ATTACHMENT A

INTERNATIONAL
ENVIRONMENTAL

FAN COIL UNITS
by
INTERNATIONAL ENVIROMMENTAL
for

BUILDINGS 3100 & 3101 (N.I.C)
FORT LEE, VIRGINIA

MECHANICAL CONTRACTOR:

SOUTHERN AIR, INC.
LYNCHBURG, VIRGINIA

PREPARED BY:

INTERNATIONAL ENVIRONMENTAL
OKLAHOMA CITY, OKLAHOMA

INTERNATIONAL ENVIRONMENTAL CORPORATION PRODUCT SCHEDULE

For: TED LAGASSE
SOUTHERN AIR, INC.
2655 LAKESIDE DRIVE
LYNCHBURG, VA 24502

Job: FT. LEE BLDGS 3100 & 3101
Date: 7/2/1993 PO #:

IEC Rep: NELSON-CRUMLEY, INC.

					COOLING EDB: 78 F EWB: 65 F EWT (Suct T): 45 F					HEATING EDB: 70 F EWT: 200 F E-Res Voltage: 120					
IC	Qty	Model Unit Coil	CFM	ESP	Total MBH	Sens. MBH	GPM	TD	PD	Sens. MBH	GPM	TD	PD	KW	PSI
	1	BPY04 AYY	360	0.25	8.4	7.1	1.4	12	5.0	34.2	1.4	49	3.8	--	-
	1	CBY04 AYY	394	0.13	8.7	7.5	1.4	12	4.9	36.6	1.4	52	3.8	--	-
	1	CBY04 DYY	399	0.13	---	---	-	-	--	27.2	1.0	54	1.2	--	-
	1	BPY04 AYY	360	0.25	8.4	7.1	1.4	12	5.0	34.2	1.4	49	3.8	--	-

INTERNATIONAL ENVIRONMENTAL CORPORATION PRODUCT DESCRIPTION

For: TED LAGASSE
SOUTHERN AIR, INC.
2655 LAKESIDE DRIVE
LYNCHBURG, VA 24502

Job: FT. LEE BLDGS 3100 & 3101
Date: 7/2/1993 PO #:

IEC Rep: NELSON-CRUMLEY, INC.

Model Number: BPY 04 AYY C2 6 **Tag Number: FCU-1**

UNIT DESCRIPTION:

Unit Type:	Ceiling Hideaway with Plenum High Static 400-1000 C
Unit Size:	400 Nominal CFM
Unit Vintage:	Y
Coil Type:	2-Pipe Heating and Cooling
Heating Coil:	3 Rows (Standard)
Motor Voltage:	120-1-60
Motor Type:	Permanent Split Capacitor
Air Arrangement:	Rear return, Front supply

DIMENSIONS:

Height:	12-3/4"
Width:	31-1/4"
Depth:	24-1/4"

OPERATING CONDITIONS:

Altitude:	0 ft.
E.S.P.	0.25 in.
Fan Speed:	H
Actual CFM:	360 CFM

Cooling Mode:	Hydronic	Heating Mode:	Hydronic
Entering DB:	78.0 F		
Entering WB:	65.0 F	Entering DB:	70.0 F
Entering Water Temp:	45.0 F	Entering Water Temp:	200.0 F
Glycol Content:	0.0 %	Glycol Content:	0.0 %
Water Flow Rate:	1.4 GPM	Water Flow Rate:	1.4 GPM
Temperature Rise:	12.0 F	Temperature Drop:	48.9 F
Pressure Drop:	5.0 Feet	Pressure Drop:	3.8 Feet
Total Capacity:	8.4 MBH		
Sensible Capacity:	7.1 MBH	Heating Capacity:	34.2 MBH

INTERNATIONAL ENVIRONMENTAL CORPORATION PRODUCT DESCRIPTION

For: TED LAGASSE
SOUTHERN AIR, INC.
2655 LAKESIDE DRIVE
LYNCHBURG, VA 24502

Job: FT. LEE BLDGS 3100 & 3101
Date: 7/2/1993 PO #:

IEC Rep: NELSON-CRUMLEY, INC.

Model Number: CBY 04 AYY C2 5 **Tag Number: FCU-2**

UNIT DESCRIPTION:

Unit Type:	Ceiling Telescoping Hideaway
Unit Size:	400 Nominal CFM
Unit Vintage:	Y
Coil Type:	2-Pipe Heating and Cooling
Heating Coil:	3 Rows (Standard)
Motor Voltage:	120-1-60
Motor Type:	Permanent Split Capacitor
Air Arrangement:	Bottom return, Front supply

DIMENSIONS:

Height:	14"
Width:	43"
Depth:	26"

OPERATING CONDITIONS:

Altitude:	0 ft.
E.S.P.	0.13 in.
Fan Speed:	H
Actual CFM:	394 CFM

Cooling Mode:	Hydronic	Heating Mode:	Hydronic
Entering DB:	78.0 F		
Entering WB:	65.0 F	Entering DB:	70.0 F
Entering Water Temp:	45.0 F	Entering Water Temp:	200.0 F
Glycol Content:	0.0 %	Glycol Content:	0.0 %
Water Flow Rate:	1.4 GPM	Water Flow Rate:	1.4 GPM
Temperature Rise:	12.5 F	Temperature Drop:	52.3 F
Pressure Drop:	4.9 Feet	Pressure Drop:	3.8 Feet
Total Capacity:	8.7 MBH		
Sensible Capacity:	7.5 MBH	Heating Capacity:	36.6 MBH

INTERNATIONAL ENVIRONMENTAL CORPORATION PRODUCT DESCRIPTION

For: TED LAGASSE
SOUTHERN AIR, INC.
2655 LAKESIDE DRIVE
LYNCHBURG, VA 24502

Job: FT. LEE BLDGS 3100 & 3101
Date: 7/2/1993 PO #:

IEC Rep: NELSON-CRUMLEY, INC.

Model Number: CBY 04 DYY C2 5 **Tag Number: FCU-3**

UNIT DESCRIPTION:

Unit Type:	Ceiling Telescoping Hideaway
Unit Size:	400 Nominal CFM
Unit Vintage:	Y
Coil Type:	2-Pipe Heating Only
Heating Coil:	2 Rows
Motor Voltage:	120-1-60
Motor Type:	Permanent Split Capacitor
Air Arrangement:	Bottom return, Front supply

DIMENSIONS:

Height:	14"
Width:	43"
Depth:	26"

OPERATING CONDITIONS:

Altitude:	0	ft.
E.S.P.	0.13	in.
Fan Speed:	H	
Actual CFM:	399	CFM

Heating Mode:	Hydronic	
Entering DB:	70.0	F
Entering Water Temp:	200.0	F
Glycol Content:	0.0	%
Water Flow Rate:	1.0	GPM
Temperature Rise:	54.4	F
Pressure Drop:	1.2	Feet
Total Heating:	27.2	MBH

INTERNATIONAL ENVIRONMENTAL CORPORATION PRODUCT DESCRIPTION

For: TED LAGASSE
SOUTHERN AIR, INC.
2655 LAKESIDE DRIVE
LYNCHBURG, VA 24502

Job: FT. LEE BLDGS 3100 & 3101
Date: 7/2/1993 PO #:

IEC Rep: NELSON-CRUMLEY, INC.

Model Number: BPY 04 AYY C2 6 **Tag Number: FCU-4**

UNIT DESCRIPTION:

Unit Type:	Ceiling Hideaway with Plenum High Static 400-1000 C
Unit Size:	400 Nominal CFM
Unit Vintage:	Y
Coil Type:	2-Pipe Heating and Cooling
Heating Coil:	3 Rows (Standard)
Motor Voltage:	120-1-60
Motor Type:	Permanent Split Capacitor
Air Arrangement:	Rear return, Front supply

DIMENSIONS:

Height:	12-3/4"
Width:	31-1/4"
Depth:	24-1/4"

OPERATING CONDITIONS:

Altitude:	0 ft.
E.S.P.	0.25 in.
Fan Speed:	H
Actual CFM:	360 CFM

Cooling Mode:	Hydronic	Heating Mode:	Hydronic
Entering DB:	78.0 F		
Entering WB:	65.0 F	Entering DB:	70.0 F
Entering Water Temp:	45.0 F	Entering Water Temp:	200.0 F
Glycol Content:	0.0 %	Glycol Content:	0.0 %
Water Flow Rate:	1.4 GPM	Water Flow Rate:	1.4 GPM
Temperature Rise:	12.0 F	Temperature Drop:	48.9 F
Pressure Drop:	5.0 Feet	Pressure Drop:	3.8 Feet
Total Capacity:	8.4 MBH		
Sensible Capacity:	7.1 MBH	Heating Capacity:	34.2 MBH

Mechanical Specifications
HORIZONTAL FAN COIL UNITS

PERFORMANCE DATA

CAPACITIES—Unit capacities are certified in compliance with Air Conditioning and Refrigeration Institute Standard 440-84.

SAFETY—Units listed with Underwriters Laboratory Ⓤ Standard 883 and Canadian Standards Association Ⓒ.

BASIC UNIT

The basic unit is fabricated of galvanized steel. Provision for hanging the unit is provided by slots in the top wrap of the basic housing. The standard arrangement is furnished with a one inch discharge duct collar.

The condensate drain pan is fabricated of galvanized steel with closed cell, fire retardant, foam insulation coating. Water never touches the metal pan; thus, the possibility of corrosion is minimized and long, trouble-free life is assured. Removable pan extensions are available at the coil header end of the unit to provide positive control of condensate from valves and controls. This extension, being easily removable, provides ready access to valves and piping after unit installation.

The motor blower assembly is designed for easy removal from the basic unit to provide for ease of servicing these components. Removal of this assembly also provides access to the entering air face of the coil, which is the face that will accumulate any dirt passing through the filter. Thus, cleaning of this face of the coil is a relatively simple matter.

CABINET

The decorative cabinet of the Model CX Unit and the finished access panel of the Model CB Unit are heavy gauge steel, bonderized, and finished with an oven-baked paint. Several color selections are available as an optional specification. (See Color Chart)

All cabinet panels are lined with ½ inch glass fiber acoustic and thermal insulation. The enclosure of the Model CB and the plenum of the Models CP and BP are similarly lined.

The bottom panel of the Model CX Unit is removable and provides complete access to the basic unit. The bottom access panel is complete with stamped grilles and filter rack. Stamped discharge grilles are standard with double deflection grilles furnished when specified as an optional item.

COILS

Coils have ½ inch O.D. copper tubes with aluminum fins mechanically bonded to the tubes. All coils are leak tested under water and are suitable for design working pressures of 250 psig @ 200 degree F.

A variety of coil selections are available. The standard coil provides adequate capacity for most installations with an eight to ten degree design water temperature rise. A high capacity coil is offered for those installations requiring the higher latent heat capabilities or those designed for a twelve degree water temperature rise. Also offered is a four-pipe coil consisting of standard or high capacity cooling with one and two rows of heating surface.

Optional steam coils are available and are suitable for working pressures of 10 psig.

FILTERS

Standard filters are one inch throwaway glass fiber. Optional cleanable filters are available.

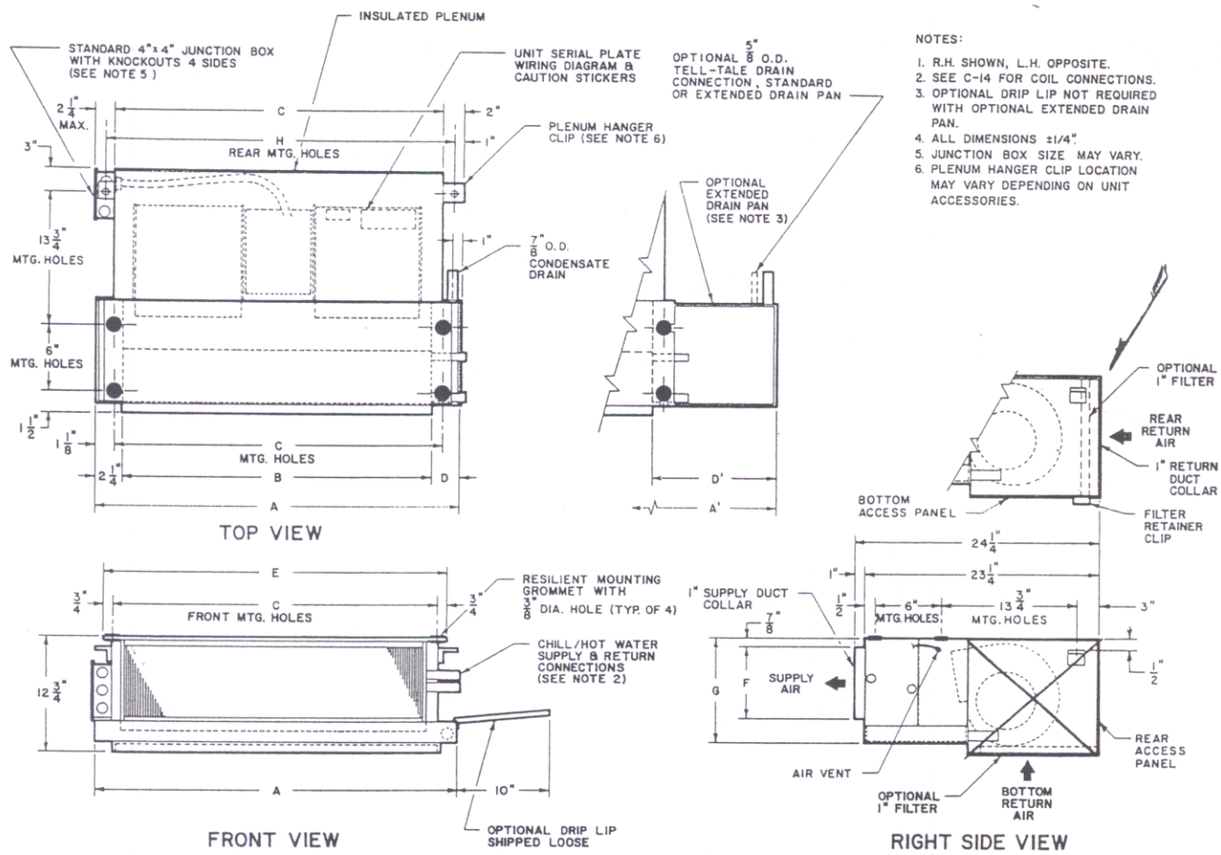
FANS

The fans are centrifugal, forward-curved, double-width wheels. Blower housings are galvanized steel with special rolled perimeter seams to provide added rigidity.

MOTORS

All motors are resilient-mounted, three speed, with UNDERWRITERS listed thermal overload protection. Motor bearings are of the sleeve type or ball bearing type with oversized oil reservoirs provided to assure positive lubrication with minimum servicing required. Positive speed reduction is assured through careful matching of motor torque to blower loading. Standard motors are permanent split capacitor.

JOB Bldg. 3100 & 3101 - Fort Lee CUST. Southern Air, Inc. CUST. P.O. NO. _____ IEC NO. _____ SH. ____ OF ____	**All Season Horizontal High Static Hideaway with Plenum**	**BPY C-12**



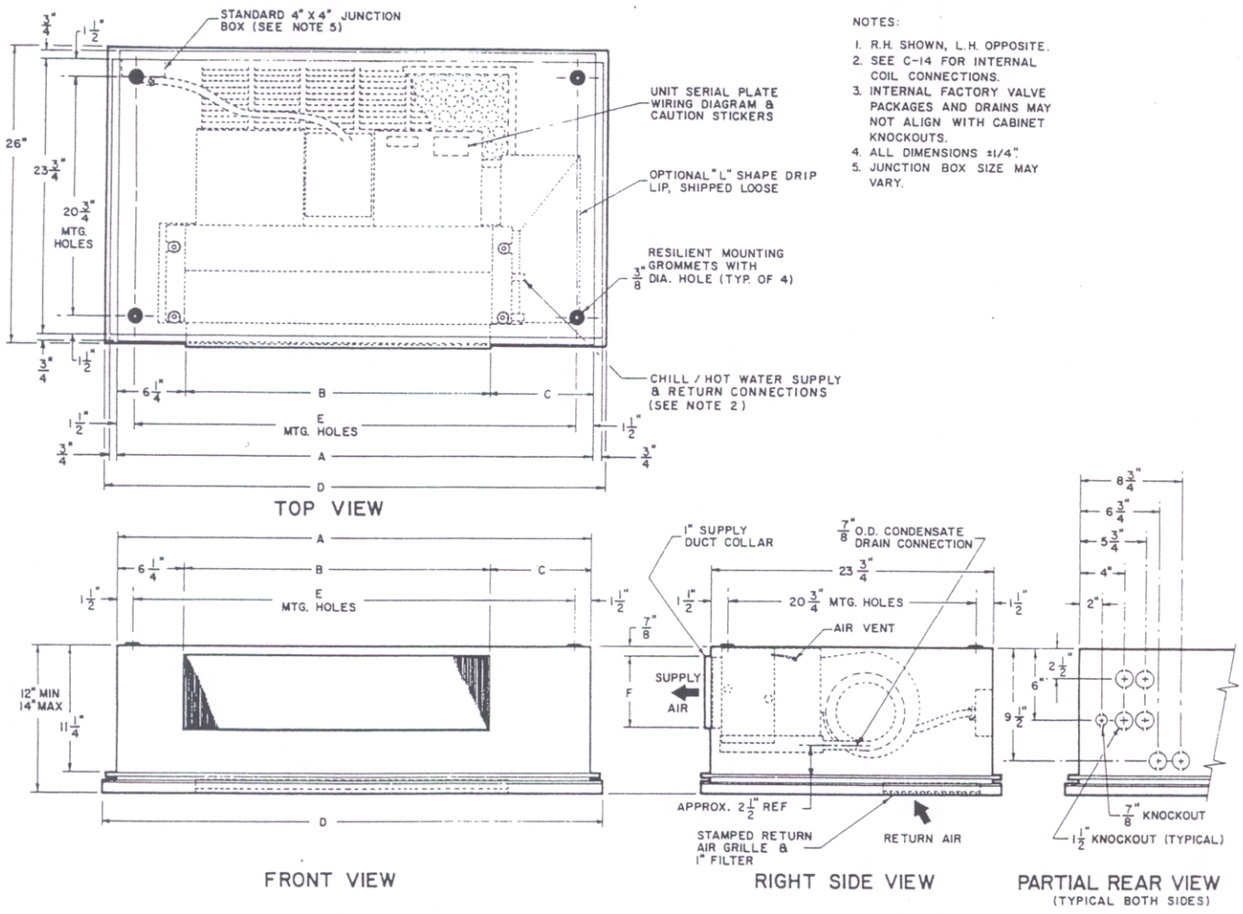
TAG: Units FCU-1 & 4

UNIT MODEL	DIMENSIONS - INCHES										QUANTITY / UNIT	
	A	A'	B	C	D	D'	E	F	G	H	BLWR	MOTOR
BPY04	31 1/4	43 1/4	26 1/4	28 1/4	3	15	29 3/4	6 1/4	9	–	2	1
BPY06	36 1/4	43 1/4	31 1/4	33 1/4	3	10	34 3/4	7 1/2	10 1/4	–	2	1
BPY08	43 1/4	57 1/4	38 1/4	40 1/4	3	17	41 3/4	7 1/2	10 1/4	–	2	1
BPY10	57 1/4	65 1/4	52 1/4	54 1/4	3	11	55 3/4	7 1/2	10 1/4	–	4	2

Any modification made to the above product specifications by any person is subject to acceptance by IEC at its home office.
The above product specifications are subject to change without notice.

INTERNATIONAL ENVIRONMENTAL CORPORATION PO BOX 25608 OKLAHOMA CITY, OK 73125 TELEPHONE 405-947-7666 TELEX 74-7238

JOB Bldg. 3100 & 3101 - Fort Lee CUST. Southern Air, Inc. CUST. P.O. NO. _____ IEC NO. _____ SH. ____ OF ____	**All Season Horizontal Ceiling Telescoping Hideaway**	**CBY C-8**



NOTES:

1. R.H. SHOWN, L.H. OPPOSITE.
2. SEE C-14 FOR INTERNAL COIL CONNECTIONS.
3. INTERNAL FACTORY VALVE PACKAGES AND DRAINS MAY NOT ALIGN WITH CABINET KNOCKOUTS.
4. ALL DIMENSIONS ±1/4".
5. JUNCTION BOX SIZE MAY VARY.

TAG: FCU-2 & 3

UNIT MODEL	DIMENSIONS - INCHES										QUANTITY / UNIT	
	A	A'	B	C	D	D'	E	F	G	H	BLWR	MOTOR
CBY02	35	–	16	2 3/4	37	–	32	6	–	–	1	1
CBY03	35	–	20	8 3/4	37	–	32	6	–	–	1	1
CBY04	41	–	26	8 3/4	43	–	38	6	–	–	2	1
CBY06	53	–	31	15 3/4	55	–	50	7	–	–	2	1
CBY08	53	–	38	8 3/4	55	–	50	7	–	–	2	1
CBY10	75	–	52	16 3/4	77	–	72	7	–	–	4	2
CBY12	75	–	60	8 3/4	77	–	72	7	–	–	4	2

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SP 108-8608-1

INTERNATIONAL
ENVIRONMENTAL

CONTROL SCHEMATIC

FCU-1, 2, & 4

In the cooling mode, on a rise in space temperature the thermostat will open the 3-way electric control valve to the coil and the fan will start. The valve will not open without the fan being energized. There is no "wild coil". When the space is satisified, the fan and valve will be de-energized. The control valve is normally-closed to the coil.

In the heating mode, on a drop in space temperature the thermostat will open the 3-way electric control valve to the coil and the fan will start. The valve will not open without the fan being energized. When the space is satisified, the fan and valve will be de-energized. The control valve is normally-closed to the coil.

The fan motor is line voltage(115-1-60). The thermostat (by others) and control valve are low voltage(24v). An aquastat is provided to establish heating or cooling mode.

FCU-3 (Heating Only)

The fan will be controlled by the occupant. The aquastat will control the 3-way valve. If cold water is in the system, the aquastat will by-pass the coil. There is no "wild coil". If hot water is available, the 3-way valve will be open to the coil.

The fan motor is line voltage(115-1-60). The thermostat (by others) and control valve are low voltage(24v).

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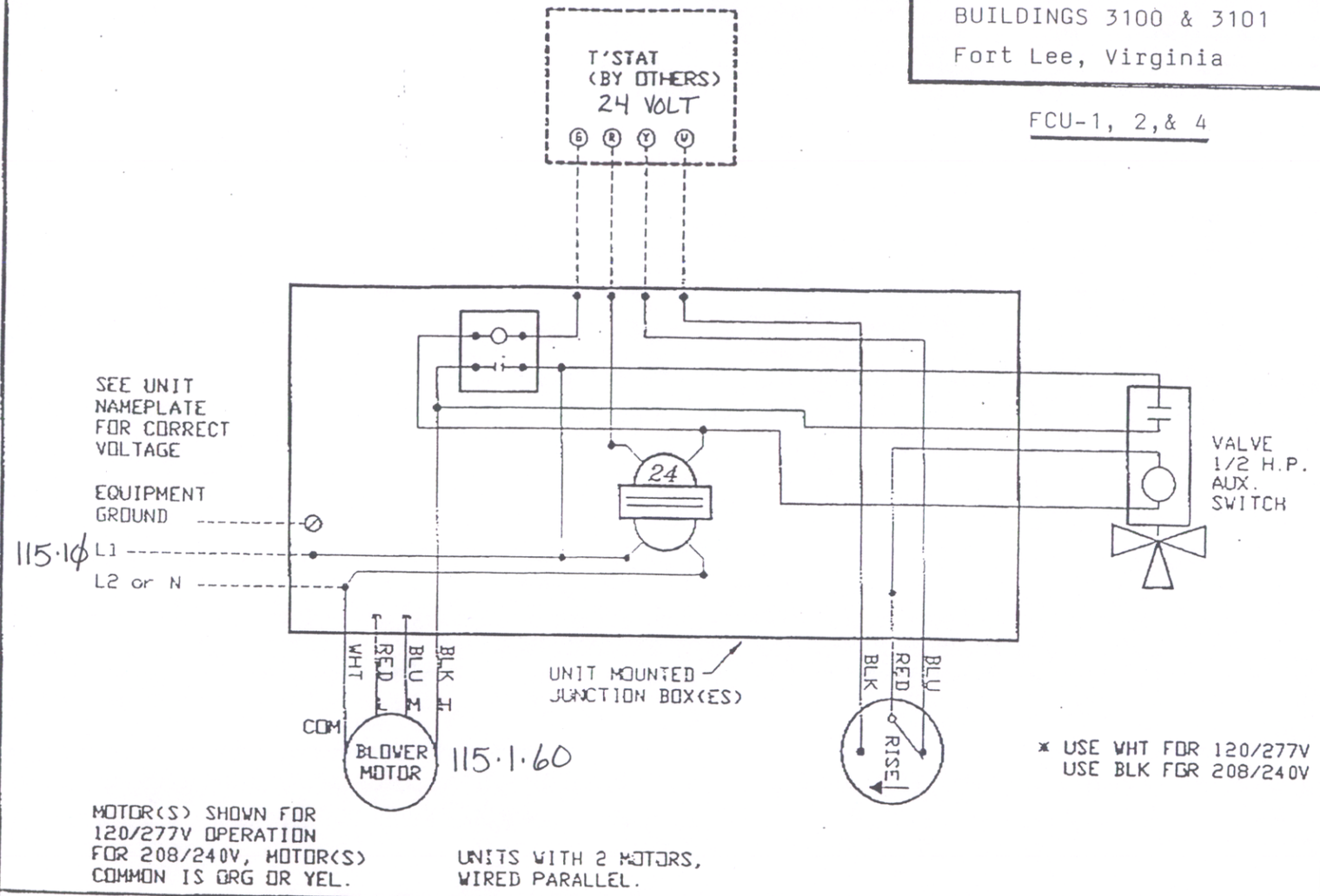
BUILDINGS 3100 & 3101

Fort Lee, Virginia

FCU-1, 2,& 4



NOTES: TYPICAL CONNECTION DIAGRAM; FIELD WIRING REQUIRED

1) CAUTION – Disconnect power before servicing.
2) USE 75°C MIN. COPPER CONDUCTORS ONLY. Unit terminals are not designed to accept any other wiring.
3) Motor(s) thermally protected.
4) Provide disconnect means & overcurrent protection as required.

WIRE CONNECTION
WIRE TAPED
FACTORY WIRING
FIELD WIRING

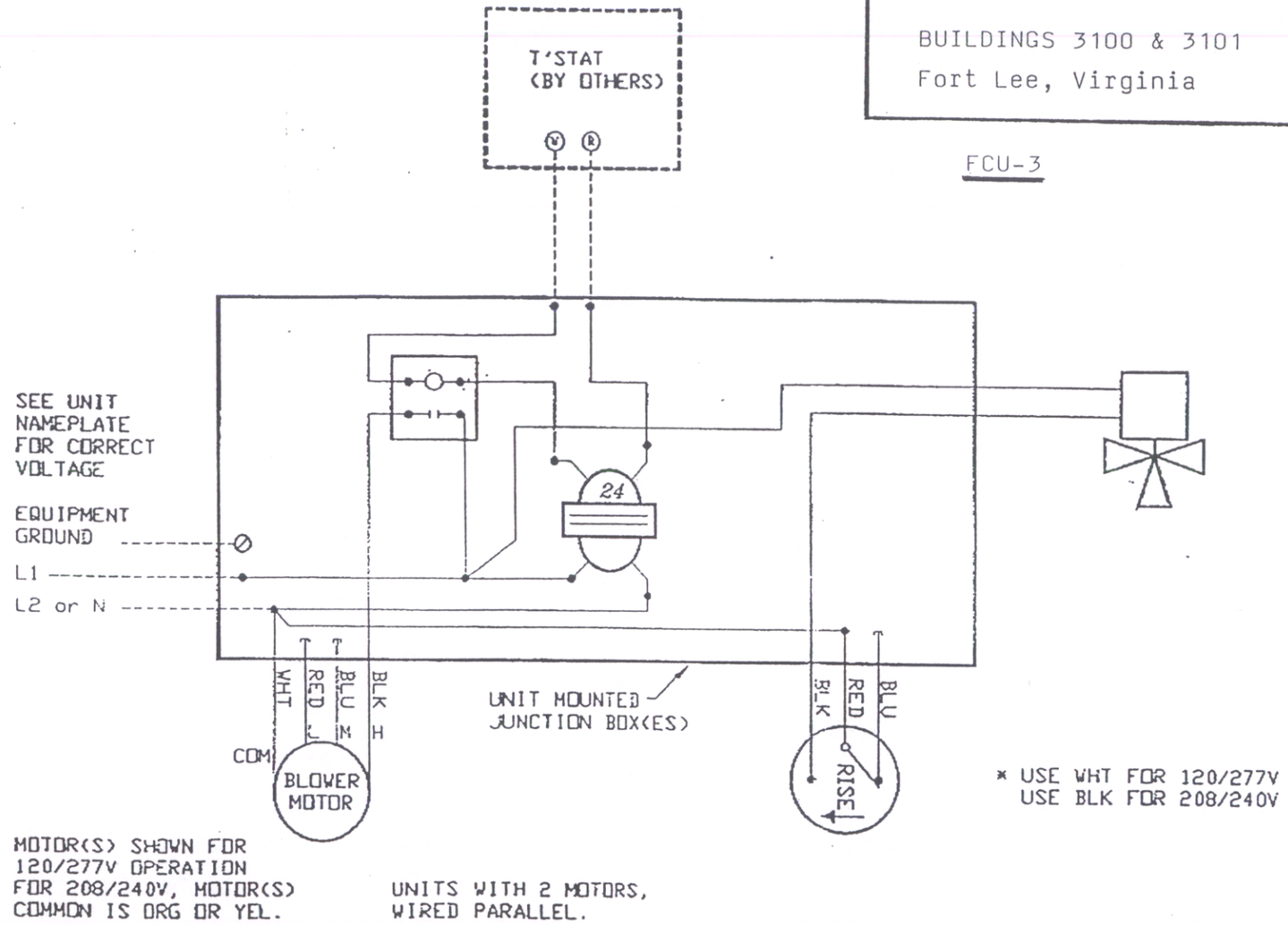
XX

892307-01 REV –

11-16

BUILDINGS 3100 & 3101
Fort Lee, Virginia

FCU-3



NOTES: TYPICAL CONNECTION DIAGRAM; FIELD WIRING REQUIRED

1) CAUTION – Disconnect power before servicing.
2) USE 75°C MIN. COPPER CONDUCTORS ONLY.
   Unit terminals are not designed to accept any other wiring.
3) Motor(s) thermally protected.
4) Provide disconnect means & overcurrent protection as required.

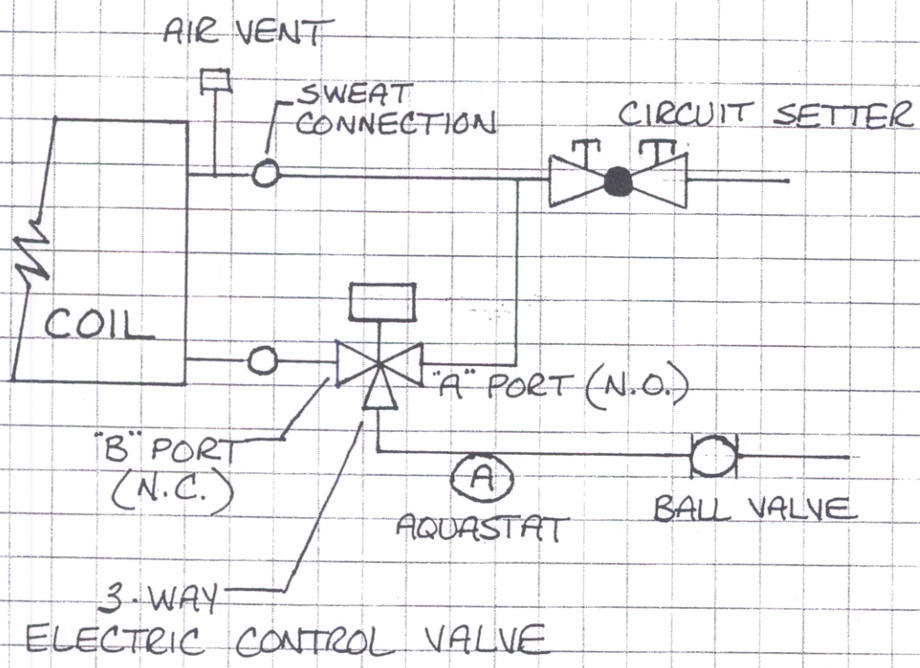
—●— WIRE CONNECTION
—⊂— WIRE TAPED
——— FACTORY WIRING
------ FIELD WIRING

XX
892308-01 REV –

91-21

TO SOUTHERN AIR, INC. FROM INTERNATIONAL ENVIRON.

SUBJECT FT. LEE BLDGS 3100 & 3101 DATE JULY 3, 1993 PAGE OF



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INTERNATIONAL
ENVIRONMENTAL

SOUND PRESSURE RATINGS

CFM	3/250	4/500	5/1000	6/2000	7/4000
400	45.6	45.7	41.8	36.9	32.0

RATINGS ARE AT HIGH SPEED

TESTED IN ACCORDANCE WITH ARI STANDARD 350-82

14-16

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THERMAL OVERLOAD PROTECTION AND UL LISTING

All split capacitor motors furnished by INTERNATIONAL contain an internal thermal overload protector which is calibrated to tripout when the winding reaches a pre-determined temperature. This protector will automatically reset when the temperature returns to a safe limit.

Underwriters Laboratories, Inc. approves the motor and thermal overload combination at locked rotor conditions only. These combinations are "yellow card listed," and evidence of such protection is stamped directly on the motor.

EFFICIENCY AND POWER FACTOR

The efficiency and power factor of a permanent split capacitor motor are higher than that of a shaded pole motor. Permanent split capacitor motors have an efficiency in the range of 35% to 55% as compared to 20% to 35% for shaded pole motors. The power factor of a shaded pole motor may be in the range of 0.50 to 0.65 while the power factor of a permanent split capacitor motor approaches 0.89-1.00.

When current input is critical, the motor selection should be made on the basis of efficiency. This is one reason for the increasing use of permanent split capacitor motors in fan coil units. In many installations the total power factor must be maintained above a set minimum value. If other components of the system have a high power factor, then it may not be objectionable to use a low power factor motor.

MODELS BHY, BPY,

VOLTAGE	DATA		UNIT SIZE			
			04	06	08	10 *
115 V 60 HZ 1 PHASE	Nom'l HP		1/8	1/8	1/8	(2) 1/8
	H	Amps	1.70	1.70	1.80	3.45
		Watts	170	205	225	355
	M	Amps	1.65	1.65	1.70	3.37
		Watts	160	175	195	345
	L	Amps	1.45	1.45	1.45	2.95
		Watts	135	140	165	290
208 V 60 HZ 1 PHASE	Nom'l HP		1/8	1/8	1/8	(2) 1/8
	H	Amps	0.66	0.73	0.74	1.40
		Watts	135	150	160	280
	M	Amps	0.60	0.66	0.67	1.25
		Watts	120	130	135	250
	L	Amps	0.54	0.57	0.57	1.05
		Watts	105	110	110	205
230 V 60 HZ 1 PHASE	Nom'l HP		1/8	1/8	1/8	(2) 1/8
	H	Amps	0.67	0.73	0.75	1.45
		Watts	150	160	170	300
	M	Amps	0.58	0.66	0.67	1.30
		Watts	128	145	135	260
	L	Amps	0.55	0.60	0.57	1.05
		Watts	115	127	127	205
265 V 60 HZ 1 PHASE	Nom'l HP		1/8	1/8	1/8	(2) 1/8
	H	Amps	0.54	0.57	0.63	1.13
		Watts	145	155	170	310
	M	Amps	0.45	0.48	0.54	0.95
		Watts	125	130	145	265
	L	Amps	0.36	0.36	0.39	0.74
		Watts	90	90	100	195
220 V 50 HZ 1 PHASE	Nom'l HP		1/10	1/10	1/10	(2) 1/10
	H	Amps	1.00	1.00	1.00	2.10
		Watts	215	220	220	430
	M	Amps	0.65	0.65	0.65	1.30
		Watts	150	159	150	320
	L	Amps	0.50	0.50	0.50	1.00
		Watts	95	95	100	200

* NOTE: Total Unit Motor Amps & Watts Shown For 2 Motor Unit (Size 10). Motor Nameplate Amps May Vary

MODELS CHY, CPY, CXY, CXW, CBY

VOLTAGE	DATA		UNIT SIZE						
			02	03	04	06	08	10 *	12 *
115 V 60 HZ 1 PHASE	Nom'l HP		1/30	1/30	1/12	1/12	1/6	(2) 1/12	(2) 1/6
	H	Amps	0.53	0.53	1.25	1.40	2.10	2.20	4.00
		Watts	50	55	165	165	235	305	435
	M	Amps	0.31	0.31	0.70	0.72	1.90	1.40	2.80
		Watts	35	35	80	80	190	150	305
	L	Amps	0.27	0.27	0.45	0.45	1.45	0.90	1.20
		Watts	28	30	50	50	145	100	130
208 V 60 HZ 1 PHASE	Nom'l HP		1/30	1/30	1/12	1/12	1/6	(2) 1/12	(2) 1/6
	H	Amps	0.45	0.46	0.60	0.63	1.00	1.20	2.00
		Watts	86	89	115	130	195	230	375
	M	Amps	0.29	0.29	0.43	0.47	0.69	0.82	1.40
		Watts	60	60	89	100	135	165	300
	L	Amps	0.15	0.15	0.22	0.24	0.47	0.46	0.90
		Watts	28	28	45	48	90	95	170
230 V 60 HZ 1 PHASE	Nom'l HP		1/30	1/30	1/12	1/12	1/6	(2) 1/12	(2) 1/6
	H	Amps	0.40	0.40	0.60	0.69	1.00	1.20	2.00
		Watts	103	106	135	155	210	245	390
	M	Amps	0.31	0.32	0.45	0.52	0.70	0.90	1.50
		Watts	70	73	105	115	150	200	300
	L	Amps	0.15	0.15	0.24	0.28	0.50	0.50	1.10
		Watts	33	33	53	60	105	120	210
265 V 60 HZ 1 PHASE	Nom'l HP		1/30	1/30	1/15	1/15	1/8	(2) 1/15	(2) 1/8
	H	Amps	0.40	0.40	0.55	1.00	1.00	1.10	1.80
		Watts	90	95	145	220	225	250	440
	M	Amps	0.23	0.24	0.25	0.71	0.71	0.41	0.92
		Watts	64	66	70	125	130	120	250
	L	Amps	0.10	0.10	0.15	0.35	0.35	0.25	0.66
		Watts	30	30	45	90	90	75	175
220 V 50 HZ 1 PHASE	Nom'l HP		1/30	1/30	1/12	1/12	1/6	(2) 1/12	(2) 1/6
	H	Amps	0.37	0.39	0.51	0.57	1.10	1.12	2.00
		Watts	85	90	120	120	170	210	340
	M	Amps	0.27	0.28	0.44	0.44	0.60	0.80	1.20
		Watts	65	60	90	92	120	160	230
	L	Amps	0.15	0.15	0.25	0.25	0.47	0.50	0.92
		Watts	30	35	50	51	85	100	185

* NOTE: Total Unit Motor Amps & Watts Shown For 2 Motor Units (10 & 12).
Motor Nameplate Amps May Vary

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INTERNATIONAL ENVIRONMENTAL

NEBB

BALANCE VALVE/FLOW
METER TEST REPORT

PROJECT: FORT LEE
LOCATION: BUILDING 3100

SYSTEM/UNIT: DUAL TEMPERATURE WATER BALANCING

Service or Designation	Size	Model	Design GPM	Actual Valve Setpoint	Actual Valve P.D.	Actual GPM	Notes
							ROOM #
FCU-1	1/2"	B&G	1.4	18	13'	1.50	G-17
FCU-1	1/2"	B&G	1.4	16	11'	1.55	G-16
FCU-1	1/2"	B&G	1.4	15	8'	1.40	G-13
FCU-1	1/2"	B&G	1.4	20	15'	1.40	G-14
FCU-1	1/2"	B&G	1.4	19	13'	1.40	G-11
FCU-1	1/2"	B&G	1.4	21	19'	1.50	G-12
FCU-1	1/2"	B&G	1.4	17	11'	1.45	G-28
FCU-1	1/2"	B&G	1.4	19	13'	1.40	G-25
FCU-1	1/2"	B&G	1.4	22	19'	1.40	G-22
FCU-1	1/2"	B&G	1.4	21	19'	1.50	G-24
FCU-1	1/2"	B&G	1.4	16	11'	1.55	G-37
FCU-1	1/2"	B&G	1.4	22	19'	1.50	G-36
FCU-1	1/2"	B&G	1.4	15	8'	1.40	G-31
FCU-1	1/2"	B&G	1.4	20	15'	1.40	G-34
FCU-1	1/2"	B&G	1.4	17	11'	1.45	F-18
FCU-1	1/2"	B&G	1.4	13	6'	1.35	F-15
FCU-1	1/2"	B&G	1.4	20	14'	1.50	F-14
FCU-1	1/2"	B&G	1.4	19	13'	1.40	F-11
FCU-1	1/2"	B&G	1.4	17	10'	1.40	E-18
FCU-1	1/2"	B&G	1.4	15	8'	1.40	E-15
FCU-1	1/2"	B&G	1.4	18	13'	1.50	E-14
FCU-1	1/2"	B&G	1.4	13	6'	1.35	E-11
FCU-1	1/2"	B&G	1.4	18	13'	1.50	E-21
FCU-1	1/2"	B&G	1.4	18	11'	1.35	E-24
FCU-1	1/2"	B&G	1.4	17	11'	1.45	E-28
FCU-1	1/2"	B&G	1.4	15	9'	1.45	E-25
FCU-1	1/2"	B&G	1.4	17	11'	1.45	F-24
FCU-1	1/2"	B&G	1.4	14	8'	1.45	F-21
FCU-1	1/2"	B&G	1.4	--	--	NOTE 1	F-28
FCU-1	1/2"	B&G	1.4	18	11'	1.35	F-25
FCU-1	1/2"	B&G	1.4	17	10'	1.40	F-38
FCU-1	1/2"	B&G	1.4	16	9'	1.40	F-35
FCU-1	1/2"	B&G	1.4	15	9'	1.45	F-34
FCU-1	1/2"	B&G	1.4	18	11'	1.35	F-31
FCU-1	1/2"	B&G	1.4	--	--	NOTE 1	E-35

35

Remarks: NOTE 1: NO FLOW THROUGH COIL.
Filename: FL109
Test Date: 3-07-94
Readings By: S.WHITESIDE
TAB REP-C-11B-83
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FCU-1	37
-2	1
-3	2
-4	35
	75

Johnson Controls, Inc.
NEBB
D. GARY ANDERSON
CERTIFICATE
2660

NEBB

BALANCE VALVE/FLOW

METER TEST REPORT

PROJECT: FORT LEE
LOCATION: BUILDING 3100

SYSTEM/UNIT: DUAL TEMPERATURE WATER BALANCING

	Service or Designation	Size	Model	Design GPM	Actual Valve Setpoint	Actual Valve P.D.	Actual GPM	Notes	ROOM #
1	FCU-1	1/2"	B&G	1.4	18	11'	1.35		E-33
1	FCU-2	1/2"	B&G	1.4	20	13'	1.35		--
2	FCU-3	1/2"	B&G	1.0	20	9'	1.10		--
	FCU-3	1/2"	B&G	1.0	20	9'	1.10		--
	FCU-4	1/2"	B&G	1.4	18	11'	1.35		G-15
	FCU-4	1/2"	B&G	1.4	18	13'	1.50		G-18
	FCU-4	1/2"	B&G	1.4	18	11'	1.35		G-27
	FCU-4	1/2"	B&G	1.4	18	10'	1.40		G-26
	FCU-4	1/2"	B&G	1.4	17	11'	1.45		G-21
	FCU-4	1/2"	B&G	1.4	--	--	0.00	NOTE 1	G-23
	FCU-4	1/2"	B&G	1.4	--	--	0.00	NOTE 1	G-38
	FCU-4	1/2"	B&G	1.4	--	--	0.00	NOTE 1	G-35
	FCU-4	1/2"	B&G	1.4	21	16'	1.35		G-32
	FCU-4	1/2"	B&G	1.4	18	13'	1.50		G-33
	FCU-4	1/2"	B&G	1.4	20	13'	1.35		F-17
	FCU-4	1/2"	B&G	1.4	20	15'	1.40		F-16
	FCU-4	1/2"	B&G	1.4	19	13	1.40		F-13
	FCU-4	1/2"	B&G	1.4	--	--	0.00	NOTE 1	F-12
	FCU-4	1/2"	B&G	1.4	20	15'	1.45		E-17
	FCU-4	1/2"	B&G	1.4	18	12'	1.45		E-16
	FCU-4	1/2"	B&G	1.4	21	16'	1.35		E-13
	FCU-4	1/2"	B&G	1.4	17	11'	1.45		E-12
	FCU-4	1/2"	B&G	1.4	--	--	0.00	NOTE 1	E-22
	FCU-4	1/2"	B&G	1.4	20	15'	1.45		E-23
	FCU-4	1/2"	B&G	1.4	15	8'	1.35		E-26
	FCU-4	1/2"	B&G	1.4	16	9'	1.40		E-27
	FCU-4	1/2"	B&G	1.4	21	16'	1.35		F-23
	FCU-4	1/2"	B&G	1.4	18	12'	1.45		F-26
	FCU-4	1/2"	B&G	1.4	20	13'	1.35		F-27
	FCU-4	1/2"	B&G	1.4	--	--	0.00	NOTE1	F-37
	FCU-4	1/2"	B&G	1.4	16	10'	1.45		F-36
	FCU-4	1/2"	B&G	1.4	14	8'	1.45		F-33
	FCU-4	1/2"	B&G	1.4	20	15'	1.45		F-32
30	FCU-4	1/2"	B&G	1.4	20	15'	1.45		E-36

Remarks: NOTE 1: NO FLOW THROUGH COIL.
Filename: FL110
Test Date: 3-07-94 Readings By: S.WHITESIDE
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Johnson Controls, Inc. - Roanoke
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D. GARY ANDERSON
CERTIFICATE
2860

NEBB

BALANCE VALVE/FLOW
METER TEST REPORT

PROJECT: FORT LEE
LOCATION: BUILDING 3101, 3100

SYSTEM/UNIT: DUAL TEMPERATURE WATER BALANCING

Service or Designation	Size	Model	Design GPM	Actual Valve Setpoint	Actual Valve P.D.	Actual GPM	Notes
							ROOM #
FCU-4	1/2"	B&G	1.4	21	17'	1.40	E-38
FCU-4	1/2"	B&G	1.4	17	10'	1.40	E-37
5 FCU-4	1/2"	B&G	1.4	17	10'	1.40	E-31
FCU-4	1/2"	B&G	1.4	18	12'	1.45	E-32
FCU-4	1/2"	B&G	1.4	17	10'	1.40	F-22
UV-1	1"	B&G	7.0	10	6'	6.8	1ST FLOOR G DAY ROOM
UV-1	1"	B&G	7.0	0	3'	6.8	2ND FLOOR G DAY ROOM
UV-1	1"	B&G	7.0	13	9'	7.2	3RD FLOOR G DAY ROOM
UV-1	1"	B&G	7.0	18	13'	7.1	1ST FLOOR F DAY ROOM
UV-1	1"	B&G	7.0	16	11'	7.0	1ST FLOOR E DAY ROOM
UV-1	1"	B&G	7.0	15	10'	7.0	2ND FLOOR E DAY ROOM
UV-1	1"	B&G	7.0	18	13'	7.1	2ND FLOOR F DAY ROOM
UV-1	1"	B&G	7.0	17	13'	7.3	3RD FLOOR F DAY ROOM
UV-1	1"	B&G	7.0	18	13'	7.1	3RD FLOOR E DAY ROOM
UV-1	1"	B&G	14.2	0	13'	13.5	
1 FCU-1	1"	B&G	1.4	19	13'	1.4	E-34

Remarks:
Filename: FL111
Test Date: 3-07-94
TAB REP-C-11B-83
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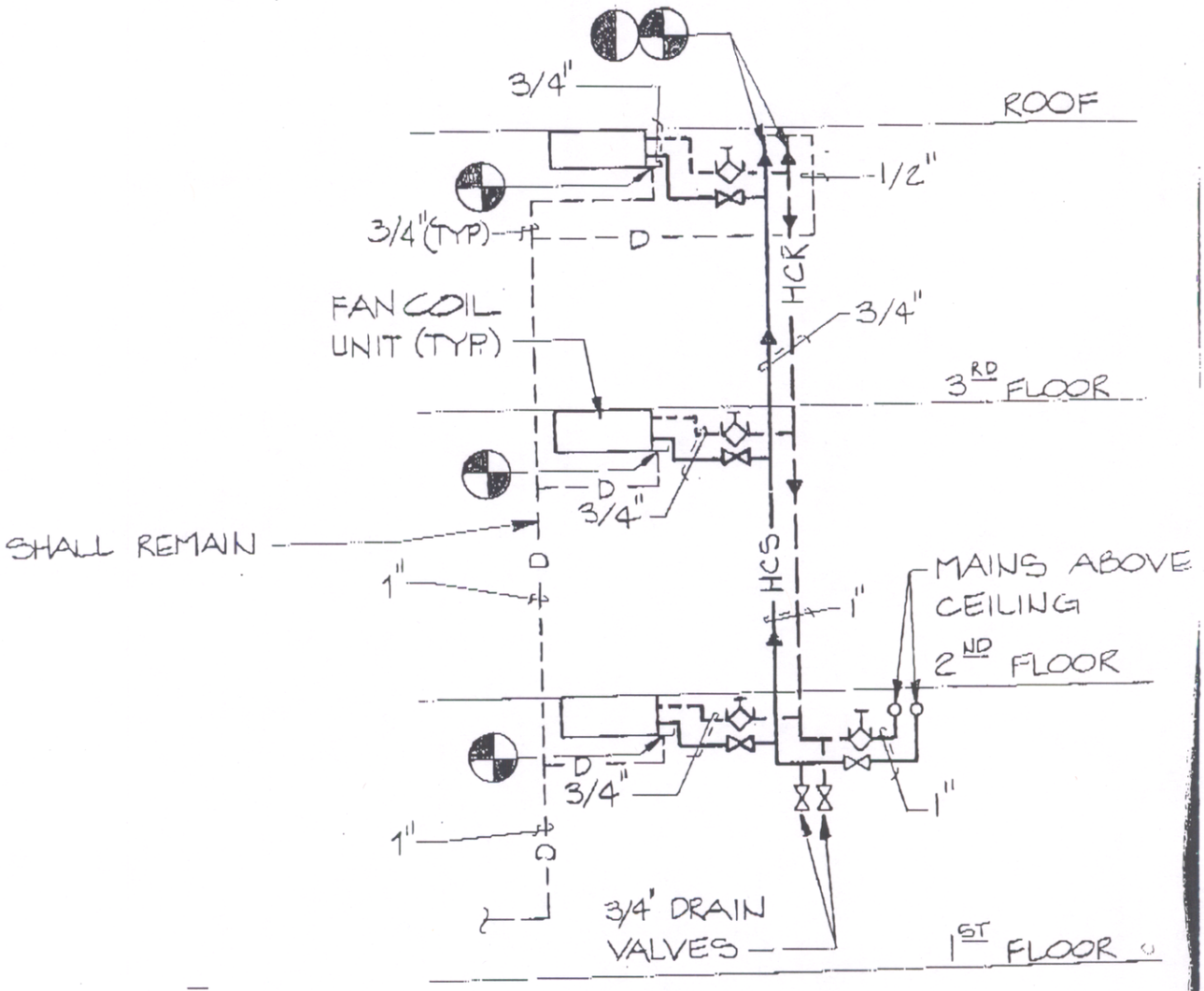
Readings By: S.WHITESIDE

JOHNSON CONTROLS #2860

Johnson Controls, Inc. Florida
D. GARY ANDERSON
CERTIFICATE
2860



FCU RISERS

TYPICAL RISER DIAGRAMS

NO SCALE

INTERNATIONAL ENVIRONMENTAL CORPORATION PRODUCT SCHEDULE

: TED LAGASSE
SOUTHERN AIR, INC.
2655 LAKESIDE DRIVE
LYNCHBURG, VA 24502

Job: FT. LEE BLDGS 3100 & 3101
Date: 7/2/1993 PO #:

IEC Rep: NELSON-CRUMLEY, INC.

					COOLING EDB: 78 F EWB: 65 F EWT (Suct T): 45 F				HEATING EDB: 70 F EWT: 200 F E-Res Voltage: 120					
C	Qty	Model Unit Coil	CFM	ESP	Total MBH	Sens. MBH	GPM	TD	PD	Sens. MBH	GPM	TD	PD	KW	PSI
	1	BPY04 AYY	360	0.25	8.4	7.1	1.4	12	5.0	34.2	1.4	49	3.8	--	-
	1	CBY04 AYY	394	0.13	8.7	7.5	1.4	12	4.9	36.6	1.4	52	3.8	--	-
	1	CBY04 DYY	399	0.13	---	---	-	-	--	27.2	1.0	54	1.2	--	-
	1	BPY04 AYY	360	0.25	8.4	7.1	1.4	12	5.0	34.2	1.4	49	3.8	--	-

INTERNATIONAL
ENVIRONMENTAL

CONTROL SCHEMATIC

FCU-1, 2, & 4

In the cooling mode, on a rise in space temperature the thermostat will open the 3-way electric control valve to the coil and the fan will start. The valve will not open without the fan being energized. There is no "wild coil". When the space is satisified, the fan and valve will be de-energized. The control valve is normally-closed to the coil.

In the heating mode, on a drop in space temperature the thermostat will open the 3-way electric control valve to the coil and the fan will start. The valve will not open without the fan being energized. When the space is satisified, the fan and valve will be de-energized. The control valve is normally-closed to the coil.

The fan motor is line voltage(115-1-60). The thermostat (by others) and control valve are low voltage(24v). An aquastat is provided to establish heating or cooling mode.

FCU-3 (Heating Only)

The fan will be controlled by the occupant. The aquastat will control the 3-way valve. If cold water is in the system, the aquastat will by-pass the coil. There is no "wild coil". If hot water is available, the 3-way valve will be open to the coil.

The fan motor is line voltage(115-1-60). The thermostat (by others) and control valve are low voltage(24v).

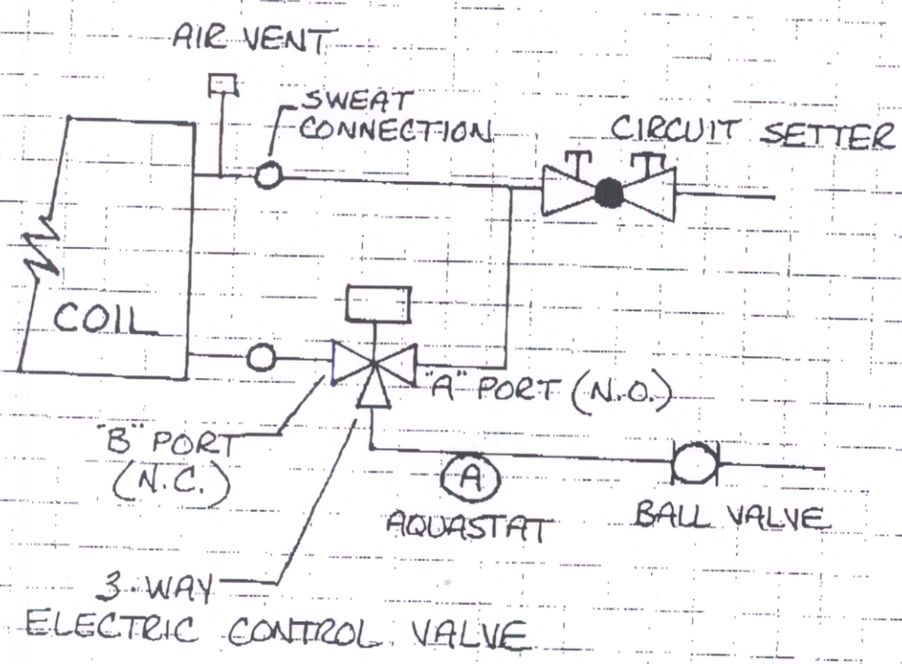
P.O. BOX 25608 • OKLAHOMA CITY, OK 73125 • PH 405 947 7666 • FAX 405 947 6503

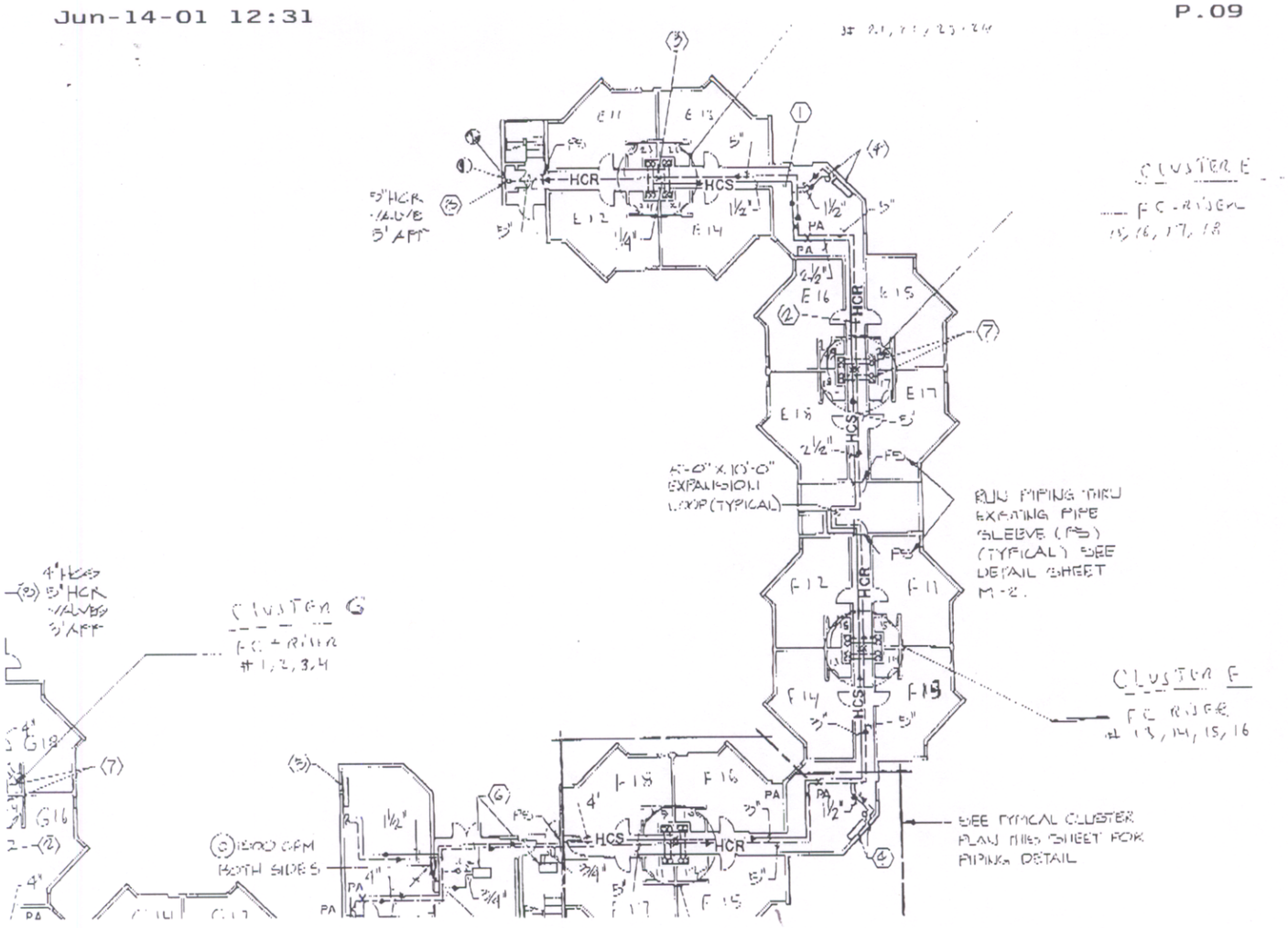
OTHERN AIR, INC.

SECT FT. LEE BLDGS 3100 3101

FROM INTERNATIONAL ENVIRON.

DATE JULY 3, 1993 PAGE OF




CLUSTER E
FC-RISER
15, 16, 17, 18
5" HCR VALVE 5' AFF
HCR
HCS
PA
PS
E11
E12
E13
E14
E15
E16
E17
E18
F11
F12
F13
F14
F15
F16
F18
G16
G18
5'-0" X 10'-0" EXPANSION LOOP (TYPICAL)
RUN PIPING THRU EXISTING PIPE SLEEVE (PS) (TYPICAL) SEE DETAIL SHEET M-2.
CLUSTER G
FC-RISER
#1, 2, 3, 4
CLUSTER F
FC RISER
#13, 14, 15, 16
4" HCS 5" HCR VALVES 5' AFF
1600 CFM BOTH SIDES
SEE TYPICAL CLUSTER PLAN MED SHEET FOR PIPING DETAIL

Beach Professional Services Corp.
Consulting Engineers
811 Seaboard Circle
Virginia Beach, Virginia
(804) 468-8244

November 24, 1992

Mr. Chaouki M. Baassiri
Mechanical Engineer/Project Manager
Directorate, Engineering and Housing
Fort Lee, Virginia 23801-5200

Re: Project No. PJ-165-7P, Replace Dual Temperature Lines, Buildings 3100 and 3101
BPSC Project # 88081.002

Dear Joe:

This letter is in response to your request on November 19, 1992 for direction regarding phasing of the mechanical work for the above referenced project.

The phasing as specified per section 02050 is as follows:

Phase I: Cluster A & B
Phase II: Cluster C & D
Phase III: Cluster E, F, & G

The key to maintaining the above schedule is the demolition and installation of the HCS & HCR main piping.

The design of the dual temperature piping system is a continuous loop. The HCS piping enters building 3101 in cluster D and extends thru the building. Both HCS & HCR piping exit at cluster A and enter building 3100 in cluster G and extend thru the building. HCR piping exits at cluster E and back to the mechanical room.

Main HCS and HCR piping will have to be completely installed in buildings 3100 and 3101 with fan coil riser take off piping and shut off valves prior to any phasing. The existing riser piping can then be connected to the new main piping and areas deactivated or left active to maintain the phasing schedule. See attached FCU riser sketch.

Should you have any further questions, please feel free to call.

Sincerely,
BEACH PROFESSIONAL SERVICES CORP.

Robert D. Lamb

Robert D. Lamb
Mechanical Engineer
RDL/jw

cc: Walsh Ashe - Charles Heileig

Southern Air, INC.

2655 LAKESIDE DR. P.O. BOX 4205 LYNCHBURG, VA. 24502-0205 (804) 385-6200
Va. State Reg. No. 1733 Fax. # 385-9081 Service Division (804) 385-7700

February 15, 1993

RECEIVED
FEB 23 1993
Insulation Specialties, Inc.

Insulation Specialties, Inc.
501 Westover Avenue
Hopewell, VA 23005

Attn: Gary Wade

Re: Replacement of Dual Temp Lines
Fort Lee, VA
Contract # DACA65-92-0170
Request For Change M-8246

Gentlemen:

According to the Corp of Engineers, they have deleted specifications section 02050, Paragraph 1.8 and substituted the following work schedule:

PHASE I — Complete all work in Building 3100, except for return main.
NTP 30 DEC 92

PHASE II — Complete all main pipeline work Building 3100 and 3101.

PHASE III — Complete all remaining work in Building 3101 performance of Phase II will be restricted to a limited time frame when it is acceptable that no heating or cooling will be available, April 15 - July 15, 1993 and will require the first floor of both buildings to be vacated. During Phase I and III the respective buildings will be vacated. Before Phase I, drain the system in Building 3100 cut and cap all return branch pipe lines to isolate return main for operation during the first phase.
NLT 26 OCT 93

Since they have changed the phasing plan and substituted another, this changes the scope of work. Even though the original phasing plan would not have been acceptable based upon existing pipe being routed through Buildings 3100 and 3101 from two different end locations, this would have made it impossible to renovate these buildings as originally specified. Our price was based upon having total control of an unoccupied building during the construction phase; there was no mention of the owner occupying parts of the building. In lieu of these circumstances, we are requesting a change order with time to accommodate this inconvenience.

ISI CHI QSI

INSULATION SPECIALTIES, INC. CAUDLE-HYATT, INC. QUALITY SPECIALTIES, INC.

1 WESTOVER PARK, 601 WESTOVER AVENUE
P.O. BOX 1629
HOPEWELL, VIRGINIA 23860

TELEFAX MESSAGE

FROM: GARRY W. WADE
PHONE: (804) 748-9606
FAX: (804) 455-8521

TO: Fred Brecht
CO: USA - Corps of Engineers
PHONE:
FAX: 861-8487

REMARKS: Step by Step procedure for chem. cleaning of Dual Temp System

TOTAL NUMBER OF PAGES TRANSMITTED, INCLUDING THIS COVER SHEET 4

IF ANY PART OF THIS TRANSMITTAL IS NOT CLEAR, PLEASE PHONE THE NUMBER ABOVE.

Chemical cleaning Bld 3100-3101

A) Objective -: To clean main DTWS-R lines above ceiling, underground piping between buildings, Boiler Room Equipment not limited to following chiller, Boilers, Air Seperator, Y- strainers, Pump and exsiting administration Bld.

B) Procedure: In the hot water active mode while continuing to heat Bld 3101.

1) Close valves to risers Bld 3100
2) Close valves to new unit ventilator risers Bld 310
3) Induce pre clean solution at exsiting pot feeder main mechanical room.
4) Circulate minimum 4-10 hr days
5) At water make up main mechanical room open by pass at DCW feed to just under relief valve blow off pressure about 45 PSI
6) Add low point drains at each boiler and pump with garden hose to floor drain, drain off water just enough that you dont exceed draining off more then you are making up to system continue this process for 3-10 hr days until no further sign of pre-clean solution.
7) After pre clean solution has been removed open water to risers Bld 3100 - make sure all FCU valves are off. Blow down low points of branch take offs. at all risers (do not let water circulate thru new equipment.

8) After Blowing Down Risers Bld 3100. Stop Water make up, Stop Pump, Clean Strainer and Completely Drain Boilers This will Take 1-Day.

9) Refill System with Dew By Pass until You Have 15 PSI on the Suction Side of The Pump Running.

10) Divert System From Heating To Cooling Follow Same Procedure, except Flow will be Thru Chiller. This Procedure should be Done After moving Residents out of Bld 3101 So All Low Point Drains, and Risers Can Be Done After New Pipe Risers Have Been Installed.

11) After Both Blds Have been Cleaned Shut System Pump Down. Drain Both Buildings Down, main Equipment Room, Major Equipment In Mechanical Room. Weld one 2½ Fitting with Shut off Valve and Hose Cam lock Fitting To Connect up To Tanker which will be Carrying the Pre mixed Dow Therm Solution.

Pump All Contents In System, Start Pump Bleed All Air Both Buildings, Check Quantities of Glycol mix In System. Add Additional Full Strength Solution As Required To Maintain Percentage Required.

12) Disconnect the Domestic Cold Water Make Up To System. Not Allowed Cross Connection Not Even With Back Flow Protection.

13) Owner will need To Purchase Separate Pumping System For Any Additional Glycol Required If System Should Ever Need To be Drained Down After This Contract is Completed.

14) All MSDS Sheets Should be Available To In House Workers within the Mechanical Room For Future Service work.

15) Owner To Re Label All Piping Incorrectly System Filled The Hazzardous Material.