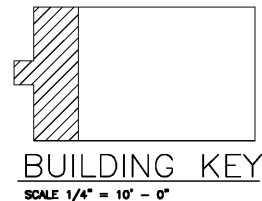


DRAWING INFORMATION		
DATE	DESCRIPTION	BY
06-07-18	FOR CONSTRUCTION	KM
06-19-18	UPDATED	KM
06-28-18	UPDATED	KM

NCA
CONSULTANTS/GROUP
4585 140TH AVE. NORTH, SUITE #1001
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NCA JOB# 18-078



ARCHITECT OF RECORD
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ATTENTION GENERAL CONTRACTOR: "RE-ENGINEERING" DEVIATIONS FROM THE SHOWING AND REQUIRED HVAC EQUIPMENT MUST BE APPROVED IN ADVANCE BY THE ARCHITECT AND PROFESSIONAL ENGINEER. UNAUTHORIZED SUBSTITUTIONS OR ALTERATIONS WILL VOID THE SIGNATURE AND SEAL OF THE PROFESSIONAL ENGINEER AND LEAVE VIOLATORS RESPONSIBLE FOR RESUBMISSION OF SIGNED AND SEALED DRAWINGS.

CONTRACTORS NOTES

- HVAC CONTRACTOR**
- THE HVAC CONTRACTOR IS TO FURNISH AND INSTALL THE FOLLOWING ROOF-TOP UNITS, EXHAUST FANS, DUCTWORK, INSULATION WORK, DIFFUSERS, SMOKE DETECTORS, AND TEMPERATURE CONTROLS. THE WALK-IN COLD STORAGE NOT THIS CONTRACT.
 - THE HVAC CONTRACTOR TO VERIFY LOCATIONS FOR RTU-1 AND THE HOOD ON SITE FROM MOST RECENT KITCHEN EQUIPMENT PLANS. ALL FANS ARE TO BE U.L. LISTED.
 - ALL HVAC EQUIPMENT CURBS ARE TO BE PROVIDED BY THE HVAC CONTRACTOR.
 - ALL RTU CURBS ARE TO BE FABRICATED FROM 18 GA. GALVANIZED METAL WITH FULLY WELDED SEAM WATER TIGHT AND INTERNALLY INSULATED. FACTORY CURB CONNECTION SHALL NOT BE ACCEPTED.
 - SHIMS ARE TO BE PROVIDED BY HVAC CONTRACTOR BETWEEN THE ROOF DECK AND THE CURBS TO COMPENSATE FOR ROOF PITCH.
 - ALL FLEX DUCTWORK TO BE U.L. LISTED, R-8, FOIL-BACKED, CLASSIFIED AS A CLASS 1 AIR DUCT. MAXIMUM LENGTH PER LOCAL CODE.
 - ALL METAL DUCT AND AIR DISTRIBUTION DEVICES ARE TO BE INSULATED WITH R-8, 2" MIN. DENSITY FOIL-BACKED INSULATION, WITH FIRE AND SMOKE RATING [25]-[50]. ALL DUCTWORK IS TO BE INDEPENDENTLY HUNG FROM STRUCTURAL MEMBERS.
 - ALL DUCTWORK IS TO BE FABRICATED, INSTALLED, SEALED, AND EXTERNALLY INSULATED PER SMACNA LOW-Velocity DUCT MANUAL (LATEST ISSUE). INTERNALLY LINED DUCTWORK IS NOT ALLOWED.
 - UNLESS OTHERWISE NOTED, ALL SUPPLY TAKEOFFS ARE TO HAVE A MANUAL VOLUME CONTROL DAMPER.
 - THE HVAC CONTRACTOR IS TO COORDINATE DIFFUSER LOCATIONS ON SITE WITH THE MOST RECENT REFLECTED CEILING PLAN.
 - THE HVAC CONTRACTOR IS TO FURNISH A WRITTEN GUARANTEE COVERING A ONE-YEAR PERIOD FOR ALL HVAC EQUIPMENT AND PROVIDE AN ADDITIONAL FOUR-YEAR PERIOD FOR THE COMPRESSORS IN THE RTUs. ALL FANS TO BE U.L. LISTED.
 - UPON COMPLETION OF PROJECT THE HVAC CONTRACTOR IS TO HIRE AN A.A.B.C. OR N.E.B.B. CERTIFIED, INDEPENDENT TEST AND BALANCE COMPANY TO CONDUCT A COMPLETE, CERTIFIED TEST AND BALANCE OF ALL HVAC EQUIPMENT. PROVIDE A WRITTEN REPORT TO NCA CONSULTANTS. ALL CAPACITIES MUST BE SET TO AMOUNTS INDICATED ON THE FLOOR PLANS AND SCHEDULES.
 - THE HVAC CONTRACTOR IS TO MAKE ALL LOW-VOLTAGE WIRING FINAL CONNECTIONS FOR ALL HVAC EQUIPMENT INCLUDING TEMPERATURE CONTROLS, RTUs, AND SMOKE DETECTORS.

- GENERAL CONTRACTOR**
- IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO REMOVE, OFFLOAD, AND STORE ALL HVAC MATERIALS AT THE JOB SITE. ALL MATERIAL MUST BE STORED INSIDE THE BUILDING. HOOD MUST BE STORED IN THE KITCHEN.
 - IT IS VERY IMPORTANT THAT ACCURATE MEASUREMENTS ARE USED WHEN LOCATING EXHAUST FAN ROOF OPENING. COORDINATE ROOF OPENINGS WITH THE KITCHEN EQUIPMENT PLAN AND EXHAUST HOOD PLANS. OBTAIN THE CORRECT PLANS FROM THE KITCHEN EQUIPMENT SUPPLIER.
 - RTU ROOF OPENING SIZES AND ROOF CURBS ARE BASED ON EQUIPMENT SHOWN. IF OTHER EQUIPMENT IS USED, VERIFY WHICH ABOVE AT THE JOB SITE. MAKE PENETRATION AS NEEDED FOR INSTALLATION OF NEW CURB AND RTU. COORDINATE ON SITE WITH HVAC CONTRACTOR. ENSURE THAT ROOFING MATERIAL DOES NOT COVER THE TOP OF ANY HVAC EQUIPMENT CURBS.
 - ALL ROOF, CEILING, WALL, AND STRUCTURAL FRAMING REQUIRED FOR UNIT, FAN, DUCT, DIFFUSER, AND ALL OTHER HVAC WORK IS TO BE BY THE G.C. COORDINATE ON SITE WITH HVAC CONTRACTOR. GENERAL CONTRACTOR IS TO PROVIDE CURBS, GUARD RAILS, ETC. FOR ROOF-MOUNTED HVAC EQUIPMENT PER IBC AND LOCAL CODES.
 - IF NECESSARY THE GENERAL CONTRACTOR IS TO REMOVE, REPLACE, AND/OR REPAIR CEILING GRID AND TILES IN ORDER FOR THE HVAC WORK TO BE PERFORMED.
 - THE GENERAL CONTRACTOR IS TO PRIME AND PAINT THE EXPOSED HVAC WORK IN THE DINING AREA.

- ELECTRICAL CONTRACTOR**
- THE ELECTRICAL CONTRACTOR IS TO FURNISH AND INSTALL PITCH POCKETS FOR POWER AND CONTROL WIRING, AND IS TO MAINTAIN 12" MINIMUM CLEARANCE FROM BACK PANEL OF AIR CONDITIONING UNITS. DO NOT PENETRATE BOTTOM OF RTU CURB.
 - THE ELECTRICAL CONTRACTOR IS TO INSTALL LOW-VOLTAGE CONTROL WIRING FOR ALL AIR CONDITIONING CONTROLS.
 - THE ELECTRICAL CONTRACTOR IS TO FURNISH AND INSTALL DISCONNECTS FOR RTUs, WIRE THE RESTROOM EXHAUST FAN TO RUN CONTINUOUSLY WHILE THE DINING ROOM LIGHTS ARE ON. WIRE THE KITCHEN / HOOD EXHAUST FAN THROUGH THE OCCUPIED / UNOCCUPIED PANEL. NOTE: IF THE PANEL IS NOT UTILIZED, AND IF THE HOOD FANS ARE NOT CONTROLLED BY TEMPERATURE PROBES IN THE HOOD DISCHARGE COLLARS (SEE HOOD DETAILS, THIS SET) THEN THE ELECTRICAL CONTRACTOR IS TO WIRE THE KITCHEN / HOOD FANS TO BE ENERGIZED DURING STORE OPERATIONAL HOURS.
 - THE ELECTRICAL CONTRACTOR IS TO USE A MINIMUM OF 4"-8" SEALTITE FLEXIBLE CONDUIT WHEN WIRING KITCHEN EXHAUST FANS ON ROOF SO THAT FANS MAY BE REMOVED FROM CURBS AND PLACED ON ROOF FOR CLEANING EXHAUST DUCTWORK.
 - FOR EACH UNIT, THE ELECTRICAL CONTRACTOR IS TO PROVIDE ONE SINGLE-GANG RECEPTACLE TEST STATION FOR THE T-STAT, AND ONE DOUBLE-GANG RECEPTACLE TEST STATION FOR THE ANNUNCIATOR, WITH GREEN AND RED LIGHT INDICATORS. THE FIRE AND MECHANICAL INSPECTORS WILL DETERMINE SUITABLE LOCATION FOR TEST STATIONS. ANNUNCIATORS AND TEST STATION WILL BE LOOPED IN THE CIRCUITRY OF THE SMOKE DETECTION DEVICES. WIRING WILL BE INSTALLED BY ELECTRICAL CONTRACTOR.

- PLUMBING CONTRACTOR**
- THE PLUMBING CONTRACTOR IS TO PROVIDE AND INSTALL CONDENSATE DRAINS/GAS PIPING FOR ALL HVAC EQUIPMENT, AND PITCH POCKETS FOR RTU CONNECTIONS. DO NOT PENETRATE BOTTOM OF RTU CURB.
 - THE PLUMBING CONTRACTOR IS TO COORDINATE PLUMBING VENT STACKS AND WATER HEATER FLUES WITH OUTSIDE AIR INTAKES OF A/C UNITS. 10'-0" MINIMUM CLEARANCE REQUIRED OR PER LOCAL CODE.
 - THE PLUMBING CONTRACTOR IS TO PROVIDE AND INSTALL FLUE GAS EXHAUST VENT FOR WATER HEATER. MAINTAIN 10'-0" MINIMUM CLEARANCE TO AIR INTAKES, OR PER LOCAL CODE. COORDINATE ON SITE WITH G.C. AND HVAC CONTRACTOR.

UPON COMMENCEMENT OF ROUGH-IN AS SCHEDULED BY NCA CONSULTANTS, THE AIR CONDITIONING CONTRACTOR IS TO REMAIN ON THE JOB SITE FULL TIME UNTIL THE ROUGH-IN IS 100% COMPLETE. THE GENERAL CONTRACTOR'S SITE SUPERINTENDENT WILL VERIFY. UPON COMMENCEMENT OF TRIM-OUT AS SCHEDULED BY NCA CONSULTANTS, THE AIR CONDITIONING CONTRACTOR IS TO REMAIN ON THE JOB SITE FULL TIME UNTIL THE TRIM-OUT IS 100% COMPLETE. THE GENERAL CONTRACTOR'S SITE SUPERINTENDENT WILL VERIFY.

KEYED NOTES

- PROVIDE TYPE-B "HEAT ONLY" HOOD OVER TOASTER AND TURBOCHEF OVENS. RUN 10" SHEETMETAL DUCT FROM CONNECTION HOOD TO EXHAUST FAN ON ROOF. OFFSET AND TRANSITION AT CONNECTIONS AS NEEDED. VERIFY DIMENSIONS PRIOR TO FABRICATION OR INSTALLATION. REFER TO DETAIL ON SHEET M-3. USE FACTORY-MANUFACTURED PIPE AND FITTINGS ONLY. CONFIRM LOCATION ON SITE WITH MOST RECENT KITCHEN PLANS.
- PROVIDE REMOTE SENSOR 86° A.F.F. IN A WALL NEAR LOCATION SHOWN. SEAL WALL OPENINGS WITH CALULX AUDIO-VISUAL ANNUNCIATOR TIED INTO SMOKE DETECTOR. PROVIDE THERMOSTATS IN MANAGERS AREA. COORDINATE LOCATION ON SITE WITH G.C. AND EQUIPMENT. AVOID SOURCES OF HEAT. INSULATE BACKS OF SENSORS.
- TYPE "B" FLUE THROUGH ROOF WITH CONE FLASHING, RAIN SHIELD, AND WEATHER-PROOF CAP PROVIDED BY PLUMBING CONTRACTOR. DISCHARGE SHALL BE MINIMUM 10 FEET FROM AIR INTAKES. OFFSET AND TRANSITION AT CONNECTIONS AS NEEDED. USE FACTORY-MANUFACTURED PIPE AND FITTINGS ONLY. COMBUSTION AIR IS PROVIDED VIA NATURAL DRAFT USING OUTSIDE AIR FROM THE ROOF-TOP UNITS.
- RUN 6" EXHAUST DUCT TO EXHAUST FAN ON ROOF AS SHOWN. OFFSET AND TRANSITION AS NEEDED.
- (UN-USED.)
- SHIM CURBS ON ROOF IN ORDER TO MAKE TOP OF CURBS LEVEL. SEE DETAIL ON SHEET M-2. CONFIRM STRUCTURAL FRAMING ON SITE PRIOR TO LAYING OUT ROOF PENETRATIONS.

AIR DEVICE SCHEDULE

SYM.	SIZE	TYPE	DUCT SIZE	MODEL#	FINISH	BOOT SIZE	OPENING SIZE	QTY.
A*	24X24	SUPPLY 4 WAY	12"	NCA12	WHITE	12"	T-BAR	4
A2*	24X24	SUPPLY 4 WAY	12"	NCA12	BLACK	12"	T-BAR	2
B**	24X24	SUPPLY PERF	12"	APDF3-1424	WHITE	12"	T-BAR	3
C***	18X12	SUPPLY SIDEWALL	---	P820DF-1812	BLACK	---	SIZE + 1/4"	4
D****	12X12	SUPPLY 1 WAY	6"	630	WHITE	12X12	SIZE + 1/4"	1
E	24X24	RETURN	18"	630TB	WHITE	22X22	T-BAR	2
F	24X24	EXHAUST	10"	630TB	WHITE	22X22	T-BAR	0
G	12X12	EXHAUST	6"	630	WHITE	12X12	SIZE + 1/4"	1

ALL DIFFUSERS SHALL BE MANUFACTURED BY METALAIR OR EQUIVALENT AND 100% ALUMINUM CONSTRUCTION * PROVIDE WITH PVC99 SLIDING-BLADE DAMPER AND TWO 24X24 LAY-IN FRAMES FOR INSTALLATION IN SHEETROCK CEILING
** PROVIDE WITH THREE 14"-10"-12" REDUCERS FOR TOPS OF DIFFUSERS
*** PROVIDE WITH OPPOSED-BLADE DAMPER AND DUAL DEFLECTION BLADES
**** PROVIDE WITH OPPOSED-BLADE DAMPER

AIR BALANCE SCHEDULE

TAG	SUPPLY AIR	OUTSIDE AIR	RETURN AIR	EXHAUST AIR	PRESSURE	% OUTSIDE AIR
RTU-1	2000 CFM	400 CFM	1600 CFM	---	0 CFM	20
RTU-2	2000 CFM	400 CFM	1600 CFM	---	0 CFM	20
EF-1	---	---	---	470 CFM	---	---
EF-2	---	---	---	150 CFM	---	---
TOTAL	4000 CFM	800 CFM	3200 CFM	620 CFM	+	20

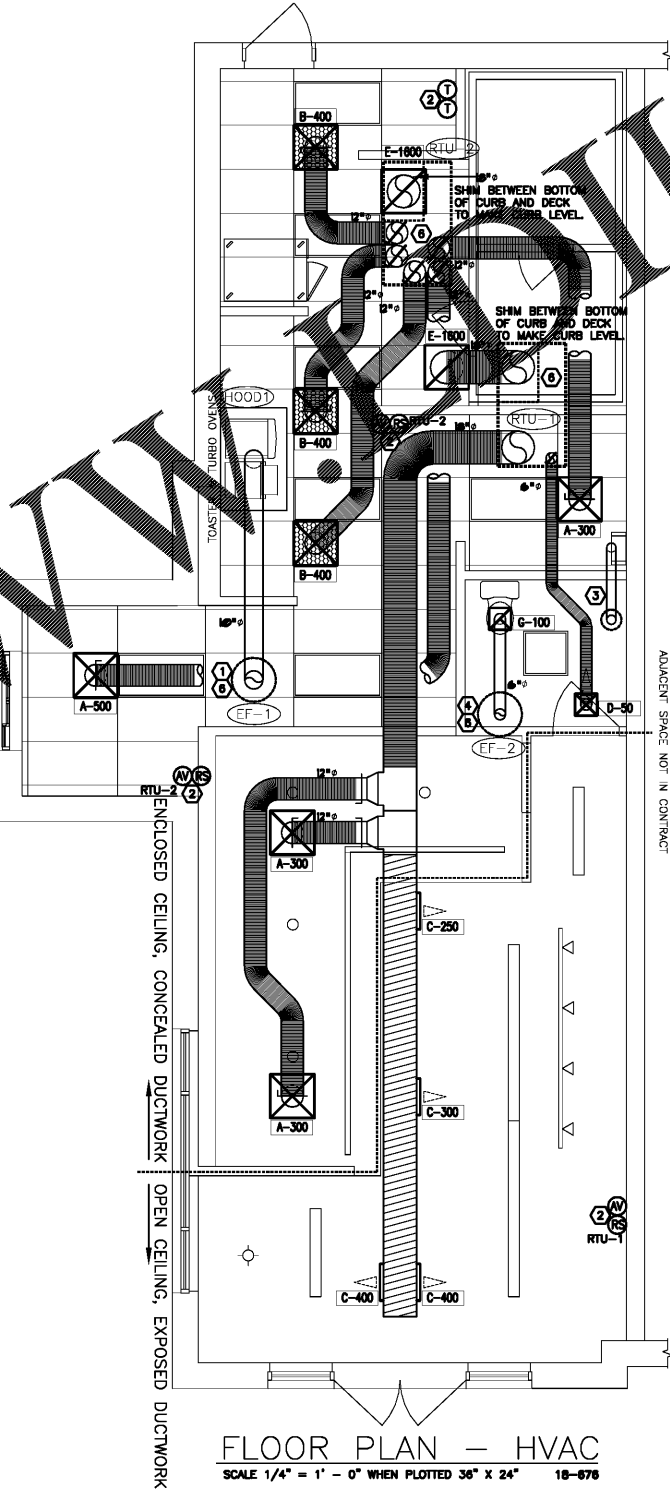
FAN SCHEDULE

UNIT NUMBER	EF-1	EF-2
AREA SERVED	TOASTER/OVENS	RESTROOMS
MANUFACTURER	CAPTIVE AIRE	CAPTIVE AIRE
MODEL	RE12HFA	DR10HFA
CFM	470	100
STATIC PRESSURE, "WG	0.825	0.375
FAN HORSEPOWER	0.18	0.08
DRIVE	DIRECT	DIRECT
PHASE	1433	1205
ELECTRICAL V/PHASE/HZ	120/1/60	120/1/60
NCA CURB SIZE/WH @ FLANGE	17.5X17.5X12	17.5X17.5X12
ACCESSORIES	A,B,D,E,G,H,K,L,M	A,B,D,E,G,H,I,L,M
NOTES/ACCESSORIES	G. INTERLOCK WITH SALES FLOOR LIGHTS H. 12" HIGH PREFABRICATED ROOF CURB J. CONTROLLED BY TEMP. PROBES IN HOODS. SEE SHEET M-3 K. REFER TO KITCHEN BALANCE SCHEDULE L. ENSURE 10' - 0" MINIMUM CLEARANCE FROM AIR INTAKES M. COORDINATE WITH MANUFACTURER FOR FINAL SELECTION N. WALL SWITCH BY ELECTRICAL CONTRACTOR	

PACKAGE ROOFTOP UNIT SCHEDULE (RTU-1,2)

TAG	RTU-1,2
MANUFACTURER	CARRIER
MODEL	48HC6A05 (5 TON)
LOCATION, CURB DIMENSIONS	ROOF, 67" X 37"
TYPE OF HEAT	NATURAL GAS
TOTAL COOLING CAPACITY, MBTU/HR	61.9
SENSIBLE COOLING CAPACITY, MBTU/HR	47.7
ENTERING AIR CONDITIONS, DB/F WBF	80/67
AMBIENT AIR DB TEMPERATURE, °F	95
SUPPLY AIR, CFM	2000
OUTSIDE AIR, CFM	SEE SCHEDULE
EXTERNAL STATIC PRESSURE, "WG	0.25
BHP - MEDIUM STATIC MOTOR	2.24
E.E.R.	15.2 (S.E.E.R.)
GAS INPUT MBTU/HR	82/115
GAS OUTPUT MBTU/HR	86/93
UNIT WEIGHT, LBS.	750
ELECTRICAL REQUIREMENT, V/PHASE/HZ	208-230/3/60
MINIMUM CIRCUIT AMPERAGE	28.5
MAXIMUM OVER CURRENT PROTECTION	40

ACCESSORIES:
1. 100% ECONOMISER WITH BAROMETRIC RELIEF
2. NCA PLENUMIZED CURB, TO ORDER CALL TOLL-FREE (877) 530-0078.
3. ONE YEAR COMPLETE PARTS AND LABOR WARRANTY
4. ADDITIONAL FOUR YEAR PARTS WARRANTY COVERING COMPRESSORS
5. SMOKE DETECTOR (SEE HVAC ROOF PLAN, SHEET M-2)
6. ADJAGUARD AG-3180E MOISTURE SENSOR FOR PRIMARY PAN
NOTE: COORDINATE RTU PLACEMENT ON SITE PRIOR TO SETTING EQUIPMENT. IF ADJUSTMENT IS NECESSARY MAINTAIN FRESH AIR INTAKE CLEARANCES, INCLUDING EQUIPMENT ON ADJACENT SPACE.



FLOOR PLAN - HVAC
SCALE 1/4" = 1' - 0" WHEN PLOTTED 36" X 24" 18-078

NOTE: ALL EXPOSED DUCTWORK IS TO BE DOUBLE-WALLED, INSULATED SPIRAL PIPE. COORDINATE ON SITE WITH G.C. AND EXISTING CONDITIONS. ENSURE THAT NO DUCT SEALER IS VISIBLE ON OUTSIDE OF DUCTWORK.

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PLENUMIZED CURB INSTALLATION NOTES

- CAREFULLY LOCATE AND MARK ROOF CURB LOCATIONS SO THAT DUCT WORK CAN BE INSTALLED IN THE APPROPRIATE LOCATIONS AS SHOWN BY THE FLOOR PLAN. PAY ATTENTION TO THE LOCATION OF THE ROOF STRUCTURE IN ORDER TO ACCOMMODATE THE DUCT DROPS.
- MARK THE EXACT LOCATION OF EACH ROOF CURB. LOCATE ALL EQUIPMENT LOCATIONS IN ORDER TO MAINTAIN PROPER CLEARANCES FROM EXHAUST FANS AND VENTS AS WELL AS PROVIDING FOR PROPER SERVICE CLEARANCES.
- GENERAL CONTRACTOR SHALL CUT ROOF DECKING MATERIAL TAKING CARE TO AVOID CUTTING ANY STRUCTURAL COMPONENTS. GENERAL CONTRACTOR SHALL ALSO INSTALL ANCHOR BOLT FRAMING OR BLOCKING AS SHOWN.
- WITH ROOF DECKING INSIDE DOWN, SOLID METAL BOTTOM LIP MEASURE AND MARK THE LOCATION OF ANY UNITS OR OTHER FRAMING MEMBERS THAT MUST BE AVOIDED. ENSURE AND MARK THE LOCATION OF ALL THE DUCT TAPS.
- CUT ALL DUCT TAPS FROM THE BOTTOM PANEL OF THE ROOF CURB. BE CAREFUL NOT TO DAMAGE THE ROOFING SURFACE WHILE MAKING THESE CUTS.
- INSTALL DUCT TAP FITTINGS AND MANUAL DAMPERS INTO THE OPENINGS PREVIOUSLY CUT. SEAL ALL CONNECTIONS ON BOTH THE BOTTOM AND THE TOP SIDES OF THE TAPS.
- FLATTEN TAB OF START COLLAR INSIDE CURB, TIGHT AGAINST INSULATION. SEAL INSIDE OF COLLAR AND TABS TO INSULATION USING MASTIC DUCT SEALER. ALLOW SEALER TO DRY PRIOR TO PROCEEDING.
- APPLY DUCT SEALER TO OPEN END OF COLLAR. SEAL INNER CORE OF FLEXIBLE DUCT ONTO COLLAR, AND CONNECT PANDUIT STRAP PER MANUFACTURERS INSTRUCTIONS.
- SLIDE OUTER INSULATION SLEEVE OF FLEX TIGHT TO BOTTOM OF CURB. SEAL INSULATION TO BOTTOM OF CURB WITH PRESSURE-SENSITIVE FOIL TAPE. DO NOT USE TAPE MEANT FOR RIGID DUCTBOARD. SQUEEGEE OUT ALL AIR BUBBLES FOR PROPER ADHESION.
- TURN CURB RIGHT SIDE UP, LEVEL CURB BETWEEN BOTTOM OF CURB AND DECK, INSTALL IN ROOF OPENING. SECURE CURB TO ROOF FRAMING AS REQUIRED.
- GENERAL CONTRACTOR OR ROOFING CONTRACTOR SHALL FLASH AND ROOF IN THE CURB AS DETAILED ON THE DRAWINGS.
- INSIDE BUILDING, THE DUCT RUNS SHALL BE INSTALLED FROM THE TAPS TO THE DIFFUSER LOCATIONS AS SHOWN ON THE PLANS. SUPPORT PER SMACNA AND LOCAL CODES.
- NOTE: IF NECESSARY, FLEX DROPS MAY BE CONNECTED TO TAPS AFTER CURB HAS BEEN INSTALLED. REFER TO STEPS #8 AND #9.

Order

Ron Renna, P.E.

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DUNKIN'

dunkin'
brand
STORE #357281
JEFFERSON DAVIS HWY
DUMFRIES, VA

REVISION

No.	DATE	DESCRIPTION

DWG DATE: 06-29-2018
DRAWN BY: stiaff
PROJECT No.: 17157
DWG TITLE:

HVAC FLOOR PLAN, NOTES, AND SCHEDULES

SHEET No.

M-1