERE NEEDED BE A FULL RADIUS BEND. SUPPORT BANDS SHALL BE INSTALLED SO AS TO NOT CRIMP FLEX DUCT. FLEXIBLE DUCTWORK SHALL BE UL 181 LISTED AS A CLASS 1 AIR DUCT.

DAMPER AIR LEAKAGE:
MOTORIZED AND NON-MOTORIZED DAMPERS USED FOR OUTSIDE AIR INTAKES, EXHAUST & RETURN OUTLETS (INCLUDING THOSE WITHIN HVAC EQUIPMENT) SHALL HAVE A MAXIMUM AIR LEAKAGE VALUE PER THE ENERGY CODE OR ASHRAE 90.1 WHEN TESTED PER AMCA STD 500.

CONTROLS & OPERATION

WHETHER OR NOT AN EMS SYSTEM IS BEING PROVIDED, THE FOLLOWING COMPONENTS AND REQUIREMENTS SHALL BE PROVIDED. REFER TO ELECTRICAL SHEETS FOR MORE INFORMATION, INCLUDING DETAILS ABOUT VENSTAR SYSTEM COMPONENTS.

CONTROL WIRING
THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CONTROL WIRING IN CONDUIT NECESSARY FOR THE COMPLETE AND PROPER OPERATING TEMPERATURE CONTROL SYSTEM INCLUDING ALL MODES OF OPERATION AND INTERLOCK.

THERMOSTAT
THERMOSTAT(S) SHALL BE VENSTAR PROGRAMMABLE SERIES CT414 AND REMOTE SENSOR(S) RS410 (OR OPTIONAL RS420) FURNISHED AND INSTALLED PER LEASE.

ONE THERMOSTAT AND SENSOR IS PROVIDED FOR EACH AIR HANDLING UNIT. MOUNT THERMOSTAT(S) AND SENSOR(S) IN LOCATION & HEIGHTS AS INDICATED ON DRAWINGS. MECHANICAL CONTRACTOR TO PROVIDE THERMOSTAT IDENTIFICATION LABELS WITH 1/8" (3MM) HIGH WHITE LETTERS ON KELLY GREEN OR BLACK PHENOLIC BACKGROUND. I.E. "AC-1:WORKROOM" AND "AC2:CUSTOMER AREA". REFER TO THERMOSTAT SETUP INSTRUCTIONS BELOW FOR ADDITIONAL REQUIREMENTS.

THERMOSTAT SETUP INSTRUCTIONS
PROVIDE THE FOLLOWING SETUP AND PROGRAMMING ON THE THERMOSTAT:
1. FOLLOW INSTRUCTIONS IN THE MANUAL WHICH COMES WITH THE THERMOSTAT.
2. CONFIGURE AS FOLLOWS:
   - A. DEGREES °F DISPLAY
   - B. 12 HOUR CLOCK
   - C. CONTINUOUS FAN OPERATION IN OCCUPIED MODE
   - D. DISABLE KEYBOARD PROGRAMMING
3. SET CLOCK AND DAY
4. SET TO DISPLAY CURRENT TEMPERATURE
5. SET OCCUPIED START TIME AT 30MIN BEFORE OPENING. SET UNOCCUPIED START TIME AT 30MIN AFTER CLOSING. VERIFY HOURS WITH STORE MANAGER OR CONSTRUCTION MANAGER
6. SET POINTS SHALL BE AS FOLLOWS:
   - A. OCCUPIED (COOL DEADBAND 3° C DEADBAND)
     - I. HEATING: 21° F (21° C)
     - II. COOLING: 24° F (24° C)
   - B. UNOCCUPIED
     - I. HEATING: 15°C (15°C)
     - II. COOLING: 27°C (27°C)
7. SET TWO (2) HOUR OCCUPIED OVERRIDE FUNCTION TO PROVIDE THE FOLLOWING SET POINT OVERRIDES:
   - A. HEATING: +2° F (1° C)
   - B. COOLING: -2° F (1° C)

EXHAUST FANS
RESTROOM EXHAUST FAN(S) TO BE OPERATED IN CONJUNCTION WITH STORE HOURS UNLESS OTHERWISE NOTED/APPROVED. FAN(S) TO BE CONTROLLED BY LIGHTING CONTROL PANEL TO RUN CONTINUOUSLY IN OCCUPIED MODE. SEE E-5002, DETAIL 5.

ENERGY MANAGEMENT SYSTEM (EMS)

WHEN AN ENERGY MANAGEMENT SYSTEM IS TO BE INSTALLED, THE CONTRACTOR SHALL COORDINATE WITH THE EMS VENDOR FOR A COMPLETE SYSTEM. FURNISH AND INSTALL ALL LOW VOLTAGE WIRING THROUGH EC PROVIDED CONDUITS (COORDINATE WITH ELECTRICAL).

CONTRACTOR TO PROVIDE ONE THERMOSTAT AND REMOTE SENSOR PER HVAC UNIT. LOCATE AND MOUNT THERMOSTATS AND SENSORS PER THE DRAWINGS. PROVIDE THERMOSTAT IDENTIFICATION LABELS PER SPECIFICATION REQUIREMENTS.

CONTRACTOR TO PROGRAM AND COMMISSION CONTROL SYSTEM. EMS THERMOSTATS TO BE PROGRAMMED TO MEET LOCAL CODE REQUIREMENTS.

SMOKE DETECTORS

PROVIDE DUCT SMOKE DETECTORS IN THE SUPPLY AND RETURN DUCT (AS REQUIRED BY LOCAL CODE) OF EACH RTU THAT HAS A SUPPLY AIR FLOWRATE OF 2000 CFM OR GREATER (NOMINAL 5-TON OR LARGER), RTU SHALL BE DE-ENERGIZED UPON DETECTION OF SMOKE.

TESTING, ADJUSTING, BALANCING

MECHANICAL CONTRACTOR OR AN INDEPENDENT NEBB OR AABC CERTIFIED AIR BALANCE CONTRACTOR SHALL ACCURATELY BALANCE THE AIR SYSTEMS TO PROVIDE AIR QUANTITIES INDICATED ON THE DRAWINGS AND IN THIS SPECIFICATION. OPERATE AUTOMATIC CONTROLS SYSTEM AND VERIFY SET POINTS DURING BALANCING. SUBMIT TWO (2) COPIES OF THE BALANCE REPORT TO THE ENGINEER FOR APPROVAL. INCLUDE A COPY OF THE BALANCE REPORT AS APPROVED BY THE ENGINEER WITH APPLICATION FOR FINAL CONTRACT PAYMENT.

CONTRACTOR SHALL OPERATE ALL SYSTEMS UNTIL THE SATISFACTORY PERFORMANCE OF SPECIFICATION REQUIREMENTS IS DEMONSTRATED TO THE COMPLETE SATISFACTION OF THE OWNER. PRIOR TO, AND DURING OPERATION, ALL CONTROLS AND OTHER APPURTENANCES AND DEVICES SHALL BE ADJUSTED AND CALIBRATED.

THE CONTRACTOR, DURING OPERATION AND BALANCING PERIODS, SHALL INSTRUCT THE OWNER IN THE OPERATION AND CONTROL OF THE SYSTEMS AND MAINTENANCE SCHEDULE.

CONTINUED

REMOTE CONDENSING UNITS:
CONTRACTOR SHALL SET AND INSTALL REMOTE CONDENSING UNITS ON ROOF FOR ICE MACHINE. SET UNIT ON A PAIR OF PRE-FABRICATED ROOF RAILS. ANCHOR CONDENSING UNIT TO RAILS WITH GALVANIZED STRAPPING OR AIRCRAFT CABLE. CONTRACTOR SHALL PROVIDE AND INSTALL REFRIGERANT PIPING FROM REMOTE CONDENSING UNIT TO ICE MACHINE EVAPORATOR UNIT. SIZE PIPING AND PROVIDE INSTALLATION DETAILS AS REQUIRED BY MANUFACTURER. INSTALL THE ENTIRE REFRIGERANT SUCTION LINE WITH 1/2" ARMAFLEX. PROVIDE WHITE UV COATING ON ALL EXTERIOR INSULATION. USE MANUFACTURER'S ADHESIVE TO SEAL ALL SEAMS AND JOINTS. MITER ALL ELBOWS - DO NOT BEND INSULATION AROUND FITTINGS.

ICE MACHINE REMOTE CONDENSER SCHEDULE

DID NO.	REFRIGERANT	DIMENSIONS			VOLT/PH	FLA	MOCP	WEIGHT LBS.	MANUFACTURER	MODEL NUMBER	REMARKS
		WIDTH	DEPTH	HEIGHT							
10480	R-404	29 1/2"	37 3/4"	40"	208/1	1.3	15	145	ICE-O-MATIC	VRC-5061	1, 2

NOTES:
1. PROVIDE 40 FOOT PRECHARGED TUBING KIT.
2. SECURE UNIT TO ROOF SUPPORTS WITH CODE-APPROVED CABLING OR STRAPS.

ROOFTOP AC UNIT SCHEDULE (EXISTING, PROVIDED BY LANDLORD UNDER SEPARATE PERMIT)

UNIT NO.	SUPPLY CFM	O.A. CFM	TOTAL COOLING (TONS)	SENSIBLE COOLING (MBH)	ELEC HEAT, INPUT (KW)	ELEC HEAT, OUTPUT (MBH)	ENTERING AIR CONDITIONS			EXT. S.P., " W.C.	FAN HP	VOLT/PH	MCA	MOCP	E.E.R.	MANUFACTURER	MODEL NUMBER	REMARKS
							DB °F	WB °F	AMBIENT									
RTU-1	4,000	555	10	94.1	20.3	69	80	67	95	0.75	3.75	208/3	81.0	90	12.4	TRANE	THC-120	1,2,3,4,5,6,7,8
RTU-2	3,000	375	7.5	68.6	13.5	46	80	67	95	0.75	3.75	208/3	57.6	60	11.8	TRANE	THC-092	1,2,3,4,5,6,7,8

NOTES:
1. UNITS SHALL BE FURNISHED WITH MERV8 REPLACEABLE MEDIA FILTERS.
2. EXTEND FULL SIZE CONDENSATE DRAIN LINE TO ROOF GUTTER.
3. PROVIDE SMOKE DETECTOR IN SUPPLY & RETURN AIR DUCT DROPS.
4. PROVIDE MANUFACTURER'S STANDARD 14" HIGH FULL UNIT CURB TO MATCH ROOF SLOPE.
5. UNITS SHALL HAVE FACTORY MOTORIZED OUTSIDE AIR DAMPER WITH HOOD AND 100% FIXED DRY BULB ECONOMIZER WITH BAROMETRIC RELIEF. ECONOMIZER CONTROLS SHALL HAVE FAULT DETECTION AND DIAGNOSTIC CAPABILITIES MATCHING REQUIREMENTS OF 2017 FLORIDA BUILDING CODE - ENERGY CONSERVATION (FBCE) SECTION 403.2.4.7.
6. PROVIDE VENSTAR SURVEYOR MODEL CT414 PROGRAMMABLE TWO STAGE THERMOSTAT AND REMOTE TEMPERATURE SENSOR.
7. PROVIDE INTEGRAL DISCONNECT SWITCH.
8. ROOFTOP UNIT SHALL BE TESTED AND OPERABLE AND HAVE A ONE (1) YEAR COMPLETE UNIT WARRANTY AND FIVE (5) YEAR COMPRESSOR WARRANTY.

EXHAUST FAN SCHEDULE (EXISTING, PROVIDED BY LANDLORD UNDER SEPARATE PERMIT)

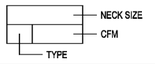
UNIT NO.	TYPE	CFM	S.P.	[illegible]NES	HP	VOLTS	PH.	FAN RPM	TIP SPEED	MANUFACTURER	MODEL	CONTROL	REMARKS
EF-1	ROOF	525	0.375		1/4	120	1	1315	-	GREENHECK	GB-098-VG-1/4	-	1,2,3,4

NOTES:
1. FAN TO BE CONTROLLED BY LIGHTING CONTROL PANEL TO RUN CONTINUOUSLY IN OCCUPIED MODE. SEE E-5002, DETAIL 5.
2. STATIC PRESSURE INCLUDES DUCTWORK AND AIR DEVICES ONLY.
3. PROVIDE FAN WITH BACKDRAFT DAMPER AND FAN SPEED CONTROLLER.
4. PROVIDE FAN WITH ROOF CURB TO MATCH ROOF SLOPE.

AIR DISTRIBUTION DEVICES

TYPE	DESCRIPTION	VOLUME CONTROL	FINISH	TITUS MODEL NO. OR AS NOTED	PROVIDED BY	QUANTITY
A	CEILING SUPPLY DIFFUSER	YES	WHITE	MODEL TMS-AA, 24"x24", 4-WAY	CONTRACTOR	4
B	CEILING SUPPLY DIFFUSER	YES	WHITE	MODEL TMS-AA, 24"x24", 4-WAY	CONTRACTOR	1
C	CEILING SUPPLY DIFFUSER	YES	WHITE	MODEL TMS-AA, 12"x12", 4-WAY	CONTRACTOR	2
D	CEILING SUPPLY DIFFUSER	YES	WHITE	MODEL TMS-AA, 12"x12", 4-WAY	CONTRACTOR	1
E	DUCT MOUNTED GRILLE	YES	WHITE	MODEL S300FS, 16"x6", DOUBLE DEFLECTION GRILLE W/AIR SCOOP	CONTRACTOR	4
F	DUCT MOUNTED GRILLE	YES	WHITE	MODEL S300FS, 12"x6", DOUBLE DEFLECTION GRILLE W/AIR SCOOP	CONTRACTOR	2
G	DUCT MOUNTED GRILLE	YES	WHITE	MODEL S300FS, 18"x6", DOUBLE DEFLECTION GRILLE W/AIR SCOOP	CONTRACTOR	8
H	CEILING RETURN GRILLE	YES	WHITE	MODEL 350FL, 24"x24"	CONTRACTOR	1
I	SIDEWALL RETURN GRILLE	YES	WHITE	MODEL 350FL, 24"x16"	CONTRACTOR	1
J	CEILING/WALL EXHAUST GRILLE	YES	WHITE	MODEL 350FL, 12"x12"	CONTRACTOR	3
K	SIDEWALL RETURN GRILLE	YES	WHITE	MODEL 350FL, 42"x24"	CONTRACTOR	1

NOTES:
1. COORDINATE MOUNTING TYPES WITH ARCHITECTURAL CEILING AND WALL TYPES, AND SEE NECK SIZES ON PLANS.



ENERGY MANAGEMENT SYSTEM (EMS) DEVICES

QUANTITY	DESCRIPTION	RESPONSIBILITY	COMMENTS
1	VENSTAR DC400, DATA CONCENTRATOR	CONTRACTOR	LOCATE AT MANAGER'S WORK STATION. LOCATION SHOWN ON SHEET E-5001, DETAIL 2.
2	VENSTAR ECP400, EQUIPMENT CONTROL PACK	CONTRACTOR	LOCATE AT EACH HVAC UNIT. LOCATION OF HVAC UNITS SHOWN ON SHEET M-1101.
2	VENSTAR CT414, COMMUNICATING THERMOSTAT	CONTRACTOR	LOCATE BY MANAGER'S WORK STATION AS SHOWN ON M-1101 AND E-1103. COORDINATE LOCATION WITH STARBUCKS' EQUIPMENT.
2	VENSTAR RS410, WALL MOUNT REMOTE TEMPERATURE SENSOR	CONTRACTOR	LOCATE AS SHOWN ON M-1101, ONE PER HVAC UNIT. COORDINATE LOCATION WITH STARBUCKS' ART, EQUIP.; PROJECT MANAGER.
0	VENSTAR RS420, OPTIONAL NARROW DROP DOWN SENSOR	CONTRACTOR	OPTIONAL SENSOR FOR WORKROOM. USE AS LAST RESORT ONLY IF NO SPACE EXISTS FOR WALL MOUNT TEMPERATURE SENSOR.
1	VENSTAR OTS400, OUTDOOR TEMPERATURE SENSOR	CONTRACTOR	LOCATE ON ROOF IN SHADED LOCATION ON NORTH SIDE OF BUILDING.
1	VENSTAR SP400, SENSOR PAC	CONTRACTOR	LOCATE COMPONENTS (AIRFLOW & TEMP SENSORS) PER SP400 SENSOR PAC INSTALLATION INSTRUCTIONS.

NOTES:
1. EMS DEVICES FURNISHED BY EMS VENDOR: VENSTAR. CONTACT: SBUXQUOTES@VENSTAR.COM, 818-812-9805. COMPONENTS INSTALLED BY CONTRACTOR.
2. THE SCHEDULED COMPONENTS SHALL BE PROVIDED FOR A COMPLETE AND FUNCTIONAL SYSTEM. SEE SPECIFICATION ABOUT EMS SYSTEM REQUIREMENTS.

ELECTRICAL / MECHANICAL COORDINATION NOTES:

PROVIDE AND COORDINATE LINE VOLTAGE WIRING, LINE VOLTAGE CONTROL AND INTERLOCK WIRING FOR MECHANICAL SYSTEMS, AND LOW VOLTAGE CONTROL WIRING.

FURNISH WIRING DIAGRAMS TO THE ELECTRICIAN AS REQUIRED FOR PROPER EQUIPMENT HOOKUP. COORDINATE WITH THE ELECTRICIAN THE ACTUAL WIRE SIZING AMPS FOR MECHANICAL EQUIPMENT (FROM THE EQUIPMENT NAMEPLATE) TO ENSURE PROPER INSTALLATION.

VENTILATION SCHEDULE

ROOM NAME	AREA, SQ. FT.	OCCUPANTS PER 1000 SQ. FT.	OCCUPANT LOAD	O.A. PER PERSON, CFM	OCCUPANT O.A., CFM	O.A., CFM PER SQ. FT.	AREA O.A., CFM	BASE O.A. REQUIRED (CFM)	VENT EFF.	TOTAL O.A. REQUIRED (CFM)	SERVED BY
RESTAURANT (DINING ROOM)	651	70	58	7.5	435	0.18	117	552	1.0	555	RTU-1
BEV. PREP. (RETAIL SALES)	190	15	4	7.5	30	0.12	23	53	1.0	80	RTU-2
WORKROOM	471	10	2	5	10	0.12	57	67	1.0	70	RTU-2
								TOTAL - 672		TOTAL - 705	

NOTES: 1. SET OUTSIDE AIR AS CALLED OUT ON THE RTU SCHEDULE.
2. OUTSIDE AIR BASED ON CODE OCCUPANCY LISTED ON SHEET G-0001 AND ON 4 PEOPLE IN BEV. PREP (RETAIL SALES) AREA TO MEET LEED REQUIRMENTS.

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