

Contra Costa College - Child Development Center

2600 Mission Bell Drive
San Pablo, CA 94806



an ABM company

1266 14th Street
Oakland, CA 94607
(510) 839-1500

Andover
Controls

Job Number: 13180081

Engineer: CommAir Mechanical Services

AS-BUILT

REV. B

07/01/03

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A	07/10/02	SUBMITTAL
B	07/01/03	AS-BUILT

Contra Costa College
Child Development Center

2600 Mission Bell Drive, San Pablo, California 94806

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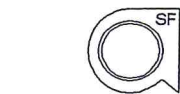
Symbol Legend

Common Abbreviations:

AC = Air Conditioning
ACU = Air Conditioning Unit
AHU = Air Handling Unit
AI = Analog Input
AO = Analog Output
AUTO = Automatic
AUX = Auxiliary
BPT = Building Static Pressure Transducer
C = Common
CHW = Chilled Water
CHWP = Chilled Water Pump
CHWR = Chilled Water Return
CHWS = Chilled Water Supply
COND = Condenser
CW = Condenser Water
CWP = Condenser Water Pump
CWR = Condenser Water Return
CWS = Condenser Water Supply
DA = Discharge Air
DI = Digital Input
DDC = Direct Digital Control
DO = Digital Output
DPT = Duct Static Pressure Transducer
DPT = Differential Pressure Transducer

DTS = Duct Temperature Sensor
EA = Exhaust Air
EF = Exhaust fan
EVAP = Evaporator
F = Fahrenheit
FC = Fluid Cooler
FCU = Fan Coil Unit
HOA = Hand/Off/Auto
HP = Heat Pump
HRU = Heat Recovery Unit
HTEX = Heat Exchanger
HW = Hot Water
HWP = Hot Water Pump
HWR = Hot Water Return
HWS = Hot Water Supply
HX = Heat Exchanger
JMPR = Jumper
MAX = Maximum
MIN = Minimum
MISC = Miscellaneous
MUA = Make Up Air Unit
NC = Normally Closed
NO = Normally Open
OA = Outside Air
PID = Prportional + Integral + Derivative

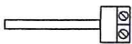
PDU = Power Distribution Unit
PIU = Power Induction Unit
RA = Return Air
RF = Return Fan
RH = Relative Humidity
RTU = Roof Top Unit
SA = Supply Air
SF = Supply Fan
SP = Static Pressure
TEMP = Temperature
UH = Unit Heater
UI = Universal (AI or DI) Input
UV = Unit Ventilator
VA = Valve Actuator
VAV = Variable Air Volume
W/ = with
W/O = without
WSHP = Water Source Heat Pump
V VTU = Variable Volume Terminal Unit



Supply Fan



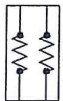
DX Cooling Coil



Duct Temperature Sensor



Exhaust Fan



Electric Heating Coil



Averaging Duct Temperature Sensor



Return Fan



Gas Heating



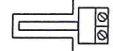
Duct Humidity Sensor



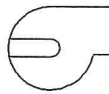
Fan w/ Inlet Vane Control



Hot Water Heating Coil



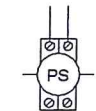
Immersion Temperature Sensor w/ Well



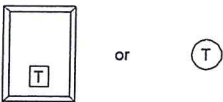
Pump



Chilled Water Cooling Coil



Pressure Sensor



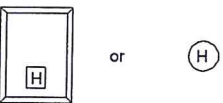
Room Temperature Sensor



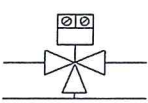
Steam Heating Coil



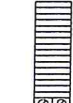
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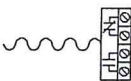
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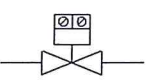
3 - Way Valve



Air Flow Station



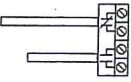
FreezeStat



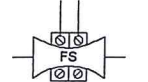
2 - Way Valve



Damper



Smoke Detector



Flow Sensor

Cable Designation	Type	No. of Conductors	Gauge	Remarks	Part No.	Manufacturer	Supplier
A	Network CAT 5	8	24	4 Pair Unshielded Data Twisted	1583A	Belden (Or Equal)	Contractors Wire & Cable
B	Infinet/ I/O Bus Comm.	2	24	Low Cap Temp Control Communication Bus Twisted Cable (Orange Jacket)	041002-S	Smartwire (Or Equal)	Windy City Wire
C	X-Driver	8	22	Cable type specific with application	9746	Belden (Or Equal)	Contractors Wire & Cable
D	Sensor	2	18	Multiconductor Twisted Shielded	5300FE	Belden (Or Equal)	Contractors Wire & Cable
E	Sensor	4	18	Multiconductor Twisted Shielded	5302FE	Belden (Or Equal)	Contractors Wire & Cable
F	Control Output Wire	1	16	TFFN Stranded Conductor	28016	General Cable (Or Equal)	Contractors Wire & Cable

Note: 1. In general, field mechanics to use non-plenum rated cable in conduit, except when it is necessary to use plenum rated cable without the use of conduit in the building and/or in the panels where conduit in short runs will not be installed.

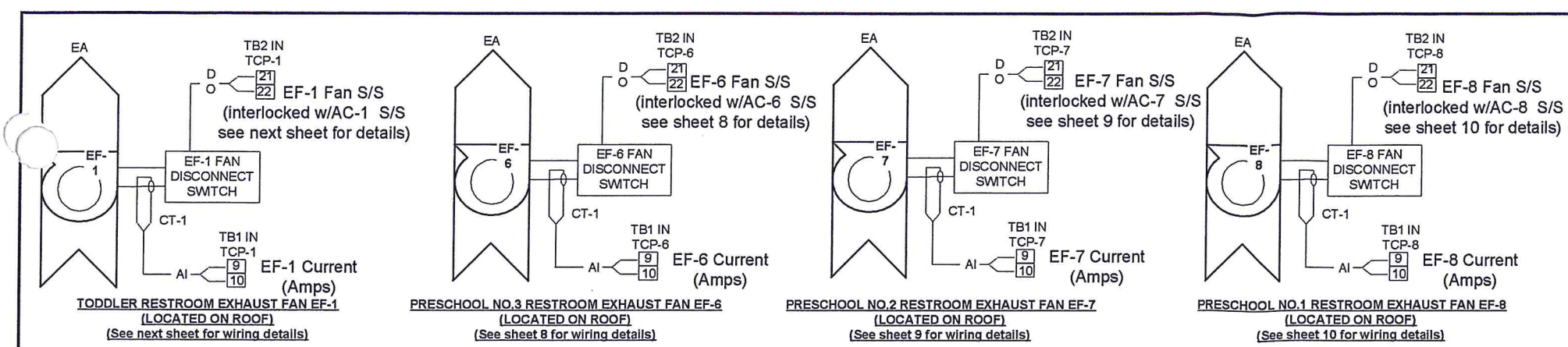
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Summary Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
CT-1	LOOP POWERED CURRENT SENSOR 0-55 AMPS 4-20MA OUT	VERIS IND.	ZVH-721	13 ea
DA-B	SR PROPORTIONAL 133 IN-LB 2-10VDC	BELIMO	ZBAF24-SR	2 ea
DCX 250	DCX 250 TOUCH SCREEN	ANDOVER	01-0008-300	1 ea
DTE-3	DUCT 10K THERMISTOR PROBE 9 IN.	ANDOVER	TT-D-9-1	16 ea
EBP-G3	BACK PANEL 27X21	HOFFMAN	A-30P24	6 ea
EBP-J3	BACK PANEL 33X27	HOFFMAN	A-36P30	2 ea
EMX 150	EMX 150 EXPANSION MODULE (2 AO)	ANDOVER	01-0008-702	2 ea
EMX-155	EMX 155 EXPANSION MODULE (2 DOS W/FORM C RELAY SW)	ANDOVER	01-0008-705	8 ea
EN-AA1	NEMA 1 ENCLOSURE HINGED COVER 12X12X8	HOFFMAN	A-12N128	10 ea
EN-G3	NEMA 3R ENCLOSURE HINGED COVER 30X24X8	HOFFMAN	A-30R248HCR	6 ea
EN-J3	NEMA 3R ENCLOSURE HINGED COVER 36X30X12	HOFFMAN	A-363012HCR	2 ea
FU-1	FUSE HOLDER	ENTRELEC	M10/16SFL	22 ea
FU-2	FAST ACTING FUSE 5 AMP	KELE & ASSOC.	GF-5	22 ea
INFILINK	INFILINK 200	ANDOVER	01-0008-600	1 ea
OAT-1	OSA TEMP SENSOR	ANDOVER	ZATE-205-F-7	1 ea
R-2	DPDT RELAY W/IND.LIGHT,24VAC & BASE(RH2B-UAC-24-L)	IDEC	ZL-ID46873	40 ea
RTS-1	ROOM THERMISTOR TEMP SENSOR W/ACC LOGO	ANDOVER	TTS-S-1	2 ea
RTS-2	ROOM TEMP SENSOR W/SLIDER,PB, LED,LAPTOP JACK CONN	ANDOVER	TTS-SE-1	14 ea
SPS-1	STATIC PRESSURE TIP 1/4INCH BARB	KELE & ASSOC.	A-302	2 ea
SWASSY-TX1	120V/24V TRANSFORMER W/DISCONNECT,BRKR & RECEPTACLE	KELE & ASSOC.	T-PB202-0	8 ea
T22AAA	LINE VOLTAGE WALL THERMOSTAT SPST	JOHNSON CONTROLS	T22AAA-1	1 ea
TB	TERMINAL BLOCKS	KELE & ASSOC.	M4/6	240 ea
TCX 853	TCX 853 TERM.CONTROLLER(6UI,2AIRFLO,3FRMA,1TRI ST)	ANDOVER	01-0008-405	8 ea
TCX 865	TCX 865 TERM.CONTROLLER(3UI,3FORMA OUT,1AIRFLOW&D)	ANDOVER	01-0009-865	10 ea
TUBING	3/8IN BLACK PNEUM TUBING 250 FT	KELE & ASSOC.	T-110	1 ea
TX-1	TRANSFORMER, 120/24VAC, 40VA	CORE COMPONENTS	ZL-LE-112	10 ea
WIRE-INFNT	LOW CAP COMMUNICTON 2-COND TWSTED CABLE(1000 FT)	SMARTWIRE	042002-S	1 ea
WIRE-SNSR1	1000 FT-2 CONDUCTOR #18AWG TWSTED SHIELDED	BELDEN	5300FE	1 ea

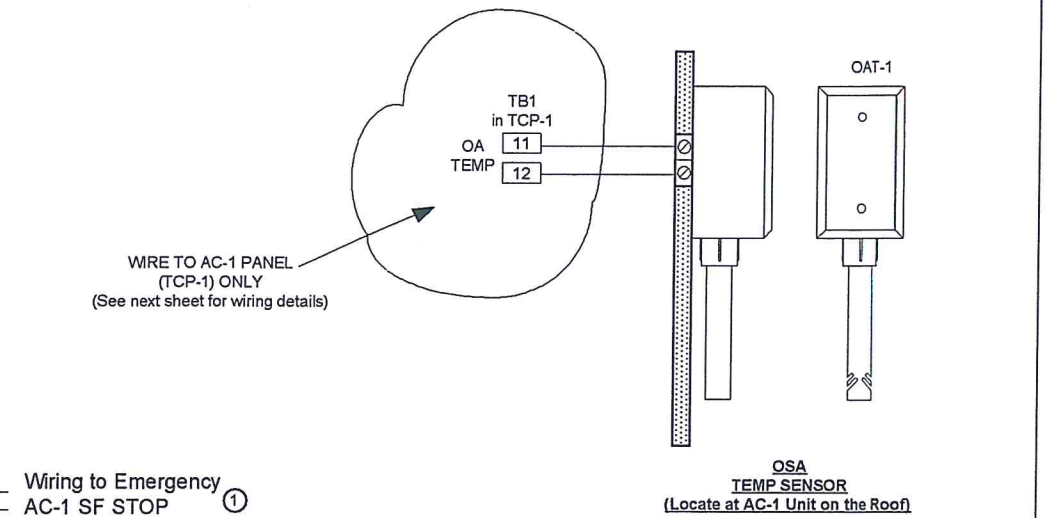
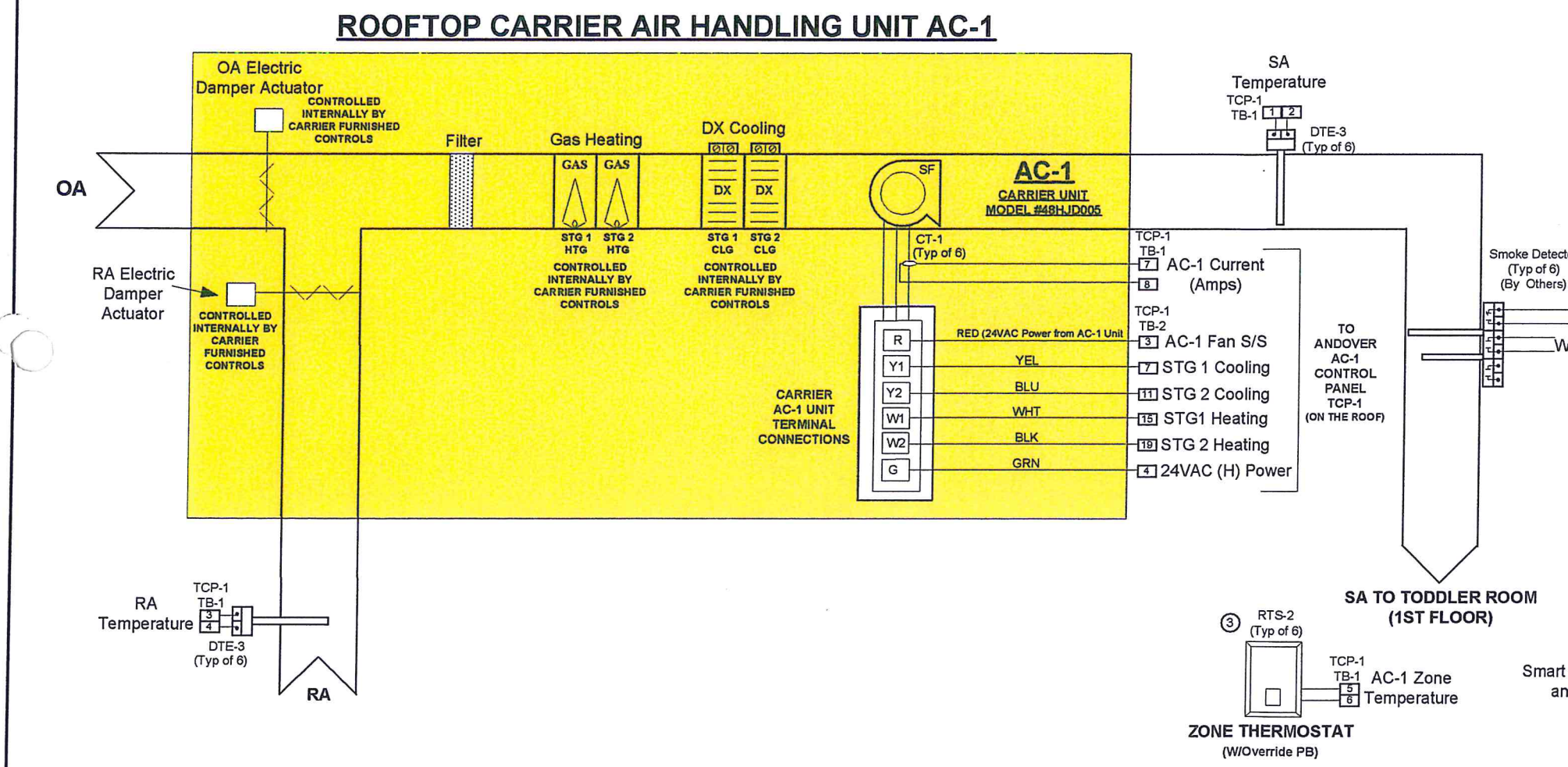
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B	07/01/03	AS-BUILT

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Summary Bill of Materials			
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ROOFTOP EXHAUST FANS EF-1, EF-6, EF-7 & EF-8 CONTROL SCHEMATIC

Bill of Materials			
DID	DESCRIPTION	MANUFACTURER	PART NUMBER
CT-1	LOOP POWERED CURRENT SENSOR 0-55 AMPS 4-20MA OUT	VERIS IND.	ZVH-721
DTE-3	DUCT 10K THERMISTOR PROBE 9 IN.	ANDOVER	TT-D-9-1
OAT-1	OSA TEMP SENSOR	ANDOVER	ZATE-205-F-7
RTS-2	ROOM TEMP SENSOR W/SLIDER,PB, LED,LAPTOP JACK CONN	ANDOVER	TTS-SE-1



CARRIER ROOFTOP CONSTANT VOLUME AC-1 PACKAGED UNIT CONTROL SCHEMATIC
TYPICAL FOR CARRIER ROOFTOP CONSTANT VOLUME UNITS AC-2, AC-5, AC-6, AC-7 & AC-8 PACKAGED UNITS CONTROL SCHEMATICS

(SEE NEXT SHEET FOR AC-1 & EF-1 CONTROL WIRING DIAGRAM DETAILS IN TCP-1 ON THE ROOF)
(SEE SHEET 8 FOR AC-2 CONTROL WIRING DIAGRAM DETAILS IN TCP-2 ON THE ROOF)
(SEE SHEET 9 FOR AC-5 CONTROL WIRING DIAGRAM DETAILS IN TCP-3 ON THE ROOF)
(SEE SHEET 10 FOR AC-6 & EF-6 CONTROL WIRING DIAGRAM DETAILS IN TCP-6 ON THE ROOF)
(SEE SHEET 11 FOR AC-7 & EF-7 CONTROL WIRING DIAGRAM DETAILS IN TCP-7 ON THE ROOF)
(SEE SHEET 12 FOR AC-8 & EF-8 CONTROL WIRING DIAGRAM DETAILS IN TCP-8 ON THE ROOF)
(SEE SHEET 5 FOR 1ST FLOOR & ROOF ANDOVER CONTROLS NETWORK RISER DIAGRAM)

General Notes:
1) Provision and installation of supply duct smoke detectors by Mechanical Contractor with power wiring & interlocked wiring to each respective AC-1, AC-2, AC-5, AC-6, AC-7 & AC-8 Supply Fan shutdown circuit & Fire Alarm Control Panel as well as smoke detector status wiring to the Andover Control Panel on the roof by Electrical Contractor.
2) Refer to Table on Legend Sheet 3 for type and size of wiring to use for input/output wirings.
3) See Mechanical Floor Plan M-1 for location of AC-1, AC-2, AC-5, AC-6, AC-7 & AC-8 Andover zone temperature sensor on 1st Floor.

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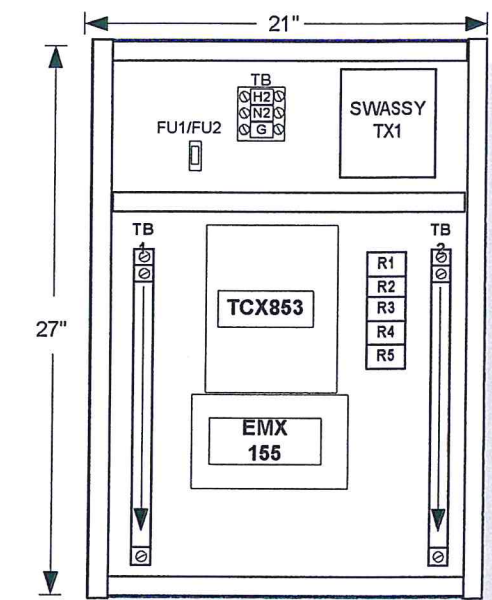
Contra Costa College
Child Development Center
2600 Mission Bell Drive, San Pablo, California 94806
AC1,2 & 5-8 & EF1 & 6-8 Schem

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Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	
EBP-G3	BACK PANEL 27X21	HOFFMAN	A-30P24	1
EMX-155	EMX 155 EXPANSION MODULE (2 DOS W/FORM C RELAY SW)	ANDOVER	01-0008-705	1
EN-G3	NEMA 3R ENCLOSURE HINGED COVER 30X24X8	HOFFMAN	A-30R248HCR	1
FU-1	FUSE HOLDER	ENTRELEC	M1016SFL	1
FU-2	FAST ACTING FUSE 5 AMP	KELE & ASSOC.	GF-5	1
R-2	DPDT RELAY W/IND.LIGHT,24VAC & BASE(RH2B-UAC-24-L)	IDEC	ZL-ID46873	5
SWASSY-TX1	120V/24V TRANSFORMER W/DISCONNECT, BRKR & RECEPTACLE	KELE & ASSOC.	T-PB202-0	1
TB	TERMINAL BLOCKS	KELE & ASSOC.	M4/6	30
TCX 853	TCX 853 TERM.CONTROLLER(6UI,2AIRFLO,3FRMA,1TRI ST)	ANDOVER	01-0008-405	1



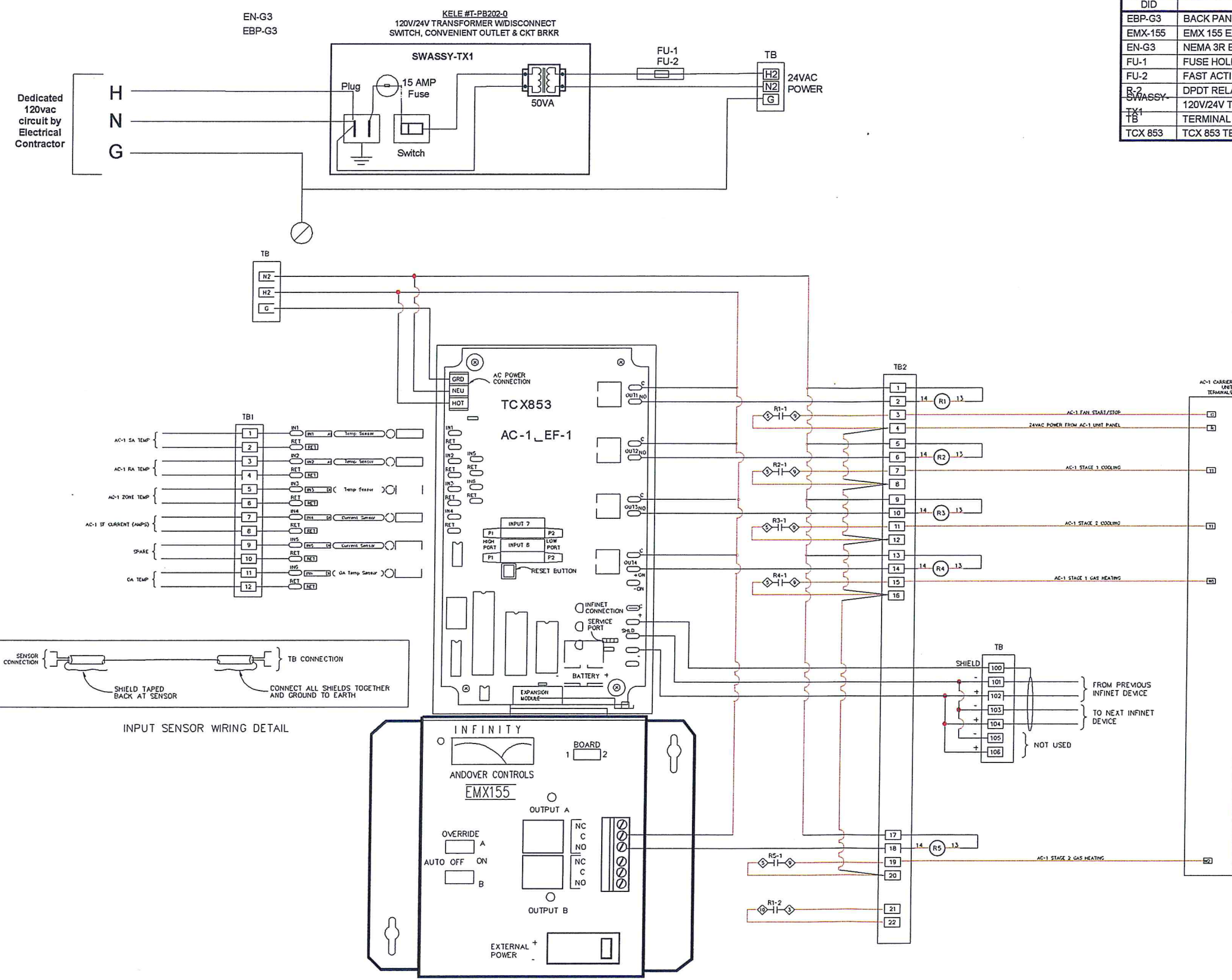
TCP-1 PANEL LAYOUT FOR AC-1& EF-1 CONTROL
(NOT TO SCALE)

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TCP-1(TCX853_AC1,EF1)Pnl Wimg

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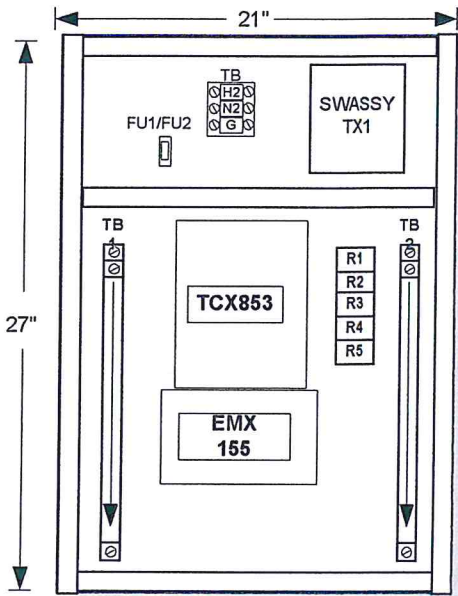
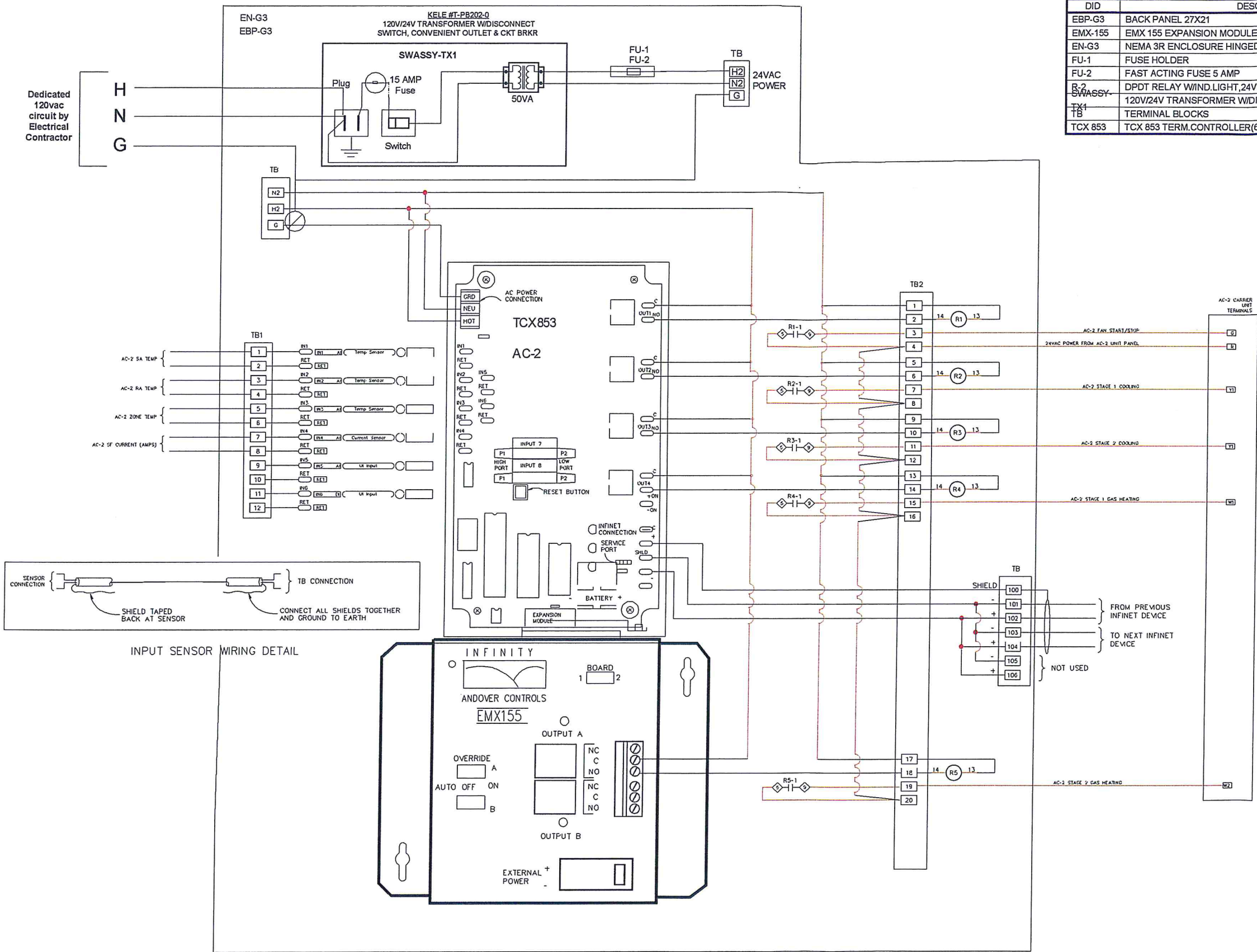
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TCP-1
Locate 30"x24"x8" NEMA 3R panel on Roof next to AC-1 unit
CARRIER AC UNIT AC-1 & EF-1 CONTROL MODULE WIRING DIAGRAM
(See last sheet for AC-1 & EF-1 Control Schematic)

General Notes:
1. Carrier unit AC-1 Supply Fan Starter wiring is interlocked via DPDT relay R-1 to start/stop with Exhaust Fan EF-1.

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	
EBP-G3	BACK PANEL 27X21	HOFFMAN	A-30P24	1
EMX-155	EMX 155 EXPANSION MODULE (2 DOS W/FORM C RELAY SW)	ANDOVER	01-0008-705	1
EN-G3	NEMA 3R ENCLOSURE HINGED COVER 30X24X8	HOFFMAN	A-30R248HCR	1
FU-1	FUSE HOLDER	ENTRELEC	M1016SFL	1
FU-2	FAST ACTING FUSE 5 AMP	KELE & ASSOC.	GF-5	1
R-2	DPDT RELAY W/IND.LIGHT,24VAC & BASE(RH2B-UAC-24-L)	IDEC	ZL-ID46873	5
TX1	120V/24V TRANSFORMER W/DISCONNECT, BRKR & RECEPTACLE	KELE & ASSOC.	T-PB202-0	1
TB	TERMINAL BLOCKS	KELE & ASSOC.	M4/8	30
TCX 853	TCX 853 TERM.CONTROLLER(6UI,2AIRFLO,3FRMA,1TRI ST)	ANDOVER	01-0008-405	1



TCP-2 PANEL LAYOUT FOR AC-2 CONTROL
(NOT TO SCALE)

REV. NO.	DATE	REVISION DESCRIPTION
A	07/10/02	SUBMITTAL
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TCP-2
Locate 30"x24"x8" NEMA 3R panel on Roof next to AC-2 unit
CARRIER AC UNIT AC-2 CONTROL MODULE WIRING DIAGRAM
(See sheet 6 for AC-2 Control Schematic)

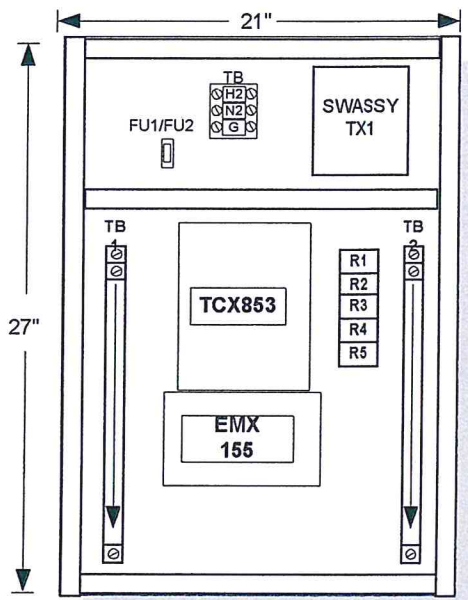
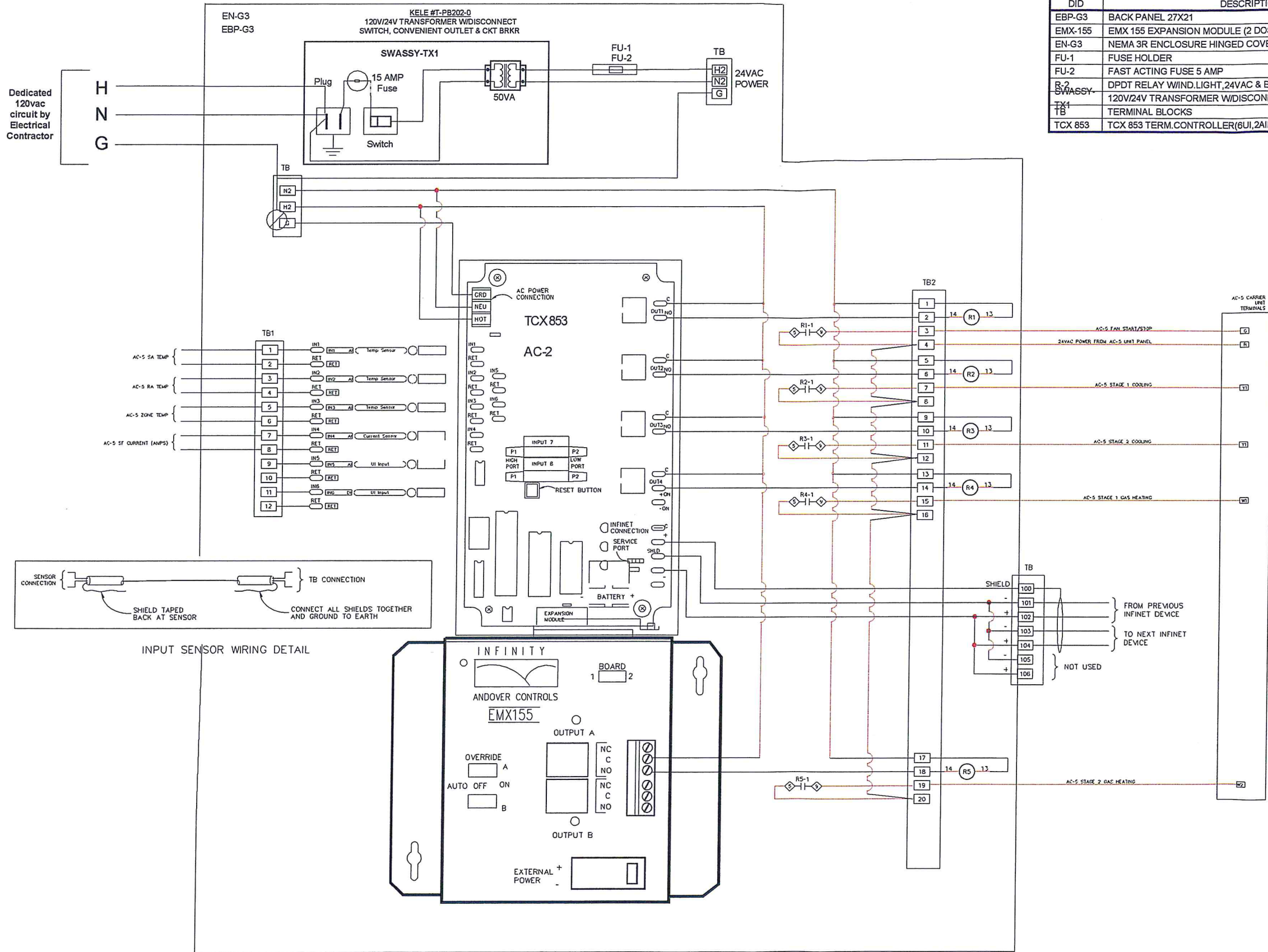
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TCP-2(TCX853_AC2) Pnl Wiring

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CommAir

Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	
EBP-G3	BACK PANEL 27X21	HOFFMAN	A-30P24	1
EMX-155	EMX 155 EXPANSION MODULE (2 DOS W/FORM C RELAY SW)	ANDOVER	01-0008-705	1
EN-G3	NEMA 3R ENCLOSURE HINGED COVER 30X24X8	HOFFMAN	A-30R248HCR	1
FU-1	FUSE HOLDER	ENTRELEC	M1016SFL	1
FU-2	FAST ACTING FUSE 5 AMP	KELE & ASSOC.	GF-5	1
R-2	DPDT RELAY W/IND.LIGHT,24VAC & BASE(RH2B-UAC-24-L)	IDEC	ZL-ID46873	5
SWASSY-TX1	120V/24V TRANSFORMER W/DISCONNECT, BRKR & RECEPTACLE	KELE & ASSOC.	T-PB202-0	1
TB	TERMINAL BLOCKS	KELE & ASSOC.	M4/6	30
TCX 853	TCX 853 TERM.CONTROLLER(6UI,2AIRFLO,3FRMA,1TRI ST)	ANDOVER	01-0008-405	1



TCP-5 PANEL LAYOUT FOR AC-5 CONTROL
(NOT TO SCALE)

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Child Development Center

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TCP-5(TCX853_AC5)Pnl Wiring

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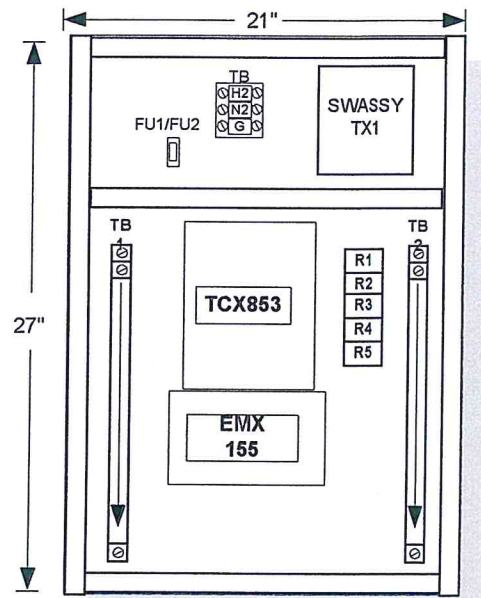
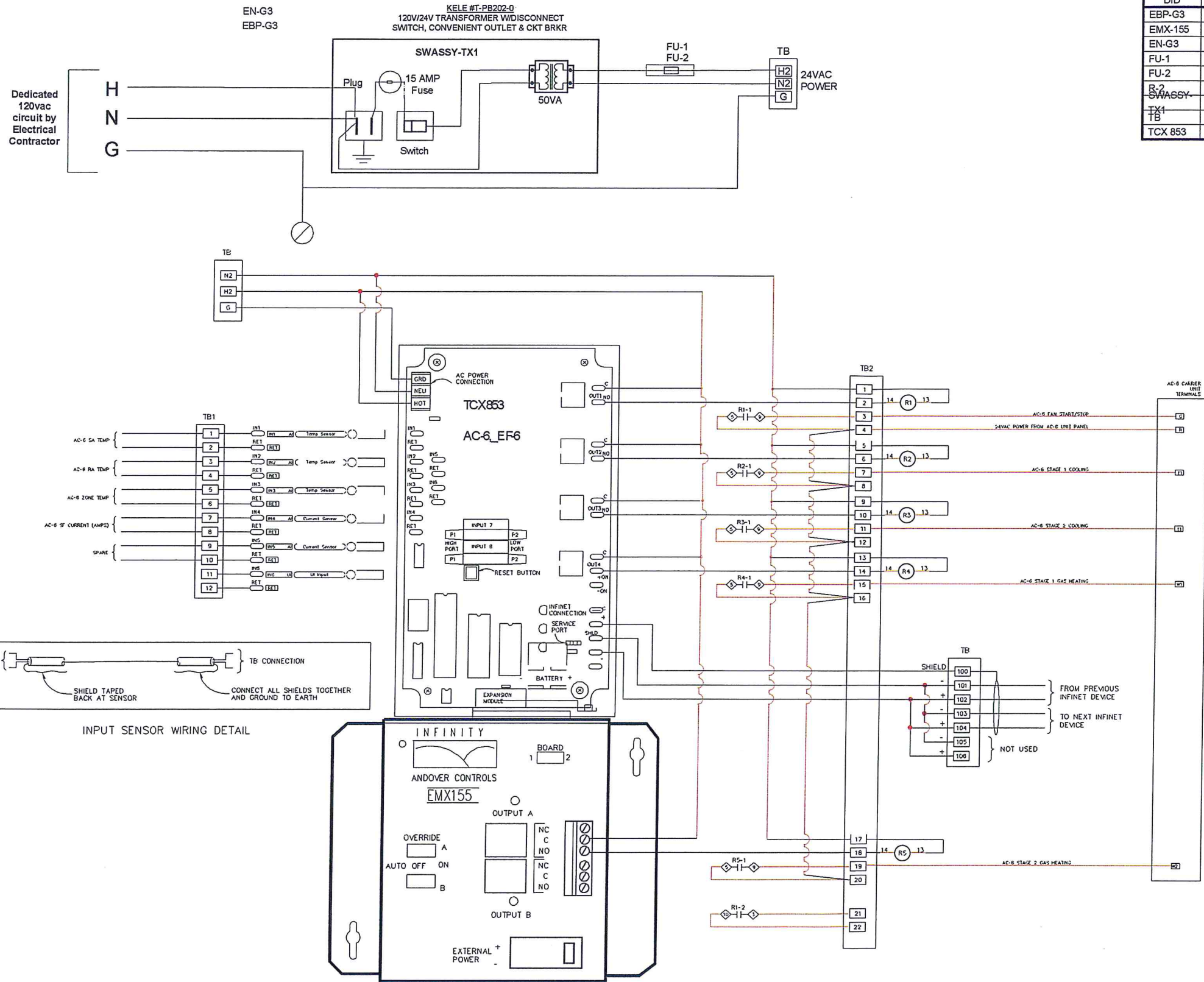
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DRAWN BY: NM

TCP-5
Locate 30"x24"x8" NEMA 3R panel on Roof next to AC-5 unit
CARRIER AC UNIT AC-5 CONTROL MODULE WIRING DIAGRAM
(See sheet 6 for AC-5 Control Schematic)

Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	
EBP-G3	BACK PANEL 27X21	HOFFMAN	A-30P24	1
EMX-155	EMX 155 EXPANSION MODULE (2 DOS W/FORM C RELAY SW)	ANDOVER	01-0008-705	1
EN-G3	NEMA 3R ENCLOSURE HINGED COVER 30X24X8	HOFFMAN	A-30R248HCR	1
FU-1	FUSE HOLDER	ENTRELEC	M10/16SFL	1
FU-2	FAST ACTING FUSE 5 AMP	KELE & ASSOC.	GF-5	1
R-2	DPDT RELAY W/IND.LIGHT, 24VAC & BASE (RH2B-UAC-24-L)	IDEC	ZL-JD46873	5
SWASSY-TX1	120V/24V TRANSFORMER W/DISCONNECT, BRKR & RECEPTACLE	KELE & ASSOC.	T-PB202-0	1
TB	TERMINAL BLOCKS	KELE & ASSOC.	M4/6	30
TCX 853	TCX 853 TERM.CONTROLLER(6UI,2AIRFLO,3FRMA,1TRI ST)	ANDOVER	01-0008-405	1



TCP-6 PANEL LAYOUT FOR AC-6 & EF-6 CONTROL

(NOT TO SCALE)

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A	07/10/02	SUBMITTAL
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TCP-6(TCX853_AC6,EF6)Pnl Wiring

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TCP-6
Locate 30'x24"x8" NEMA 3R panel on Roof next to AC-6 unit

CARRIER AC UNIT AC-6 & EF-6 CONTROL MODULE WIRING DIAGRAM

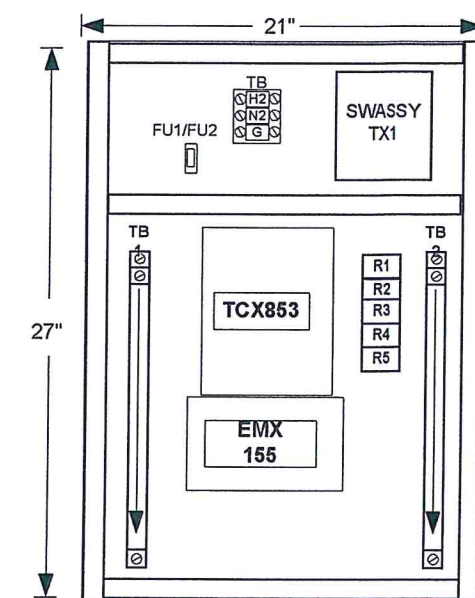
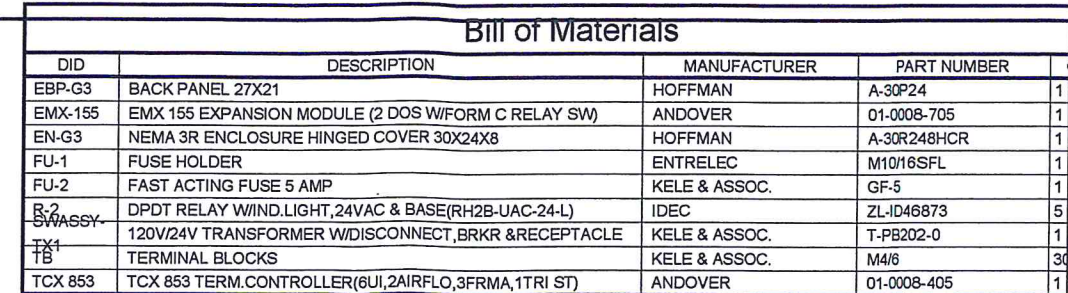
(See sheet 6 for AC-6 & EF-6 Control Schematic)

General Notes:

Carrier unit AC-6 Supply Fan Starter wiring is interlocked via DPDT relay R-1 to start/stop with

Exhaust

Fan EF-6



TCP-7
Locate 30'x24"x8" NEMA 3R panel on Roof next to AC-7 unit

(See sheet 6 for AC-7 & EF-7 Control Schematic)

Carrier unit AC-7 Supply Fan Starter wiring is interlocked via DPDT relay R-1 to start/stop with Exhaust Fan EF-7.

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A	07/10/02	SUBMITTAL
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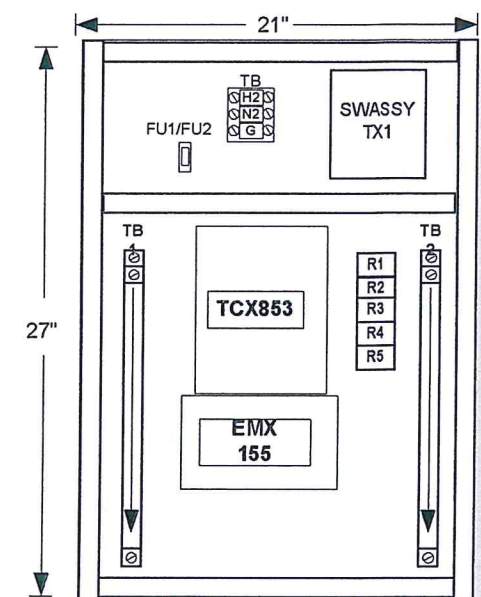
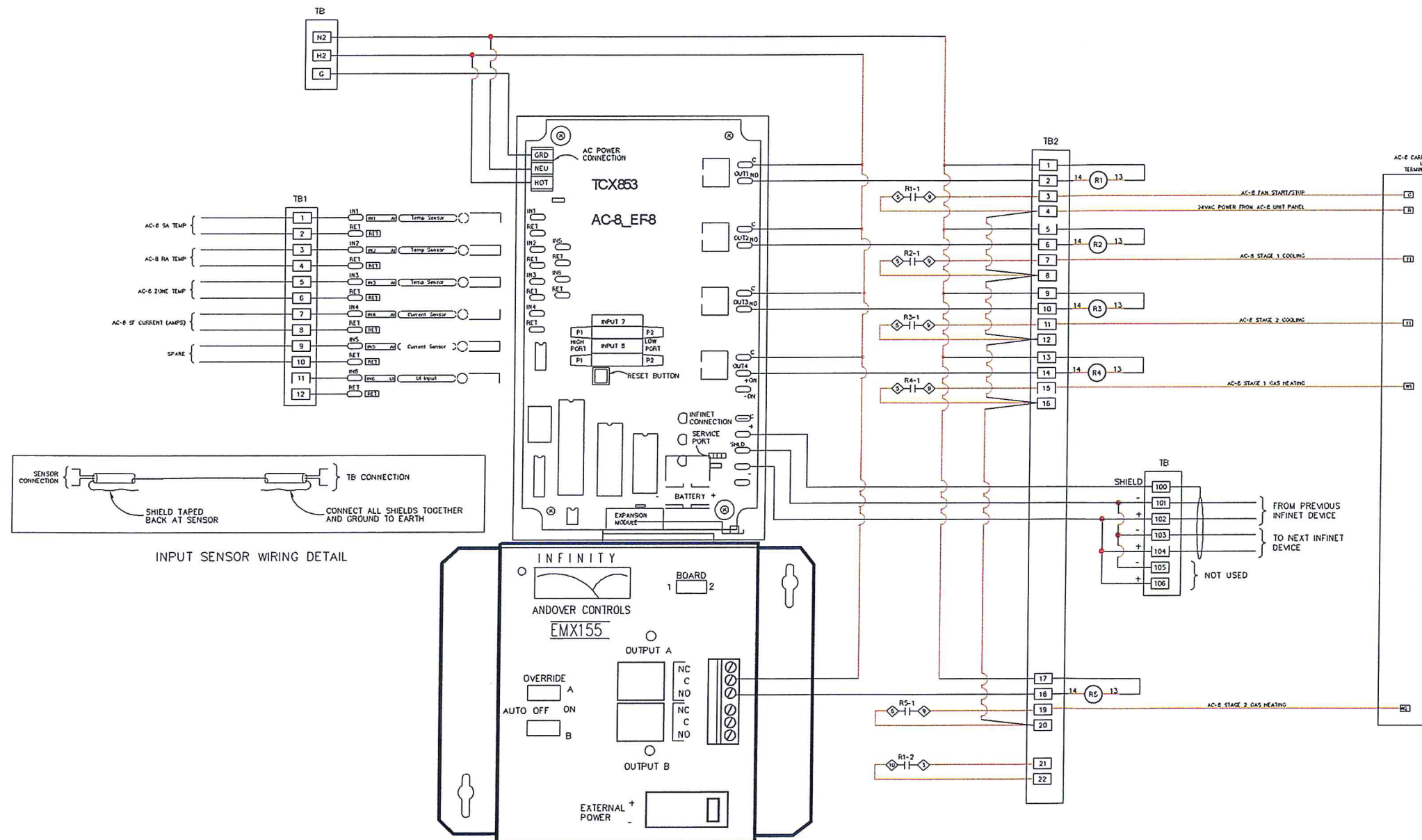
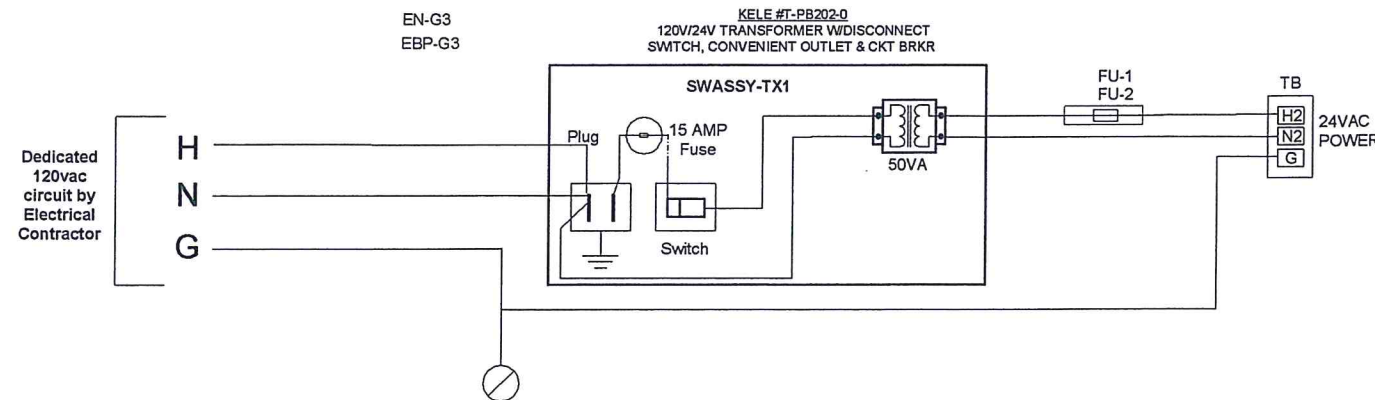
REV. B	AS-BUILT	7/01/03	JOB NO: 13180081
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Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	
EBP-G3	BACK PANEL 27X21	HOFFMAN	A-30P24	1
EMX-155	EMX 155 EXPANSION MODULE (2 DOS W/FORM C RELAY SW)	ANDOVER	01-0008-705	1
EN-G3	NEMA 3R ENCLOSURE HINGED COVER 30X24X8	HOFFMAN	A-30R248HCR	1
FU-1	FUSE HOLDER	ENTRELEC	M10/16SFL	1
FU-2	FAST ACTING FUSE 5 AMP	KELE & ASSOC.	GF-5	1
R-2	DPDT RELAY W/IND.LIGHT,24VAC & BASE(RH2B-UAC-24-L)	IDEC	ZL-ID46873	5
SWASSY-TX1	120V/24V TRANSFORMER W/DISCONNECT,BRKR & RECEPTACLE	KELE & ASSOC.	T-PB202-0	1
TB	TERMINAL BLOCKS	KELE & ASSOC.	M4/6	30
TCX 853	TCX 853 TERM.CONTROLLER(6UI,2AIRFLO,3FRMA,1TRI ST)	ANDOVER	01-0008-405	1



TCP-8 PANEL LAYOUT FOR AC-8 & EF-8 CONTROL

(NOT TO SCALE)

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A	07/10/02	SUBMITTAL
B	07/01/03	AS-BUILT

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TCX-8(TCX853_AC8,EF8)Pnl Wiring

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TCP-8
Locate 30"x24"x8" NEMA 3R panel on Roof next to AC-8 unit

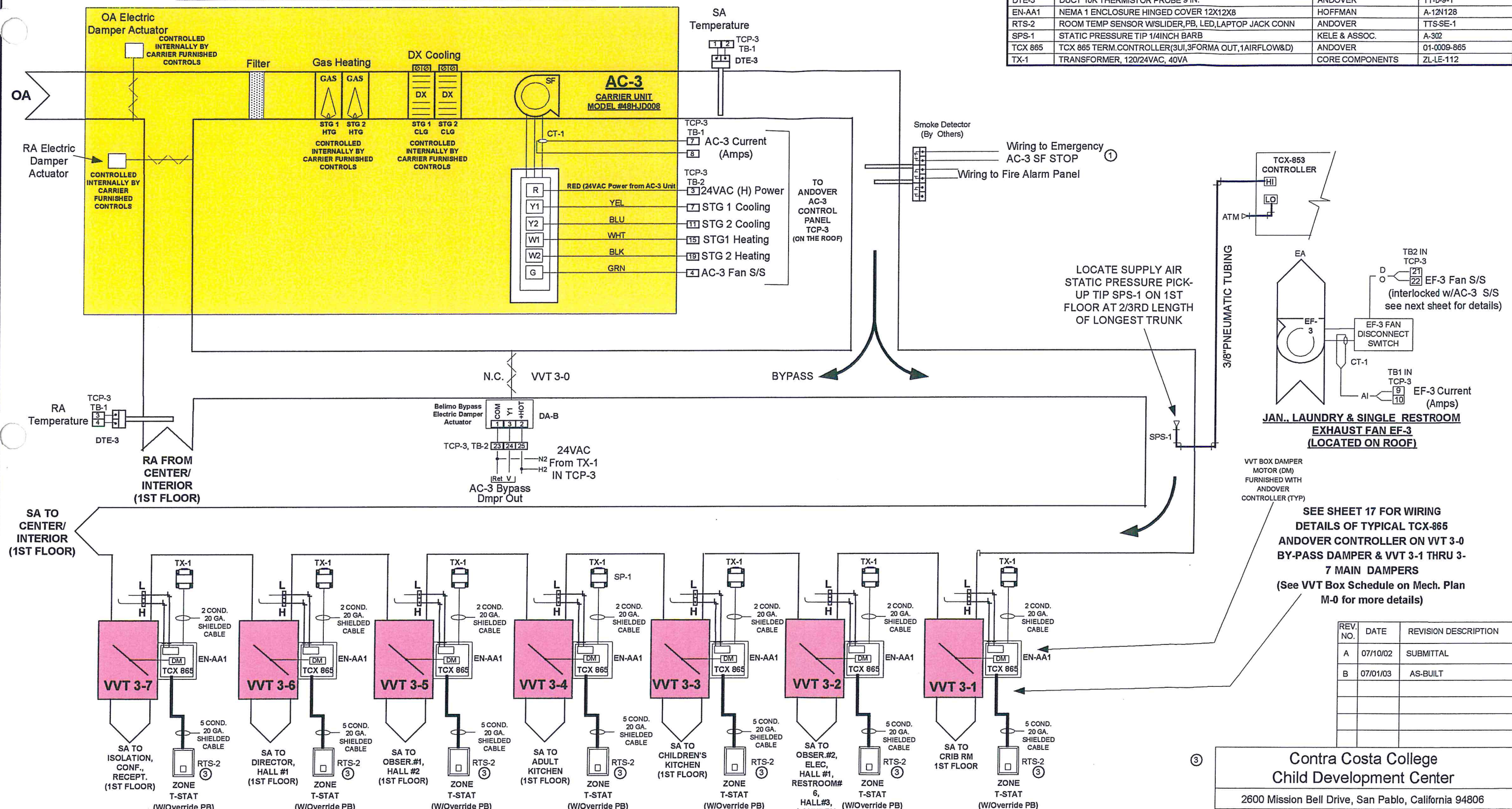
CARRIER AC UNIT AC-8 & EF-8 CONTROL MODULE WIRING DIAGRAM

(See sheet 6 for AC-8 & EF-8 Control Schematic)

General Notes:

- Carrier unit AC-8 Supply Fan Starter wiring is interlocked via DPDT relay R-1 to start/stop with Exhaust Fan EF-8.

ROOFTOP CARRIER AIR HANDLING UNIT AC-3



General Notes:
1. Provision and installation of supply duct smoke detectors by Mechanical Contractor with power wiring & interlocked wiring to AC-3 Supply Fan shutdown circuit & Fire Alarm Control Panel as well as smoke detector status wiring to the Andover Control Panel on the roof by Electrical Contractor (Done by Others).
2. Refer to Table on Legend Sheet 3 for type and size of wiring to use for input/output wirings.
3. See Mechanical Floor Plan M-1 for location of VVT 3-0, VVT 3-1, VVT 3-2, VVT 3-3, VVT 3-4, VVT 3-5, VVT 3-6 & VVT 3-7 Andover zone temperature sensors on 1st Floor.

CARRIER ROOFTOP VARIABLE VOLUME AC-3 PACKAGED UNIT & VARIABLE AIR VOLUME BOXES VVT 3-0 THRU VVT 3-7 CONTROL SCHEMATIC
(SEE NEXT SHEET FOR AC-3 & EF-3 CONTROL WIRING DIAGRAM DETAILS IN TCP-3 ON THE ROOF)
(SEE SHEET 17 FOR WIRING DETAILS OF TYPICAL ANDOVER TCX865 CONTROLLER ON 8 VVT BOXES ON 1ST FLOOR)
(SEE SHEET 5 FOR 1ST FLOOR & ROOF ANDOVER CONTROLS NETWORK RISER DIAGRAM)

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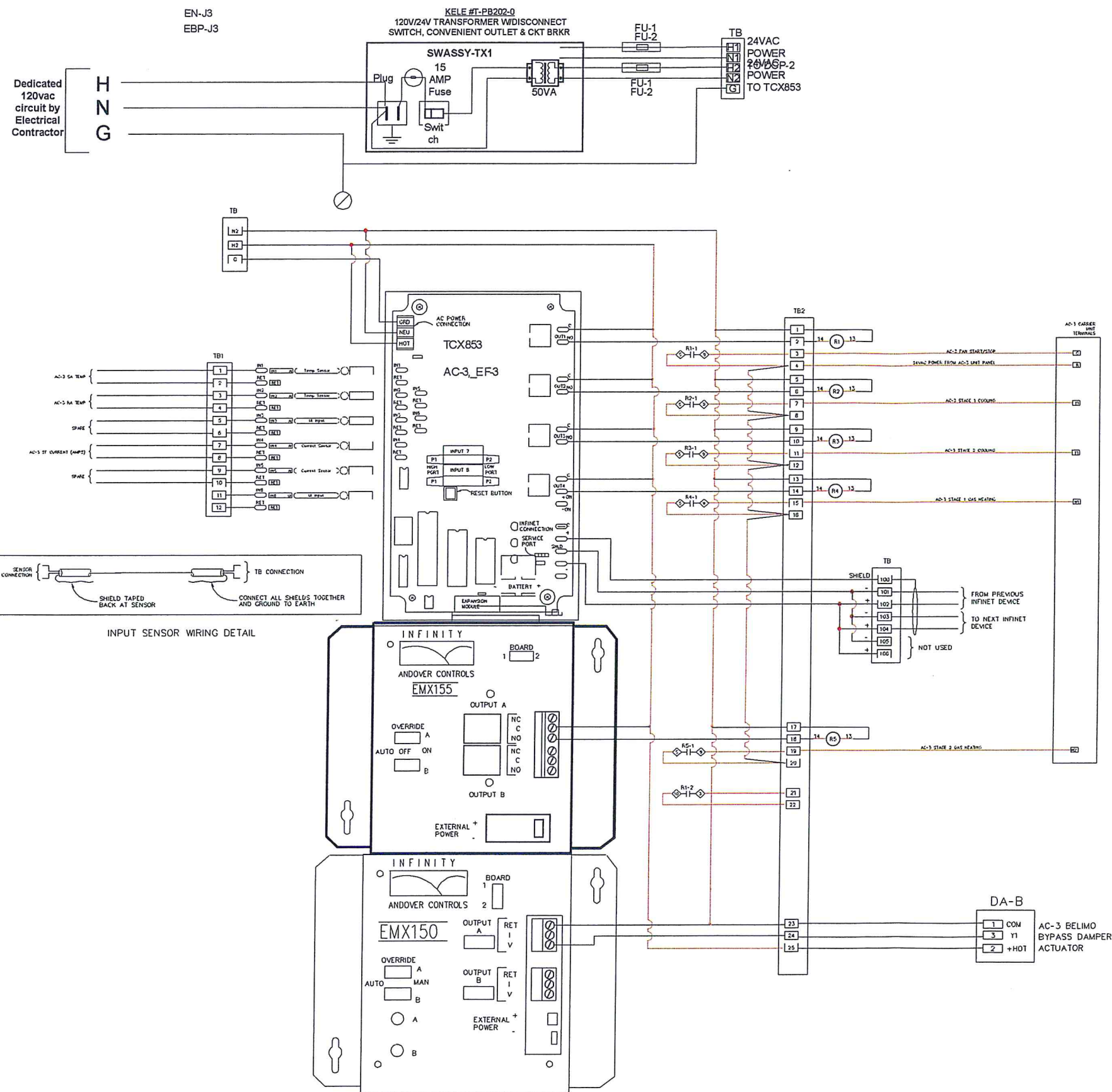
AC-3, EF-3 & VVT 3-0 to 3-7 Schem

REV.	NO.	DATE	REVISION DESCRIPTION
A	07/10/02	SUBMITTAL	
B	07/01/03	AS-BUILT	

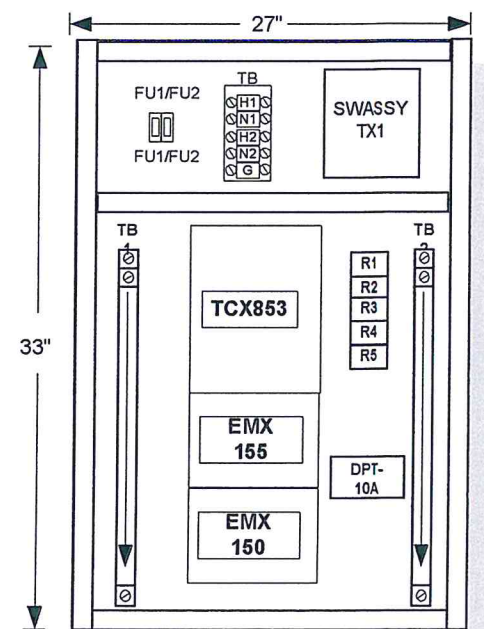
REV. B AS-BUILT 7/01/03 JOB NO: 13180081

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Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	
EBP-J3	BACK PANEL 33X27	HOFFMAN	A-36P30	1
EMX 150	EMX 150 EXPANSION MODULE (2 AO)	ANDOVER	01-0008-702	1
EMX-155	EMX 155 EXPANSION MODULE (2 DOS W/FORM C RELAY SW)	ANDOVER	01-0008-705	1
EN-J3	NEMA 3R ENCLOSURE HINGED COVER 36X30X12	HOFFMAN	A-363012HCR	1
FU-1	FUSE HOLDER	ENTRELEC	M10/16SFL	2
FU-2	FAST ACTING FUSE 5 AMP	KELE & ASSOC.	GF-5	2
R-2	DPDT RELAY W/IND. LIGHT, 24VAC & BASE (RH2B-UAC-24-L)	IDEC	ZL-ID46873	5
SWASSY-TX1	120V/24V TRANSFORMER W/DISCONNECT, BRKR & RECEPTACLE	KELE & ASSOC.	T-PB202-0	1
TB	TERMINAL BLOCKS	KELE & ASSOC.	M4/6	30
TCX 853	TCX 853 TERM. CONTROLLER (6UI, 2AIRFLO, 3FRMA, 1TRI ST)	ANDOVER	01-0008-405	1



TCP-3 PANEL LAYOUT FOR AC-3 & EF-3 CONTROL

(NOT TO SCALE)

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A	07/10/02	SUBMITTAL
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TCP-3(TCX853_AC3,EF3)Pnl Wiring

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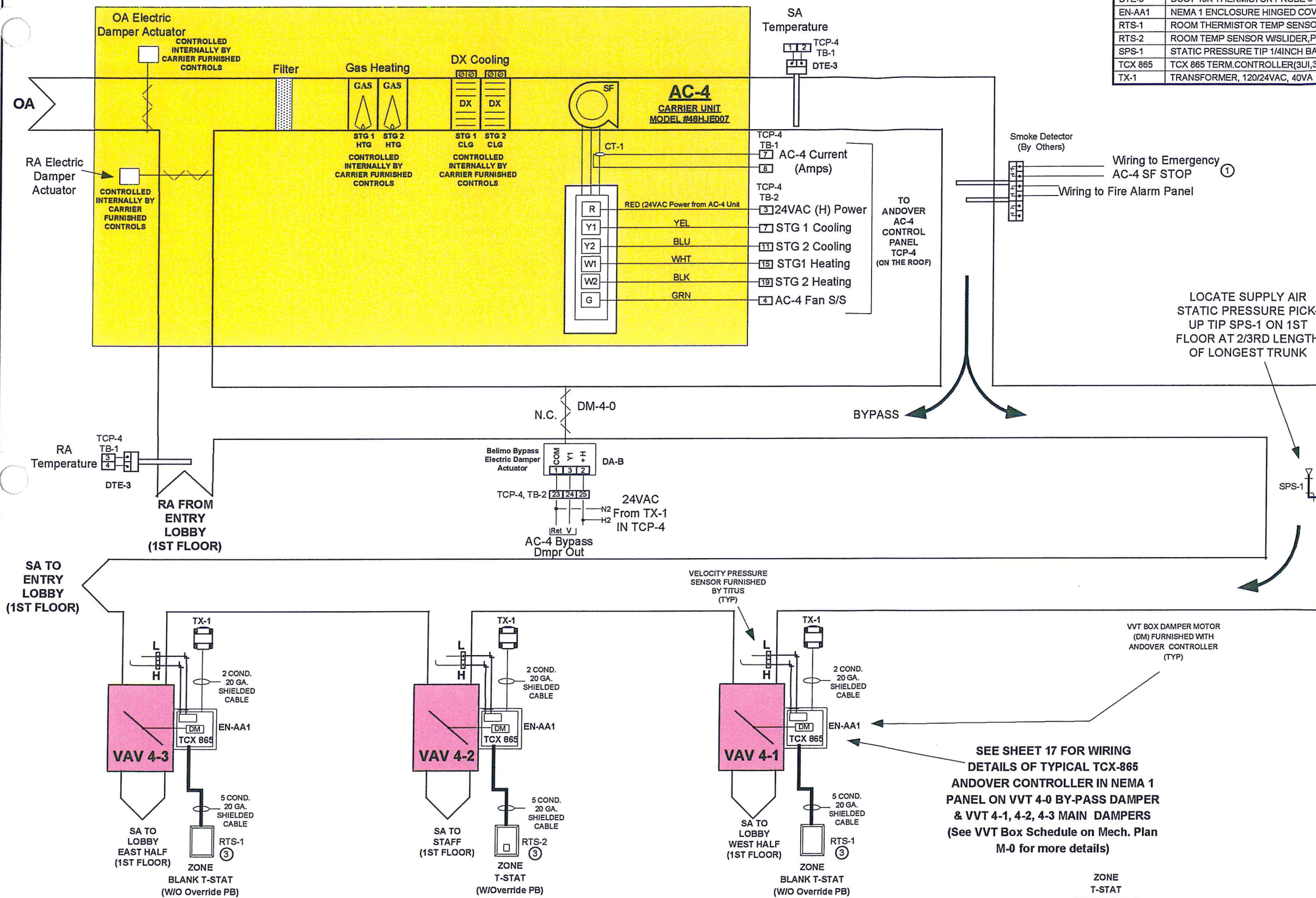
TCP-3
Locate 36"x30"x12" NEMA 3R panel on Roof next to AC-3 unit

General Notes:

- ① Carrier unit AC-3 Supply Fan Starter wiring is interlocked via DPDT relay R-1 to start/stop with Exhaust Fan EF-3.

CARRIER AC UNIT AC-3 & EF-3 CONTROL MODULE WIRING DIAGRAM
(See last sheet for AC-3 & EF-3 Control Schematic)

ROOFTOP CARRIER AIR HANDLING UNIT AC-4



Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	
CT-1	LOOP POWERED CURRENT SENSOR 0-55 AMPS 4-20MA OUT	VERIS IND.	ZVH-721	1
DA-B	SR PROPORTIONAL 133 IN-LB 2-10VDC	BELIMO	ZBAF24-SR	1
DTE-3	DUCT 10K THERMISTOR PROBE 9 IN.	ANDOVER	TT-D-9-1	2
EN-AA1	NEMA 1 ENCLOSURE HINGED COVER 12X12X8	HOFFMAN	A-12N128	3
RTS-1	ROOM THERMISTOR TEMP SENSOR W/ACC LOGO	ANDOVER	TTSS-1	2
RTS-2	ROOM TEMP SENSOR W/SLIDER, PB, LED, LAPTOP JACK CONN	ANDOVER	TTSS-SE-1	1
SPS-1	STATIC PRESSURE TIP 1/4INCH BARB	KELE & ASSOC.	A-302	1
TCX 865	TCX 865 TERM. CONTROLLER(3UI, 3FORMA OUT, 1AIRFLOW&D)	ANDOVER	01-0009-865	3
TX-1	TRANSFORMER, 120/24VAC, 40VA	CORE COMPONENTS	ZL-LE-112	3

General Notes:
1. Provision and installation of supply duct smoke detectors by Mechanical Contractor with power wiring & interlocked wiring to AC-4 Supply Fan shutdown circuit & Fire Alarm Control Panel as well as smoke detector status wiring to the Andover Control Panel on the roof by Electrical Contractor (Done by others).
2. Refer to Table on Legend Sheet 3 for type and size of wiring to use for input/output wirings.
3. See Mechanical Floor Plan M-1 for location of VVT 4-0, VVT 4-1, VVT 4-2 & VVT 4-3 Andover zone temperature sensors on 1st Floor.

CARRIER ROOFTOP VARIABLE VOLUME AC-4 PACKAGED UNIT & VARIABLE AIR VOLUME BOXES VVT 4-0 THRU VVT 4-3 CONTROL SCHEMATIC

(SEE NEXT SHEET FOR AC-4 CONTROL WIRING DIAGRAM DETAILS IN TCP-4 ON THE ROOF)
(SEE SHEET 17 FOR WIRING DETAILS OF TYPICAL ANDOVER TCX865 CONTROLLER ON 4 VVT BOXES ON 1ST FLOOR)
(SEE SHEET 5 FOR 1ST FLOOR & ROOF ANDOVER CONTROLS NETWORK RISER DIAGRAM)

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A	07/10/02	SUBMITTAL
B	07/01/03	AS-BUILT

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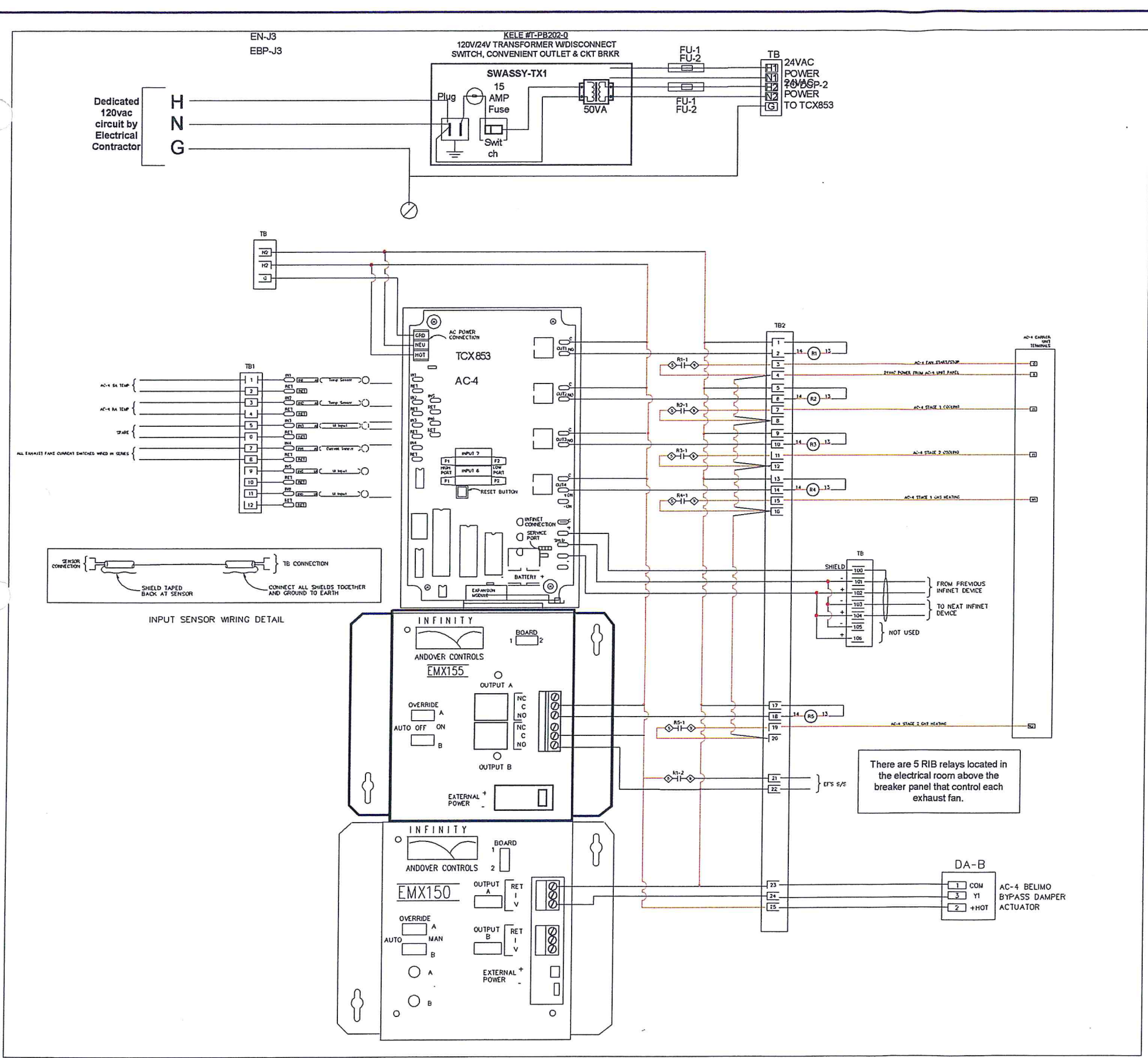
AC-4 & VVT 4-0 to 4-3 Schem

REV. B	AS-BUILT	7/01/03	JOB NO: 13180081
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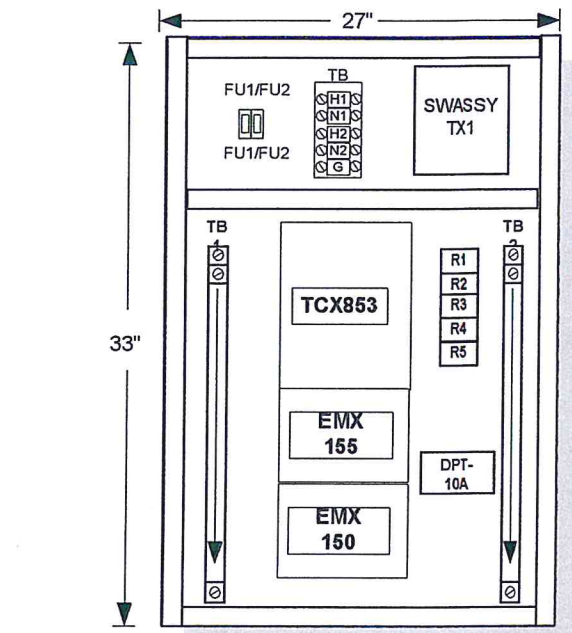
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TCP-4
Locate 36"x30"x12" NEMA 3R panel on Roof next to AC-4 unit
CARRIER AC UNIT AC-4 CONTROL MODULE WIRING DIAGRAM
(See sheet 6 for AC-4 Control Schematic)

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	
EBP-J3	BACK PANEL 33X27	HOFFMAN	A-36P30	1
EMX 150	EMX 150 EXPANSION MODULE (2 AO)	ANDOVER	01-0008-702	1
EMX-155	EMX 155 EXPANSION MODULE (2 DOS W/FORM C RELAY SW)	ANDOVER	01-0008-705	1
EN-J3	NEMA 3R ENCLOSURE HINGED COVER 36X30X12	HOFFMAN	A-363012HCR	1
FU-1	FUSE HOLDER	ENTRELEC	M1016SFL	2
FU-2	FAST ACTING FUSE 5 AMP	KELE & ASSOC.	GF-5	2
R-2	DPDT RELAY W/IND. LIGHT, 24VAC & BASE (RH2B-UAC-24-L)	IDEC	ZL-ID46873	5
SWASSY-TX1	120V/24V TRANSFORMER W/DISCONNECT, BRKR & RECEPTACLE	KELE & ASSOC.	T-P8202-0	1
TB	TERMINAL BLOCKS	KELE & ASSOC.	M4/6	30
TCX 853	TCX 853 TERM. CONTROLLER (6UI, 2AIRFLO, 3FRMA, 1TRI ST)	ANDOVER	01-0008-405	1



TCP-3 PANEL LAYOUT FOR AC-4 CONTROL
(NOT TO SCALE)

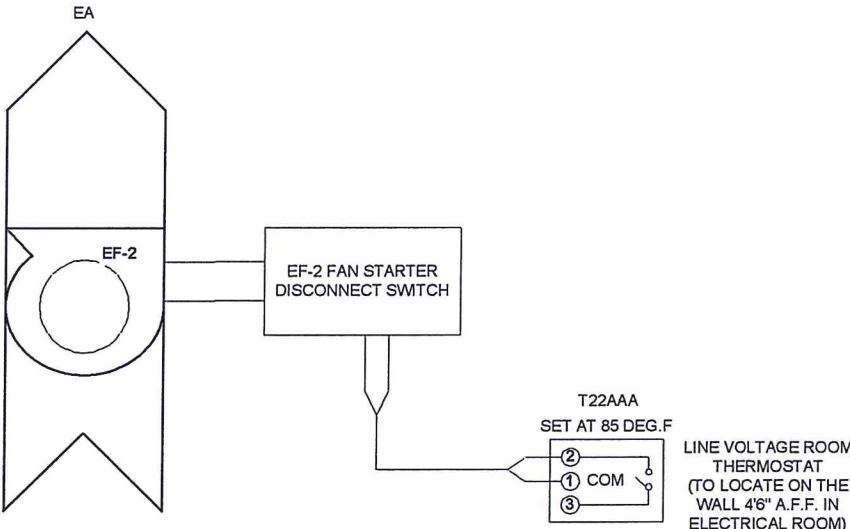
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TCP-4(TCX853_AC4)Pnl Wiring

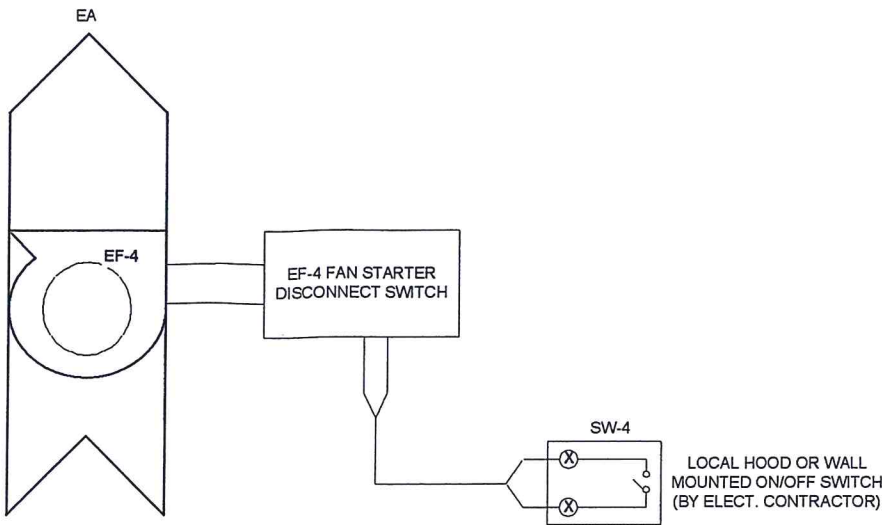
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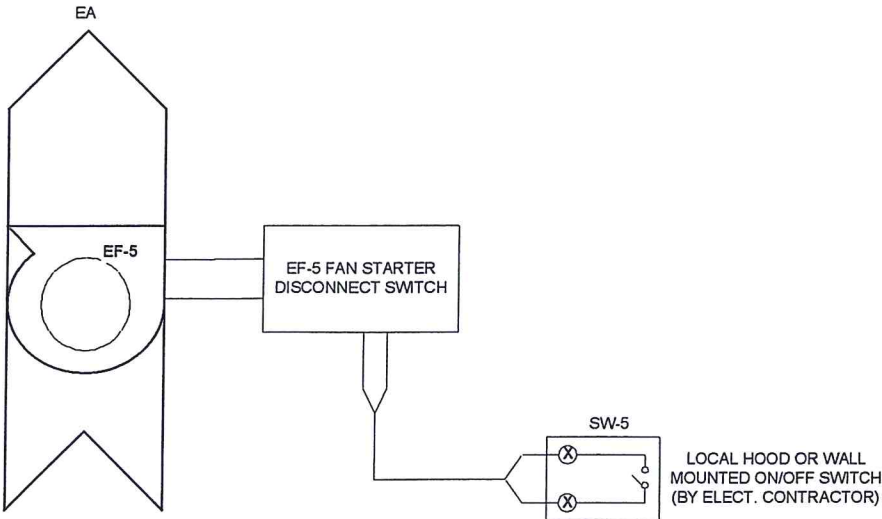
Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	
T22AAA	LINE VOLTAGE WALL THERMOSTAT SPST	JOHNSON CONTROLS	T22AAA-1	1



ELECTRICAL ROOM EXHAUST FAN EF-2



KITCHEN EXHAUST HOOD EXHAUST FAN EF-4



KITCHEN EXHAUST HOOD EXHAUST FAN EF-5

REV. NO.	DATE	REVISION DESCRIPTION
A	07/10/02	SUBMITTAL
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EF-2,EF-4 & EF-5 Control Wiring

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			18 of 18