

Legacy Designs, Inc.

6116 Mulford Village Drive
 ROCKFORD, ILLINOIS
 1-815-484-4708 phone LEGACY@LEGACYDESIGNS.NET
 1-815-484-4710 fax
 PROFESSIONAL DESIGN FIRM NO. 184-003483

A NEW FACILITY FOR
**BOONE COUNTY ANIMAL SERVICES
 AND ADOPTION CENTER**
 BELVIDERE, ILLINOIS

REVISIONS

COMMISSION NUMBER
 215102

DATE
 October 12, 2015

SHEET NO.

M1

OF 4 SHEETS

ABBREVIATIONS

ACCU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISH FLOOR
BDD	BACKDRAFT DAMPER
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
DB	DRY BULB
DWG(S)	DRAWING, DRAWINGS
EA	EXHAUST AIR
EF	EXHAUST FAN
EH	ELECTRIC HEATER
ERC	ELECTRIC REHEAT COIL
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FLA	FULL LOAD AMPS
GF	GAS FURNACE
GWH	GAS WATER HEATER
HP	HORSEPOWER, HEAT PUMP
HVAC	HEATING, VENTILATING AIR CONDITIONING
KW	KILOWATT
MBH	THOUSAND BTU'S PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MECH	MECHANICAL
MIN	MINIMUM
MNT	MOUNTED
NC	NEW CONNECTION
NTS	NOT TO SCALE
OA	OUTSIDE AIR
R	RETURN
RF	RETURN AIR FAN
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
S	SUPPLY
TD	AIR TRANSFER DUCT
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TYP	TYPICAL
V	VOLTS
VD	AIR VOLUME DAMPER
VL	VERIFY LOCATION IN FIELD

DUCT AND EQUIPMENT SYMBOLS

	NEW RECTANGULAR METAL DUCT: 1) FIRST DIMENSION IS SIDE SHOWN 2) ALL DUCTWORK SIZES SHOWN ARE NET FREE INSIDE DIMENSIONS 3) GALVANIZED SHEET METAL UNLESS NOTED
	NEW ROUND DUCT (SEE NOTES ABOVE)
	ROUND DUCT ELBOW TURNED UP
	RECTANGULAR ELBOW TURNED UP, SUPPLY OR OUTSIDE AIR DUCT
	RECTANGULAR ELBOW TURNED UP, EXHAUST OR RETURN AIR DUCT
	ROUND DUCT ELBOW TURNED DOWN
	RECTANGULAR ELBOW TURNED DOWN, SUPPLY OR OUTSIDE AIR DUCT
	RECTANGULAR ELBOW TURNED DOWN, EXHAUST OR RETURN AIR DUCT
	RADIUS ELBOW OR RECTANGULAR ELBOW WITH TURNING VANES
	RECTANGULAR ELBOW OR TRANSFER DUCT WITHOUT TURNING VANES
	RADIUS TEE DUCT JUNCTION
	MITERED TEE DUCT JUNCTION WITH TURNING VANES
	DUCT RISE IN DIRECTION OF ARROW
	DUCT DROP IN DIRECTION OF ARROW
	DUCT SIZE TRANSITION FOB = FLAT ON BOTTOM FOT = FLAT ON TOP
	STANDARD LOW VELOCITY BRANCH, NO SPLITTER WITH 45° FLARE
	FLEXIBLE DUCT
	EXHAUST, RETURN OR TRANSFER AIR REGISTER OR GRILLE
	SUPPLY AIR REGISTER OR GRILLE
	CEILING SUPPLY DIFFUSERS (AIR FLOW DIRECTION BY ARROWS)
	REGISTER OR DIFFUSER # 300-10" - CFM# - ROUND NECK SIZE INDICATED
	CEILING RETURN OR EXHAUST REGISTER OR GRILLE
	(DG) DOOR GRILLE (UC) UNDER CUT
	AIR LOUVER, (BOTTOM OF DUCT TO DRAIN TOWARD LOUVER)
	MOTOR OPERATED DAMPER PROVIDE CEILING & DUCT ACCESS

CONTROL SYMBOLS

	THERMOSTAT OR DDC TEMPERATURE SENSOR
	CARBON DIOXIDE DETECTOR

12" x 12" O.A. INTAKE LOUVER
 EQUAL TO GREENHECK #ESJ-401

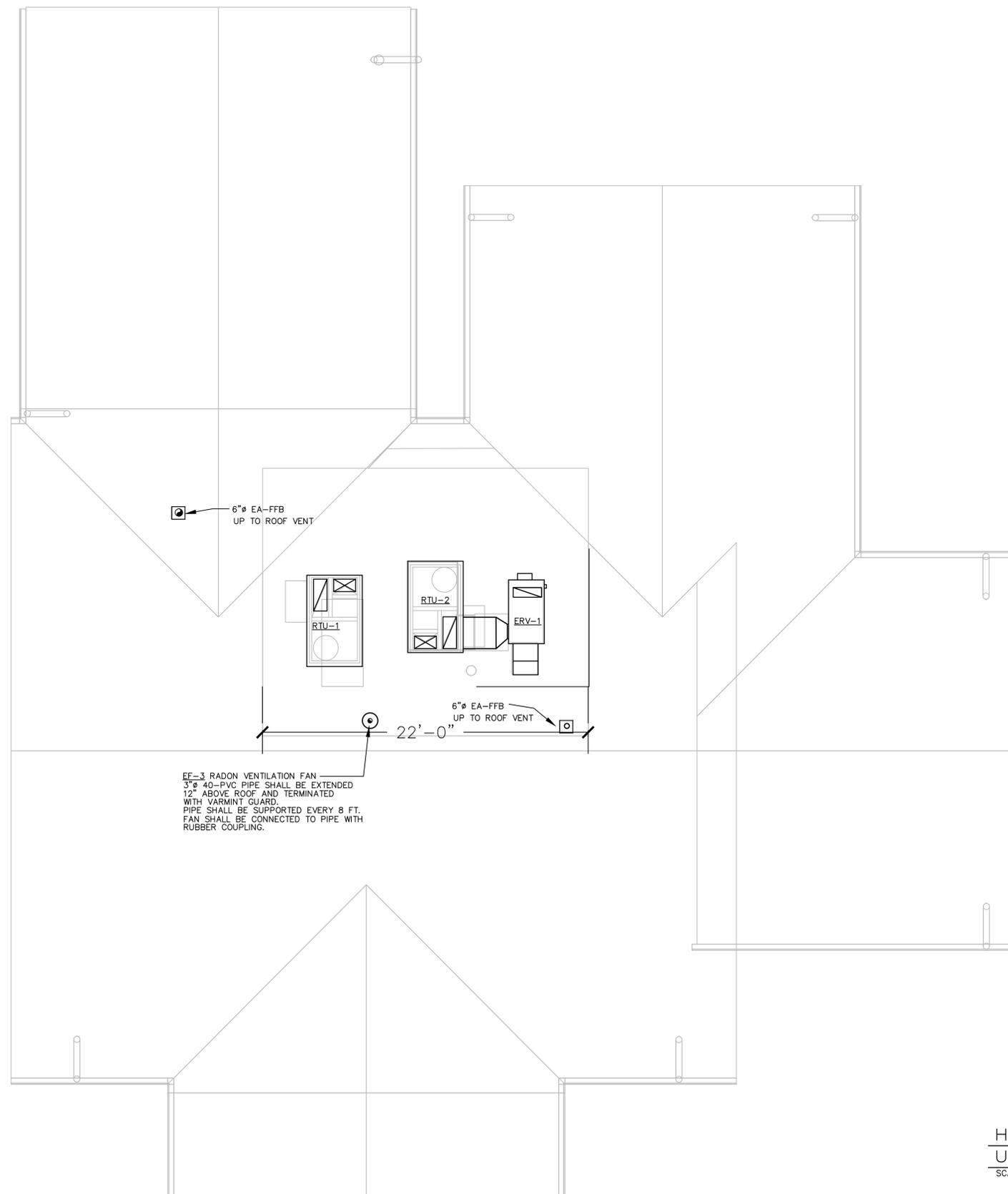
NOTE: WORK IN THIS ROOM SHALL BE
 COMPLETED UNDER ALTERNATE A1-C

RADON VENTILATION SYSTEM
 3" 40-PVC SUCTION PIPE FROM
 CAVITY BELOW CONCRETE FLOOR
 UP TO ATTIC INSTALLED FAN EF-3

NOTE: WORK THIS ROOM SHALL BE
 COMPLETED UNDER ALTERNATE A1

**HVAC
 FIRST FLOOR PLAN**
 SCALE: 1/4" = 1'-0"

Roger A. Logeson
 10/12/15
 EXP. 11/30/15



HVAC
 UPPER FLOOR PLAN
 SCALE: 1/4" = 1'-0"


Roger A. Logeson
 11/12/15
 EXP. 11/30/15

A NEW FACILITY FOR
**BOONE COUNTY ANIMAL SERVICES
 AND ADOPTION CENTER**
 BELVIDERE, ILLINOIS

REVISIONS

COMMISSION NUMBER
 215102

DATE
 October 12, 2015

SHEET NO.

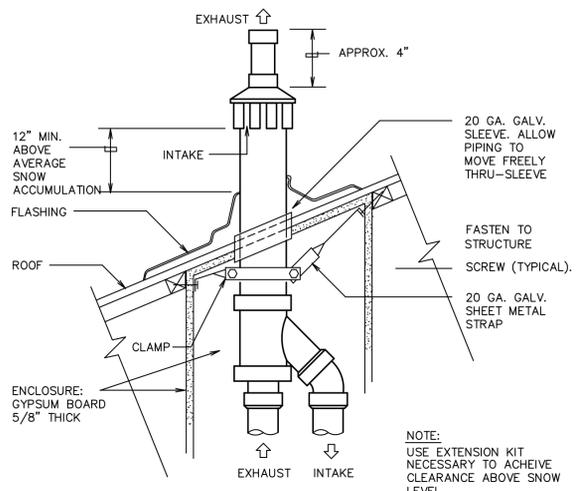
M2

OF 4 SHEETS

Legacy Designs, Inc.

6116 Mulford Village Drive
 ROCKFORD, ILLINOIS
 1-815-484-4708 phone LEGACY@LEGACYDESIGNS.NET
 1-815-484-4710 fax
 PROFESSIONAL DESIGN FIRM NO. 184-003483

All drawn and written information appearing herein shall not be duplicated, disclosed, or otherwise used without the written consent of
COPYRIGHT 2015
 Legacy Designs, Inc.



CONCENTRIC ROOF TERMINATION DETAILS
 NO SCALE

ROOFTOP UNIT SCHEDULE (RTU)

UNIT MARK	SERVING	SUPPLY CFM	OA CFM	EXTERNAL	COOLING SECTION				HEATING SECTION				ELECTRICAL				MANUF'R	MODEL	WEIGHT LBS	NOTES		
					NOMINAL UNIT CAP. TONS	EFFICIENCY RATING EER	SUMMER		INPUT MBH	OUTPUT MBH	AFUE (%)	WINTER		MOTOR HP	VOLTS	PHASE					MCA	MOCP
							ENTERING COND. DB/WB	LEAVING COND. DB/WB				AMB. TEMP.	RA TEMP.									
RTU-1	PEOPLE ZONE	1,490	300	0.6	4.0	13.2	91/74	55/54	130	106	81	-10°	70°	1.0	208	1	38	50	CARRIER	48HCF05A0A3-0A1C0	858	2,3,4,5,6
RTU-2	ANIMAL ZONE	1,000	1,000	0.5	3.0	11.0	91/74	55/54	90	73	81	-10°	70°	1.0	208	1	32	45	CARRIER	48HCR04A0A3-0A1C0	768	2,3,4,5,6

- NOTES:
 1. PROVIDE WITH 14" ROOF CURB.
 2. UNIT TO BE FURNISHED WITH ENTHALPY CONTROLLED ECONOMIZER, OA HOOD, & BAROMETRIC RELIEF DAMPER.
 3. UNIT SHALL BE FURNISHED WITH THERMOSTAT.
 4. UNIT SHALL BE FURNISHED WITH FACTORY INSTALLED POWER DISCONNECT SWITCH (WIRED TO ELECTRICAL PANEL), AND GFI SERVICE OUTLET.
 5. PROVIDE COMPLETE SYSTEM WITH ONE YEAR WARRANTY.
 6. RTU UNITS SHALL BE PURCHASED WITH:
 - MANUFACTURER 1 YEAR PARTS WARRANTY,
 - 3 YEARS CIRCUIT BOARD WARRANTY
 - 5 YEARS COMPRESSOR WARRANTY
 - 10 YEARS ST. STEEL HEAT EXCHANGER WARRANTY.
 7. FURNISH CARRIER UNIT PER SCHEDULE, OR UNIT EQUIVALENT.

PACKAGED ENERGY RECOVERY VENTILATOR (ERV)

UNIT MARK	SUPPLY AIR (CFM)	RETURN AIR (CFM)	RETURN AIR (IN. WG.)	FILTER RATING (MERV)	SUPPLY AIR		OUTDOOR AIR		SPACE DESIGN		MOTOR				WEIGHT	MANUFACTURER	MODEL	NOTES		
					HEATING DB/Ah	COOLING DB/Ah	HEATING DB/Ah	COOLING DB/Ah	HEATING DB/%RH	COOLING DB/%RH	HP	FLA	MCA	MOCP					VOLTS	PHASE
ERV-1	1000	1000	0.5	MERV-8	49°/39	81.7°/54	-10.0°/98	91.0°/46	70.0°/30%	75.0°/50%	(2) 2.0	(2) 10.8	24.3	35	208	1	488 LBS	RENEW AIRE	HE2XRT	1-4

- NOTES:
 1. FURNISH AND INSTALL WITH MFR'S DISCONNECT.
 2. PROVIDE WITH DOUBLE WALL CONSTRUCTION.
 3. PROVIDE MANUFACTURERS CONTROLS AND WALL CAPS.
 4. PROVIDE WITH FACTORY MOUNTED FILTER ALARMS.

ELECTRIC HEATER SCHEDULE (EH)

UNIT MARK	SERVING	CAP. KW	AMPS	BTU/HR	MOUNTING HEIGHT	VOLTS	PHASE	MANUFACTURER	MODEL	NOTES
EH-1	JANITOR CLOSET	1.5	15.0	5120	12" AFF	120	1	Q-MARK	GFR1500	1,2,3,4

- NOTES:
 1. PROVIDE AND INSTALL WITH MFR'S DISCONNECT.
 2. PROVIDE WITH THERMAL OVERLOAD PROTECTION.
 3. PROVIDE WITH INTEGRAL THERMOSTAT RANGE 45 TO 95 DEG. F.
 4. PROVIDE WITH 2" SEMI-RECESSED MOUNTING FRAME 12 1/2"H X 10 3/8"W X 2"D. Q-MARK MODEL CWHS2.

FAN SCHEDULE (EF)

UNIT MARK	SERVING	CFM	ESP	MOTOR				DRIVE	DAMPER	MANUFACTURER	MODEL	NOTES
				WATTS	VOLTS	PHASE	SONES					
EF-1	TOILETS 107 & 108	100	0.30"	0.5 AMPS	120	1	-	DIRECT	BDD	BROAN	MP100	1-4
EF-2	WORK ROOM	75	0.30"	33.0	120	1	0.7	DIRECT	BDD	BROAN	QTXE110	1-4
EF-3	RADON VENTILATION	60-90	1.0"	90.0	120	1	QUIET	DIRECT	BDD	RADONAWAY	GP301 3"	1,4
EF-4	JANITOR CLOSET	50	0.25"	11.5	120	1	1.5	DIRECT	BDD	DELTA BREEZSLIP	SLM70	1,3,4,5
EF-5	ACTIVITY ROOM	75	0.30"	33.0	120	1	0.7	DIRECT	BDD	BROAN	QTXE110	1-4,6

- NOTES:
 1. FURNISH AND INSTALL WITH MFR'S DISCONNECT.
 2. PROVIDE WITH 7-DAY PROGRAMMABLE TIME CLOCK. SETUP TO OCCUPIED/UNOCCUPIED HOURS. DURING OCCUPIED MODE FAN SHALL RUN CONSTANTLY.
 3. PROVIDE WITH WALL VENT LOUVERED STYLE WITH INSECT SCREEN.
 4. SUBMIT MANUFACTURER'S SHOP DRAWINGS FOR APPROVAL, PRIOR TO ORDERING.
 5. PROVIDE WITH WALL MOUNTED SWITCH ON/OFF.
 6. PROVIDE UNDER ADD ALT 1C.

AIR INLET/OUTLET SCHEDULE

MARK	FRAME DIM	TYPE	MOUNT TYPE	FUNCTION	CONSTRUCTION	FINISH	MODEL NUMBER	MFR	NOTES
S-1	24x24	LOUVERED	LAY-IN	SUPPLY AIR	STEEL	WHITE	SFTB	CARNES	1-3
S-2	12x12	LOUVERED	SURFACE	SUPPLY AIR	STEEL	WHITE	SFTB	CARNES	1-3
R-1	SEE DWG	GRILLE	LAY-IN	RETURN AIR	STEEL	WHITE	RTAB	CARNES	1-4
E-1	SEE DWG	GRILLE	LAY-IN	EXHAUST AIR	STEEL	WHITE	RTAB	CARNES	1-4

- NOTES:
 1. SUBMIT MANUFACTURER'S SHOP DRAWINGS FOR APPROVAL, PRIOR TO ORDERING.
 2. ALTERNATE MANUFACTURER'S INCLUDE: TITUS, TUTTLE & BAILEY AND KRUEGER.
 3. PROVIDE VOLUME DAMPERS AT TAKE-OFFS.
 4. PROVIDE IF REQUIRED WITH 24"x24" BLANK PANEL MOUNTED TO T-BAR.

GAS FURNACE SCHEDULE (GF) ADD ALT 1C

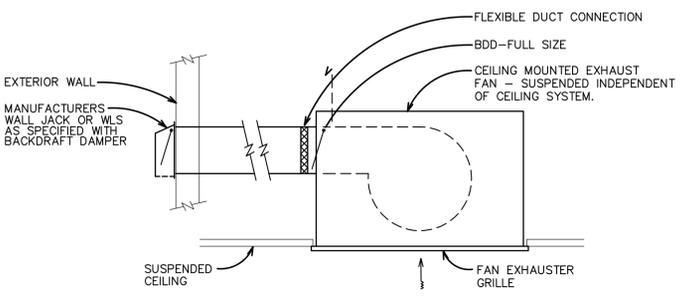
MARK	SUPPLY CFM	OA CFM	ESP	FILTER			GAS HEATING SECTION			ELECTRICAL DATA			WEIGHT LBS	MANUFACTURER	MODEL	NOTES
				QUAN.	TYPE	THICK.	INPUT MBH	OUTPUT MBH	MIN AFUE %	VOLTS	PHASE	HP				
GF-1	800	100	.4	1	DISP.	1"	40	37	92.1	120	1	1/3	121	CARRIER	59SC2-040-10	1-6

- NOTES:
 1. PROVIDE WITH 7-DAY PROGRAMMABLE THERMOSTAT.
 2. PROVIDE WITH VIBRATION AND SOUND ISOLATION UNDER UNITS AND FLEX CONNECTORS TO DUCTWORK.
 3. SUBMIT MANUFACTURER SHOP DRAWINGS FOR APPROVAL PRIOR TO ORDERING.
 4. PROVIDE WITH SEPARATE COMBUSTION AIR/FLUE VENT PER DRAWINGS. MAINTAIN MINIMUM 10 FT FROM ANY OA INTAKE. COORDINATE WITH ARCHITECT LOCATION AND COLOR PRIOR TO ORDERING AND INSTALLATION. VENTS AND OA INTAKE SHALL BE COLOR SELECTED BY ARCHITECT.
 5. ALTERNATE MANUFACTURER'S INCLUDE: GOODMAN, LENNOX, TRANE.
 6. HORIZONTAL AIRFLOW OUTLET UNIT.

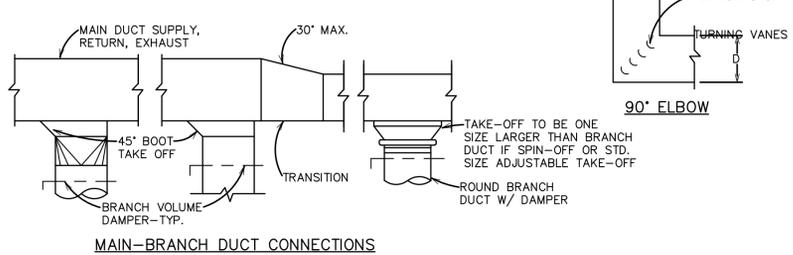
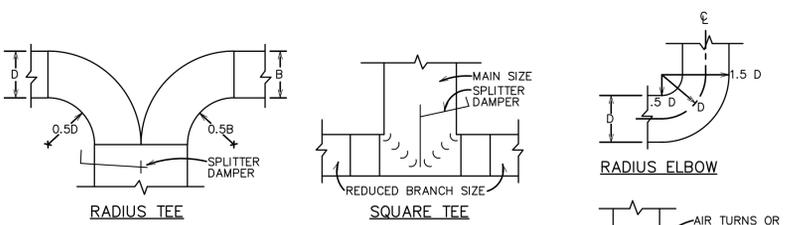
AIR COOLED CONDENSING UNIT SCHEDULE (AC) ADD ALT 1C

MARK	SERVING SYSTEM	CAPACITY		ELECTRICAL DATA				MIN. EER	MANUFACTURER	MODEL	NOTES			
		NOM. TONS	AMB. DB	VOLTS	PHASE	COMPRESSOR LRA	POWER CONNS. RLA					FAN HP		
AC-1	GF-1	2.5	91°	240	1	64	12.8	16.8	25	1/10	11	CARRIER	24ABB330A003	1-6

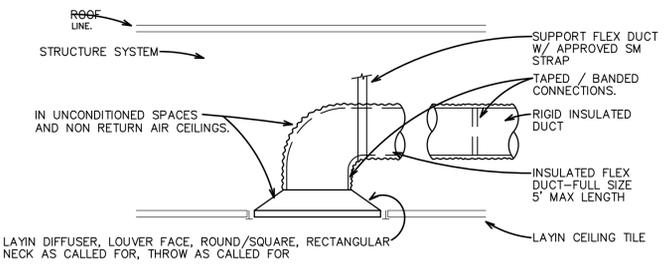
- NOTES:
 1. CONTRACTOR SHALL FURNISH FUSED DISCONNECT SWITCHES, POWER WIRING BY E.C.
 2. CONDENSING UNIT SHALL BE MOUNTED ON 4" CONCRETE EQUIPMENT BASE.
 3. FURNISH WITH LOW AMBIENT OPERATION OPTION, AND MOTOR MASTER SPEED CONTROLLER WITH SWITCH.
 4. FURNISH WITH CRANKCASE HEATER, CYCLE PROTECT, AND THERMOSTATIC EXPANSION VALVE.
 5. SUBMIT MANUFACTURER'S SHOP DRAWINGS FOR APPROVAL, PRIOR TO ORDERING.
 6. ALTERNATE MANUFACTURER'S INCLUDE: GOODMAN, LENNOX, TRANE.



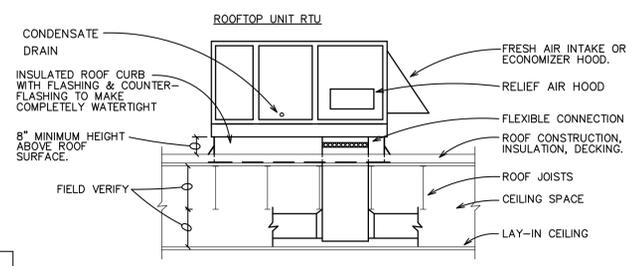
CEILING EXHAUST DETAIL
 NO SCALE



DUCT DETAILS
 NO SCALE



CEILING DIFFUSER LAY-IN DETAIL
 NO SCALE



ROOFTOP UNIT (RTU)
 NO SCALE

STATE OF ILLINOIS
 LICENSED PROFESSIONAL ENGINEER
 ROGER A. LOGESON
 062-024878
 11/12/15
 EXP. 11/30/15

Legacy Designs, Inc.
 6116 Mulford Village Drive
 ROCKFORD, ILLINOIS
 1-815-484-4708 phone LEGACY@LEGACYDESIGNS.NET
 1-815-484-4710 fax
 PROFESSIONAL DESIGN FIRM NO. 184-003483

A NEW FACILITY FOR
BOONE COUNTY ANIMAL SERVICES
AND ADOPTION CENTER
 BELVIDERE, ILLINOIS

REVISIONS
 COMMISSION NUMBER
 215102
 DATE
 October 12, 2015
 SHEET NO.
 M3
 OF 4 SHEETS

HVAC
 SCHEDULES AND DETAILS
 SCALE: N.T.S.

SPECIFICATIONS

15050 BASIC MECHANICAL MATERIALS AND METHODS

Provide complete systems as called for, and/or shown, and/or specified. HVAC contractor to furnish and completely install the system, service, equipment, or material named, together with other associated devices, equipment, materials, wiring, piping, etc., as required to perform work called for, shall be responsible to the HVAC Contractor. Secure all permits for work as required. Where "furnish and install", "provide", "furnish", "install" or equivalent words are used, they mean that the contractor shall furnish and completely install the system, service, equipment or material named, together with other associated devices, equipment, material, wiring, piping, etc., as required for a complete operating installation.

STANDARDS, CODES AND REGULATIONS

Equipment, devices, apparatus and installations to be in full compliance with applicable standards, requirements, rules, regulations, codes, statutes, ordinances, etc., local, city, county, state government, Illinois Administrative Code, Owner's insurance company, local gas and electric utilities, labor regulations. Changes required to conform to requirements shall be made without increase in contract price as approved by the Architect.

Electrical equipment, wiring, gas burning equipment, handling and storage equipment, all hydronic piping, refrigeration piping, insulating materials, etc., shall comply with requirements of NFPA, NEC, UL, AIA, OSHA, EPA, International Building Code, local and all applicable state and federal safety codes; for a particular type installation and shall be so labeled where applicable.

MATERIALS

Materials to be of new grade, U.S. make and quality specified.

WIRING

Wiring to be in compliance with latest N.E.C. and all applicable codes. Line wires, of proper size, shall be furnished by Electrical Contractor, with final power connections made by Electrical Contractor. Heating Contractor, within his contract, shall be responsible for all control wiring of equipment, provide devices, panels, disconnect switches, starters, interlocks, controls, etc., to give a complete/satisfactory operating system.

COORDINATION

Before any work is installed and before any equipment is purchased, contractor shall carefully check specifications and drawings for every trade and job conditions and any lack of coordination between his work and the specifications and drawings or job conditions shall be immediately reported to the Architect, in writing. The Architect will work out conflicts and adjustments in contract prices. Changes in equipment shall be incorporated in the shop drawings.

If contractor fails to call such lack of coordination between specifications, drawings and job conditions to the Architect's attention, in writing, before any work is done or before equipment is purchased, it will be assumed that no conflicts exist. If conflicts arise during the construction period, they shall be immediately reported to the Architect in writing and they will be worked out by the Architect, but no increase in contract price will be allowed. The Architect's decisions shall be final. When heating and cooling equipment is operated by the Heating contractor, the Heating contractor shall be solely responsible for the operation and safety of such equipment. When heating and cooling equipment is operated by the owner (or other contractors), the owner (or other contractors) shall be solely responsible for the operation and safety of such equipment.

GUARANTEE

HVAC Contractor shall guarantee all equipment, apparatus, materials and workmanship entering into this contract and shall replace all parts at his own expense which have proven defective within one (1) year from formal acceptance. Individual items shall be guaranteed as called for in addition to the above.

SUBMITTALS

Each respective contractor shall submit to the Architect for review, before construction is started, seven (7) copies of shop drawings for equipment, devices, material, controls, accessories, wiring diagrams, etc., for respective installation.

SPECIAL SUPERVISION AND INSTRUCTIONS

Each specialized installation shall be made under the supervision of a factory trained engineer or contractor's superintendent who shall (a) submit a written report that the installation has been installed in keeping with the specified requirements and the manufacturer's standards; (b) instruct the Owner's operating personnel before final acceptance; (c) prepare permanent form operating instructions, parts lists, wiring diagrams and control diagrams, in booklet form, in triplicate, turned over to Owner and (d) certify that the installation is operating satisfactorily under the Owner's personnel and certify that the Owner's personnel are trained on systems and equipment per manufacturer's guidelines.

CUTTING AND PATCHING

Contractor shall set sleeves and inserts required for intakes, piping, hangers, louvers, ventilators, ductwork, etc., in construction. Supply General Contractor with complete information as to size and location of openings, through walls, floors, roofs, etc., for installation of this work if this information is not supplied before new walls or floors are built, HVAC contractor shall cut all openings as approved by the Architect. Patching and rebuilding required to patch openings, and to restore construction to its original condition before cutting, using skilled craftsmen, as approved by the Architect. Shall be performed by others. Openings shall be accurately located, as small as possible, and neatly and cleanly cut. Wall openings shall be neatly cemented and wall frames grouted in place by Heating contractor.

SECTION - DIFFUSERS, REGISTERS, AND GRILLES

GENERAL

Submittals: Product Data for each model indicated.

PRODUCTS

Diffusers and grilles as scheduled on Drawings.

EXECUTION

Install diffusers and grilles level and plumb, according to manufacturer's written instructions, coordination drawings, and referenced standards.

Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practicable. For units installed in lay-in ceiling panels, locate units in the center of the panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.

Install diffusers and grilles with airtight connection to ducts and to allow service and maintenance of dampers and fire dampers.

Install diffusers and grilles according to NFPA 90A, "Standard for the Installation of Air-Conditioning and Ventilating Systems."

After installation of diffusers and grilles, inspect exposed finish. Clean exposed surfaces to remove burrs, dirt, and smudges. Replace diffusers, registers, and grilles that have damaged finishes.

END OF SECTION

METAL DUCTS

Sheet metal ductwork to be installed, constructed, fabricated, etc., in accordance with the latest SMACNA manual, all local codes; galvanized sheet steel or 2s or 3s aluminum sheets. Furnish volume dampers with external locking quadrants. Provide sealed hinged-removable access doors where called for and/or required for access to controls, operators, sensors, filters, dampers, etc..

FLEXIBLE DUCTWORK

Flexible ducts shall be of Wiremold, Flexmaster, Thermaflex, Genflex or approved make, Wiremold type WG constructed of high temperature, vinyl organosol coated glass fabric; 14 oz. and cold rolled corrosion-resistant coated steel spiral. Duct shall be factory pre-insulated with minimum of 1" of 3/4 lb. density glass fiber blanket, sheathed with an exterior flame-resistant vinyl vapor barrier. Strap clamps shall be plastic. Trip or stainless steel draw-up clamps for securing flexible air duct. Prior to clamping, duct shall be sealed as per manufacturer's recommendations. Flexible duct to be suitable for use with system pressure rating and design. Flexible duct runs shall not exceed 6'-0" in length.

DUCT ACCESSORIES

Flexible connections, as called for on drawings, to be fire-water-weather-resistant fabric as manufactured by Ventfab or approved make.

END OF SECTION

GENERAL NOTES

- DRAWINGS ARE GENERALLY DIAGRAMMATIC. EACH CONTRACTOR SHALL MAKE REQUIRED CHANGES FROM THE GENERAL ROUTING SHOWN ON THESE DRAWINGS SUCH AS OFF SETS, BENDS OR CHANGES IN ELEVATION DUE TO COORDINATION WITH THE WORK OF OTHER TRADES AND THE BUILDING CONSTRUCTION. ALL CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER. FOR PRESENT CONSTRUCTION, VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING TO AVOID CONFLICT. IT IS INTENDED THAT ALL EQUIPMENT, MATERIAL, DEVICES, ETC., SHALL BE LOCATED SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS, NOTWITHSTANDING THE FACT THAT LOCATIONS INDICATED BY THESE DRAWINGS MAY BE DISTORTED FOR CLARITY OF PRESENTATION.
- EACH CONTRACTOR SHALL CHECK DRAWINGS OF THE OTHER TRADES TO VERIFY THEIR WORK WILL BE INSTALLED CLEAR OF OBSTRUCTIONS. MAINTAIN MAXIMUM HEADROOM AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, NOTIFY ARCHITECT BEFORE PROCEEDING WITH THE INSTALLATION.
- FURNISH ALL TRADES ADVANCE INFORMATION ON LOCATIONS AND SIZES OF PIPING, DUCTWORK, EQUIPMENT, FRAMES, BOXES, SLEEVE AND OPENINGS NEEDED FOR WORK. FURNISH INFORMATION AND SHOP DRAWINGS TO PERMIT OTHER TRADES TO COORDINATE THEIR WORK.
- WHERE WORK OF ONE TRADE WILL INTERFERE WITH WORK OF ANOTHER TRADE, ALL TRADES SHALL ASSIST TO WORK COORDINATE THEIR WORK.
- PRIOR TO BIDDING THE HVAC CONTRACTOR SHALL REVIEW ALL DRAWINGS AND COORDINATE WORK. CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ARCHITECT ANY INCONSISTENCIES OR INTERFERENCE WITH HIS WORK.
- CONTRACTOR SHALL COORDINATE ALL CEILING DIFFUSERS, REGISTERS, AND/OR GRILLES WITH SUSPENDED CEILING AND LIGHT PATTERNS. OPENINGS SHALL BE IN CENTER OF TILES.
- SHEETMETAL DUCT SIZES MAY BE ALTERED TO FIT JOB CONDITIONS, BUT NET FREE AREAS MUST BE MAINTAINED. INCREASE SHEETMETAL DUCT SIZE TO ALLOW FOR DUCT LINING WHERE USED. WRAP ALL DUCTWORK EXCEPT AS NOTED. MAXIMUM DUCT ASPECT RATIO 1:5
- ALL DUCTWORK TO BE HELD TIGHT TO STRUCTURAL ROOF JOISTS, BEAMS, ETC, AS CLEARANCE IS MINIMAL. COORDINATE WITH OTHER CONTRACTORS TO AVOID CONFLICT.
- CONTRACTOR SHALL INCLUDE IN HIS WORK THE RELOCATION OF ALL CROSS BRACING, AS REQUIRED TO FIT DUCTS BETWEEN JOISTS. THIS WORK SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR WITH ARCHITECTURAL APPROVAL.

- CONTRACTOR SHALL PROVIDE ALL DUCT DROPS AND OFFSETS TO AVOID INTERFERENCES WITH JOISTS, OTHER DUCTS, LIGHTS, PIPES, ETC.
- ALL THERMOSTATS LOCATED UP 4'-6" TO 5'-0" TO MATCH ADJACENT LIGHT SWITCHES AND WITH PLASTIC OR CAST GUARDS AS SPECIFIED. ALL THERMOSTATS LOCATED ON EXTERIOR WALLS OR COLUMNS MUST BE MOUNTED ON THERMAL INSULATING BLOCKS.
- HEATING, VENTILATING, AIR CONDITIONING AND ELECTRICAL DESIGNS ARE BASED ON THE REQUIREMENTS FOR THE SPECIFIED EQUIPMENT MANUFACTURER. CONDUITS, DISCONNECTS, BREAKERS, FUSES AND WIRE SIZES ARE SELECTED ON THE BASIS OF SPECIFIED EQUIPMENT MANUFACTURER. INCREASED CURRENT REQUIREMENTS NECESSITATING LARGER WIRE, BREAKERS, FUSES, SWITCHES, ETC. TO ACCOMMODATE ANY ALTERNATE OR SUBSTITUTE MANUFACTURER'S EQUIPMENT OTHER THAN AS SHOWN ON DRAWINGS OR SCHEDULES SHALL BE PROVIDED WITHOUT INCREASE IN CONTRACT PRICE BY THE CONTRACTOR FURNISHING EQUIPMENT.
- INSTALL 1" OF NON-SHRINK GROUT AROUND DUCTWORK AND PIPING ON EACH WALL FACE TO SEAL OPENINGS AND ELIMINATE SOUND TRANSFER WITH AIR-TIGHT CONNECTIONS.
- INSULATION**
ALL INSULATION SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS IN ACCORDANCE WITH ASTM E84 AND NFPA 90A. DUCTWORK AND PLENUM INSULATION SHALL BE EXTERNALLY WRAPPED.
A. **LOCATED IN CONDITIONED SPACES**
ALL SUPPLY, OUTSIDE AIR AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-6, TYPE FIBROUS GLASS INSULATION ASTM C 612. INSULATION SHALL HAVE FACTORY APPLIED REINFORCED ALUMINUM FOIL VAPOR BARRIER. WITH THERMAL CONDUCTIVITY: 0.22 AT 75°F
B. **LOCATED IN UNCONDITIONED SPACES** (IN ATTIC OR OUTSIDE THE BUILDING ENVELOPE ASSEMBLY).
ALL SUPPLY, OUTSIDE AIR, RETURN, EXHAUST AIR DUCT AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-8, TYPE FIBROUS GLASS INSULATION ASTM C 612. INSULATION SHALL HAVE FACTORY APPLIED REINFORCED ALUMINUM FOIL VAPOR BARRIER. WITH THERMAL CONDUCTIVITY: 0.22 AT 75°F
- SUPPORTS AND ANCHORS**
A. MANUFACTURERS: GRINNELL, B-LINE, O.Z. GEDNEY, MICHIGAN HANGER, BERGEN, CARPENTER AND PATERSON.
B. USE MATERIALS COMPATIBLE WITH PIPING SYSTEMS AVOIDING ELECTROLYTIC ACTION AND CONFORM TO ANSI/ASME B31, NFPA, MSS SP-58, 69, 89.
C. WIRE IS NOT ALLOWED TO BE USED AS A HANGER SUPPORT.
- TESTING AND BALANCING**
A. AIR BALANCING SHALL BE ACCOMPLISHED BY ADJUSTMENT OF ADJUSTABLE FAN SHEAVES. BRANCH DAMPERS ARE TO BE USED FOR ANY REQUIRED TRIM ADJUSTMENT.
B. THE CONTRACTOR SHALL PROVIDE ALL LABOR AND EQUIPMENT INCLUDING SHEAVES AS REQUIRED TO BALANCE ALL AIR SYSTEMS IN ACCORDANCE WITH QUANTITIES SHOWN.
C. BALANCING SHALL BE PERFORMED UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER AND REPORT SHALL BE PROVIDED ON AABC TYPE FORMS.
- AIR DISTRIBUTION SYSTEMS**
A. AIR TERMINALS
1. PROVIDE SUPPLY AND RETURN AIR DIFFUSERS/REGISTERS AS SHOWN ON SCHEDULES.
B. SHEET METAL WORK
1. EXCEPT AS OTHERWISE SHOWN OR NOTED, ALL DUCTWORK AND OTHER SHEET METAL WORK SHALL BE GALVANIZED SHEET STEEL AND SHALL BE INSTALLED IN ACCORDANCE WITH SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA) DUCT CONSTRUCTION STANDARDS. DUCT SYSTEMS TO BE 2" PRESSURE CLASS.
2. ALL DUCT DIMENSIONS INDICATED ON THE PLANS ARE INSIDE CLEAR DIMENSIONS.
3. MANUAL VOLUME DAMPERS: GALVANIZED STEEL, PER SMACNA EXCEPT PROVIDE BEARING AT ONE END OF DAMPER ROD AND QUADRANT, WITH LEVER AND LOCKSCREW AT THE OPPOSITE END. FOR INSULATED DUCTS, QUADRANTS MOUNTED ON COLLAR TO CLEAR INSULATION. LEVERS MUST BE ACCESSIBLE.
4. EXHAUST DUCTWORK ELBOWS TO BE LONG RADIUS TYPE.
5. ACCESS DOORS SHALL BE PROVIDED IN DUCTWORK WHEREVER CONTROLS, CONTROL DAMPERS, COILS, & INSTRUMENTS ARE INSTALLED.
6. THE PLENUM CHAMBER THAT IS USED FOR RECIRCULATION OF AIR SHALL BE OF TIGHT CONSTRUCTION AND ALL SOURCES OF AIR CONTAMINATION FROM TRAPS, SOIL STACKS, DOWNSPOUTS, VENTS, EXHAUST DISCHARGE AND OTHER SOURCES WILL BE ENCLOSED SO THAT NO CONTAMINATED AIR WILL BE RECIRCULATED.
- CONTROL SYSTEM WIRING.**
A. HVAC CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL CONTROL WIRING FOR HVAC EQUIPMENT.

The Mechanical Contractor shall be responsible to cut and patch necessary wall or floor openings and provide materials and hardware for complete installation.

THIS PROJECT HAS BEEN DESIGNED TO MEET ALL THE APPLICABLE CODES PERTAINING TO HEATING, VENTILATING AND AIR CONDITIONING. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSTALL THE SYSTEMS AS DESIGNED AND IN A MANNER THAT MEETS THE APPROPRIATE CODE REQUIREMENTS AND MANUFACTURER RECOMMENDATIONS.

Legacy Designs, Inc.
6116 Mulford Village Drive
ROCKFORD, ILLINOIS
1-815-484-4708 phone LEGACY@LEGACYDESIGNS.NET
1-815-484-4710 fax
PROFESSIONAL DESIGN FIRM NO. 184-003483

A NEW FACILITY FOR
**BOONE COUNTY ANIMAL SERVICES
AND ADOPTION CENTER**
BELVIDERE, ILLINOIS

REVISIONS

COMMISSION NUMBER
215102

DATE
October 12, 2015

SHEET NO.

M4
OF 4 SHEETS

HVAC
SPECIFICATIONS & NOTES
SCALE: N.T.S.