

VERIFY LOCATION ON SITE WITH MOST RECENT KITCHEN EQUIPMENT PLANS. MARK RISER LOCATION ON FLOOR AND PLUMBBOB UP FOR ACCURATE LOCATION OF DECK PENETRATION. DIMENSIONS SHOWN ARE FROM STUDS. HVAC CONTRACTOR SHALL INSTALL ROUND METALFAB DOUBLE-WALLED EXHAUST DUCT FOR FRYER HOOD AND BROILER/OVEN HOOD FROM COLLAR ON HOOD TO FLANGE ON FAN ON ROOF AS SHOWN. REFER TO ROOF PLAN ON SHEET M-2 FOR POSITION OF CURB AND FAN. HOOD, FAN, AND DUCT FURNISHED BY OTHERS, INSTALLED BY HVAC CONTRACTOR.

NOTE: EXCLUDING THE DUCT THAT SHIPS WITH THE HOODS, THE EXHAUST RISERS CANNOT HAVE ADDITIONAL FIELD OFFSETS. TRUSSES CLOSEST TO THE EXHAUST RISERS MUST BE SPACED SO THAT NO ADDITIONAL OFFSETS ARE NEEDED. FIELD VERIFY AND COORDINATE WITH GENERAL CONTRACTOR (TYP. 2).

ATTENTION GENERAL CONTRACTOR:
"RE-ENGINEERING" DEVIATIONS FROM THE SHOWN DESIGN AND REQUIRED HVAC EQUIPMENT MUST BE APPROVED IN ADVANCE BY THE DESIGN PROFESSIONAL. ANY 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.

DRAWING INFORMATION		
DATE	DESCRIPTION	BY
01-13-20	FOR CONSTRUCTION	JJ

CONTRACTORS NOTES

HVAC CONTRACTOR

- THE HVAC CONTRACTOR SHALL FURNISH AND INSTALL THE HVAC SYSTEM AS SHOWN IN THE NCA HVAC EQUIPMENT PACKAGE NOTE, THIS SHEET.
- THE HVAC CONTRACTOR SHALL INSTALL THE EXHAUST HOOD. REFER TO MOST RECENT KITCHEN PLANS ON SITE. **INSTALL ALL EXHAUST DUCT PER MANUFACTURERS INSTALLATION INSTRUCTIONS. SEE SHEET M-3.** VERIFY LOCATION ON SITE WITH MOST RECENT KITCHEN EQUIPMENT PLAN.
- ALL AIR CONDITIONING UNIT CURBS SHALL BE SUPPLIED BY NCA CONSULTANTS.
- ALL AIR CONDITIONING UNIT CURBS SHALL BE FABRICATED BY NCA CONSULTANTS FROM 18 GA. GALVANIZED METAL WITH WELDED SEAMS, WATER TIGHT AND INTERNALLY INSULATED.
- SHIMS SHALL BE PROVIDED BY HVAC CONTRACTOR BETWEEN THE ROOF DECK AND THE CURB AS NEEDED TO COMPENSATE FOR ROOF PITCH.
- ALL FLEX DUCT SHALL BE FOIL-BACKED, R-6, U.L. LISTED, CLASSIFIED AS A CLASS 1 AIR DUCT, AND MEET LOCAL CODE REQUIREMENTS.
- EXCLUDING ANY EXPOSED DUCTWORK, ALL NON-FLEXIBLE DUCT AND ALL AIR DISTRIBUTION DEVICES SHALL BE INSULATED WITH R-6, 2" X .75 DENSITY FOIL-BACKED INSULATION, WITH FIRE AND SMOKE RATING [25]-[50].
- ALL DUCTWORK SHALL BE INDEPENDENTLY HUNG FROM STRUCTURAL MEMBERS.
- ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED PER SMACNA LOW-VELOCITY DUCT MANUAL (LATEST ISSUE).
- UNLESS OTHERWISE NOTED, EVERY SUPPLY TAP COLLAR SHALL HAVE A LOCKING MANUAL VOLUME DAMPER.
- THE HVAC CONTRACTOR SHALL COORDINATE DIFFUSER LOCATIONS ON SITE WITH THE MOST RECENT REFLECTED CEILING PLAN.
- THE HVAC CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE COVERING A ONE-YEAR PERIOD FOR ALL EQUIPMENT AND AN ADDITIONAL FOUR-YEAR PERIOD FOR THE COMPRESSORS IN THE AIR CONDITIONING UNITS.
- UPON COMPLETION OF PROJECT THE HVAC CONTRACTOR SHALL 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.
- ALL FANS SHALL BE U.L. LISTED.
- THE HVAC CONTRACTOR SHALL VERIFY LOCATIONS OF THE EXHAUST HOOD AND EF-1 FROM MOST RECENT KITCHEN EQUIPMENT PLANS ON SITE. THIS IS TO ENSURE NO OFFSETS IN EXHAUST DUCTWORK.
- HVAC CONTRACTOR IS TO MAKE ALL LOW-VOLTAGE WIRING FINAL CONNECTIONS FOR ALL HVAC EQUIPMENT INCLUDING SENSORS, THERMOSTATS, AUDIO-VISUAL ANNUNCIATORS, ROOF-TOP UNITS, SMOKE DETECTORS, CONTRACTOR PANEL, AND CONTROL PANEL.

GENERAL CONTRACTOR

- IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO RECEIVE, OFFLOAD, AND STORE ALL HVAC MATERIALS WHICH ARE TO BE STORED IN THE KITCHEN.
- IT IS VERY IMPORTANT THAT ACCURATE MEASUREMENTS ARE USED WHEN LOCATING EXHAUST FAN ROOF OPENING TO ENSURE THAT NO OFFSETS ARE REQUIRED IN THE EXHAUST DUCTWORK FROM THE KITCHEN HOOD. 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 ROOF OPENING REQUIREMENTS. 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 CURB.
- ANY FRAMING REQUIRED FOR HVAC WORK SHALL BE BY THE GENERAL CONTRACTOR.
- GENERAL CONTRACTOR IS TO PROVIDE ANY SCREENING, GUARD RAILS, ETC. FOR ROOF-MOUNTED HVAC EQUIPMENT PER IBC AND LOCAL CODES.**
- ANY EXPOSED HVAC WORK IN THE DINING ROOM IS TO BE PRIMED AND PAINTED BY THE GENERAL CONTRACTOR.
- NOTE: EXCLUDING THE DUCT THAT SHIPS WITH THE HOODS, THE EXHAUST RISERS CANNOT HAVE ADDITIONAL "FIELD" OFFSETS. TRUSSES CLOSEST TO THE EXHAUST RISERS MUST BE SPACED SO THAT NO ADDITIONAL OFFSETS ARE NEEDED. FIELD VERIFY AND COORDINATE WITH GENERAL CONTRACTOR.

ELECTRICAL CONTRACTOR

- THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL PITCH POCKETS FOR POWER AND CONTROL WIRING TO MAINTAIN 12" MINIMUM CLEARANCE FROM BACK PANEL OF AIR CONDITIONING UNITS AND EXHAUST FANS. ELECTRICAL CONTRACTOR SHALL NOT PENETRATE BOTTOM OF RTU CURB AND EXHAUST FANS.
- THE ELECTRICAL CONTRACTOR SHALL INSTALL THE CONTRACTOR PANEL, ON-OFF PANEL, AND LOW-VOLTAGE CONTROL WIRING FOR ALL AIR CONDITIONING UNITS AND CONTROLS. COORDINATE AIR CONDITIONING AND ELECTRICAL PLANS. REFER TO SHEET E-5 FOR PANEL INFORMATION. FOR PROJECTS WITHOUT A PANEL THE ELECTRICAL CONTRACTOR WILL INTERLOCK THE COOKING APPLIANCE AND HVAC EQUIPMENT PER NFPA96.
- THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL DISCONNECTS FOR ALL HVAC EQUIPMENT.
- THE ELECTRICAL CONTRACTOR SHALL USE A MINIMUM OF 4'-6" SEALTITE FLEXIBLE CONDUIT WHEN WIRING KITCHEN HOOD EXHAUST FANS ON ROOF SO THAT FANS MAY BE REMOVED FROM CURBS AND PLACED ON ROOF FOR CLEANING EXHAUST DUCTWORK.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ANY ADDITIONAL INTERLOCK REQUIRED BY LOCAL CODE BETWEEN THE HVAC EQUIPMENT, SMOKE DETECTORS, EXHAUST FANS, AND COOKING APPLIANCES.
- ELECTRICAL CONTRACTOR SHALL RUN LINE VOLTAGE FROM THE CURRENT SENSOR LOCATED IN THE GREASE EXHAUST FAN TO THE CONTRACTOR PANEL LOCATED BY THE SWITCHGEAR.
- FOR EACH UNIT, THE ELECTRICAL CONTRACTOR SHALL PROVIDE ONE SINGLE-GANG RECEPTACLE FOR THE T-STAT, AND ONE DOUBLE-GANG RECEPTACLE FOR THE ANNUNCIATOR AND TEST STATION, 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. **PROVIDE ADDITIONAL RECEPTACLES FOR THE REMOTE SENSORS.**

PLUMBING CONTRACTOR

- THE PLUMBING CONTRACTOR IS TO PROVIDE AND INSTALL PITCH POCKETS FOR CONDENSATE DRAINS/GAS PIPING FOR ALL A/C UNITS AND EXHAUST FANS. **PLUMBING CONTRACTOR SHALL NOT PENETRATE BOTTOM OF RTU CURB.**
- THE PLUMBING CONTRACTOR TO COORDINATE PLUMBING VENT STACKS WITH OUTSIDE AIR INTAKES OF A/C UNITS. MAINTAIN 10'-0" MINIMUM CLEARANCE OR PER LOCAL CODE.
- THE PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL FLUE GAS EXHAUST VENT FOR WATER HEATER. MAINTAIN 10'-0" MINIMUM HORIZONTAL OR 3' VERTICAL CLEARANCE TO AIR INTAKES.

AIR BALANCE SCHEDULE						
TAG	SUPPLY AIR	OUTSIDE AIR	RETURN AIR	EXHAUST AIR BLDG. PRESSURE	% OUTSIDE AIR	
RTU-1	3000 CFM	750 CFM	2250 CFM	--- + 750 CFM	25	
RTU-2	2000 CFM	500 CFM	1500 CFM	--- + 500 CFM	25	
RTU-3	2000 CFM	500 CFM	1500 CFM	--- + 500 CFM	25	
RTU-4	3000 CFM	750 CFM	2250 CFM	--- + 750 CFM	25	
EF-1	---	---	---	1100 CFM** - 1100 CFM	---	
EF-2	---	---	---	880 CFM** - 880 CFM	---	
EF-3	---	---	---	225 CFM - 225 CFM	---	
TOTAL*	10000 CFM	2500 CFM	7500 CFM	2205 CFM + 295 CFM	25	

* NOTE: UPON START-UP VERIFY THAT THE EXHAUST FAN CURRENT SENSOR IS SET TO THE MOTOR AMPERAGE. IF IT IS NECESSARY TO ADJUST THE AMPERAGE OF THE EXHAUST HOOD FAN MOTOR, THE FAN MOTOR CURRENT SENSOR MUST BE RESET BY THE ELECTRICAL CONTRACTOR AS FOLLOWS: ADJUST UNDERCURRENT POTENTIOMETER TO MINIMUM (CLOCKWISE IS MAXIMUM). APPLY CURRENT, ONCE CURRENT IS STABILIZED, INCREASE UNDERCURRENT POT UNTIL RED LED LIGHTS WITHIN SEVEN SECONDS TURN DOWN UNTIL RED LIGHT TURNS OFF. IF A LIGHT REMAINS ON FOR MORE THAN TEN SECONDS, DISCONNECT SUPPLY VOLTAGE TO RESET. SEE MANUFACTURERS OPERATION-INSTALLATION INSTRUCTIONS THAT SHIP WITH THE FAN. WITH LIMITED BUILDING PRESSURE, THE ±10% TOLERANCE IS NOT ACCEPTABLE. SET CFM AS SPECIFIED. ENSURE THAT EXHAUST FAN PULLEY IS ADJUSTED FOR PROPER ALIGNMENT.

PACKAGE ROOFTOP UNIT SCHEDULE (RTU-1,2,3,4)		
TAG	RTU-1,4	RTU-2,3
MANUFACTURER	CARRIER	CARRIER
MODEL	48HCE08 (7.5 TON)	48GCEA06 (5 TON)
LOCATION, CURB DIMENSIONS	ROOF, 78" X 50"	ROOF, 67" X 37"
TYPE OF HEAT	NATURAL GAS	NATURAL GAS
TOTAL COOLING CAPACITY, MBTU/HR	95.2	60.2
SENSIBLE COOLING CAPACITY, MBTU/HR	71.0	48.3
ENTERING AIR CONDITIONS, DBT/WBF	80/67	80/67
AMBIENT AIR DB TEMPERATURE, °F	95	95
SUPPLY AIR, CFM	3000	2000
OUTSIDE AIR, CFM	SEE SCHEDULE	SEE SCHEDULE
EXTERNAL STATIC PRESSURE, "WG	0.75	0.75
BHP - MEDIUM STATIC MOTOR	2.4	2.24
E.E.R.	12.0	16.0 (S.E.E.R.)
GAS INPUT MBTU/HR	120/180	82/110
GAS OUTPUT MBTU/HR	98/148	65/88
UNIT WEIGHT, LBS.	1100	800
ELECTRICAL REQUIREMENT, V/PHASE/HZ	208-230/3/60	208-230/3/60
MINIMUM CIRCUIT AMPERAGE	38.8	31.0
MAXIMUM OVER CURRENT PROTECTION	50	45

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. AQUAGUARD AG-3100 MOISTURE SENSOR FOR PRIMARY FAN
NOTE: COORDINATE RTU PLACEMENT ON SITE PRIOR TO SETTING EQUIPMENT. IF ADJUSTMENT IS NECESSARY MAINTAIN FRESH AIR INTAKE CLEARANCES

FLOOR PLAN - HVAC

SCALE 1/4" = 1'-0" WHEN PLOTTED 36" X 24" 20128

FAN SCHEDULE

TAG	EF-1	EF-2	EF-3
MANUFACTURER	COOK	COOK	COOK
MODEL	1000CPS	1000CPS	100C10DH
LOCATION	ROOF	ROOF	ROOF
AREA SERVED	BROILER	FRYERS	RESTROOM
CFM	1100*	880*	225
STATIC PRESSURE, "WG	0.75"	0.55"	.25
FAN HORSEPOWER	1.85	1.0	1/25
FAN RPM	1297	2903	911
DRIVE	BELT	BELT	DIRECT
ELECTRICAL REQUIREMENT, V/ø/HZ	208-230/1/60	208-230/1/60	120/1/60
ROOF OPENING, INCHES	22X22	22X22	13.5X13.5
ROOF CURB	YES	YES	YES
BACKDRAFT DAMPER	NO	NO	YES
BIRDSCREEN	NO	NO	YES
GREASE TROUGH	YES	YES	NO
INTERLOCK	YES	YES	NO

* SEE AIR BALANCE SCHEDULE

NOTE: VERIFY ALL INFORMATION WITH MANUFACTURER PRIOR TO ORDERING AND INSTALLATION

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	12
B*	24X24	SUPPLY 3 WAY	12"	NCA12-3	WHITE	12"	T-BAR	1
C*	24X24	SUPPLY 2 WAY (PARALLEL)	12"	NCA12-2P	WHITE	12"	T-BAR	1
D*	24X24	SUPPLY 3 WAY	10"	NCA10-3	WHITE	10"	T-BAR	1
E	24X24	SUPPLY 2 WAY (CORNER)	10"	NCA10-2C	WHITE	10"	T-BAR	2
F	12X12	SUPPLY 1 WAY W/O.B.D.	8"	630	WHITE	12X12	SIZE + 1/4"	1
G	12X12	SUPPLY 1 WAY W/O.B.D.	6"	630	WHITE	12X12	SIZE + 1/4"	2
H	24X24	RETURN	18"	630TB	WHITE	22X22	T-BAR	6
J	12X12	EXHAUST	8"	630	WHITE	12X12	SIZE + 1/4"	1
K	12X12	EXHAUST	6"	630	WHITE	8X8	SIZE + 1/4"	1

ALL DIFFUSERS SHALL BE MANUFACTURED BY METALAIR OR EQUIVALENT AND 100% ALUMINUM CONSTRUCTION
* PROVIDE WITH PVCRS DRAIN-BLADE DAMPER

NOTE: LOCATION AND ORIENTATION OF DIRECTIONAL BLOW PATTERN DIFFUSERS IN THE KITCHEN IS CRITICAL. INSTALLER WILL ENSURE PROPER INSTALLATION OF DIFFUSERS. CONTACT THE NCA CONSULTANTS PROJECT COORDINATOR IMMEDIATELY WITH ANY CONFLICTS THAT PREVENT INSTALLATION PER THE PROPOSED DESIGN.

PLENUMIZED CURB INSTALLATION NOTES

- CAREFULLY LOCATE AND MARK ROOF CURB LOCATIONS SO THAT DUCT WORK CAN BE INSTALLED IN THE APPROXIMATE 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, LAY OUT 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 ANY NECESSARY FRAMING OR BLOCKING AT OPENINGS.
- WITH ROOF CURB UPSIDE DOWN (SOLID METAL BOTTOM UP) MEASURE AND MARK THE LOCATION OF ANY JOISTS OR OTHER FRAMING MEMBERS THAT MUST BE AVOIDED. MEASURE AND MARK THE LOCATION OF ALL THE DUCT TAPS.
- CUT ALL DUCT TAPS INTO 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, SLIDE 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 ROOF 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.

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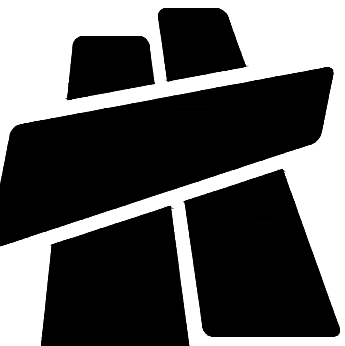
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PHONE: (877) 530-0078
CALL NCA MARKETING FOR PRICING
NCA JOB# 20128

DATE: XX-XX-2019
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PROJECT #: 190420
RUC-60 TALL 20/20 IMAGE: NOVEMBER 2018 DESIGN RELEASE
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HVAC FLOOR PLAN, NOTES, AND SCHEDULES

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