BENYC 2017

Steve Bluestone

Mind the Gaps: Post-Occupancy Discoveries From Data and Operational Perspectives.....



lessons learned thus far.

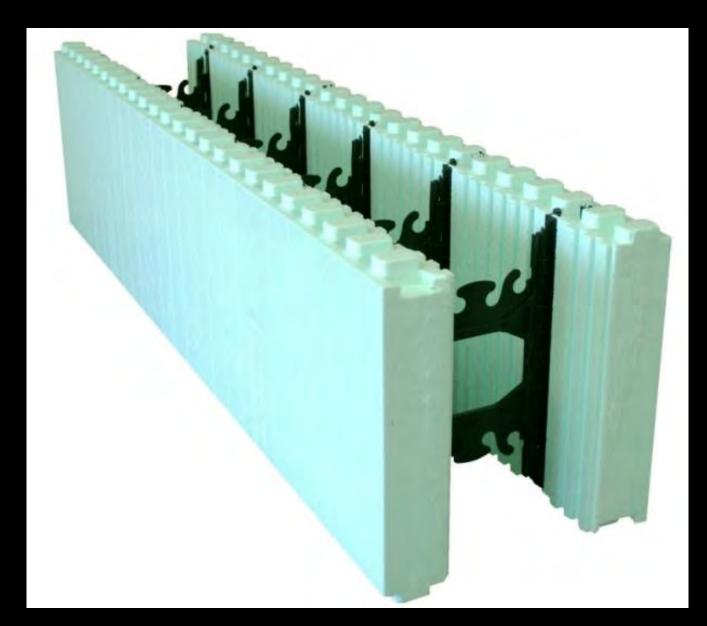
icfpanels.com

helixrebar.com



Insulated Concrete Forms (ICFs). The (almost) perfect wall.











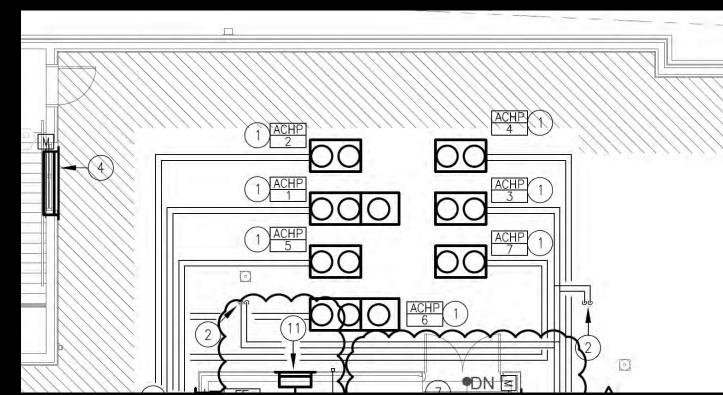












AIR-COOLED HEAT PUMP	CONDENSING UNIT SCHEDULE	

1. 1. 1. 1. 1.				COOLING	[C	HEATING			
UNIT	SERVICE	MODEL	CAPACITY	PROPOSED	CODE MIN.	CAPACITY	PROPOSED	CODE MIN.	VOLTS/PH/HZ	
NO.		NO.	MBH	EFFICIENCY	EFFICIENCY	MBH	EFFICIENCY	EFFICIENCY	1	
ACHP-1	UNITS A & R	RXYQ216TTJU	206	11.7 EER	10.6 EER	231	3.65 COP	3.2 COP	208/3/60	
ACHP-2	UNITS B.C & Q	RXYQ216TTJU	208	11.7 EER	10.6 EER	231	3.65 COP	3.2 COP	208/3/60	
ACHP-3	UNITS P&N	RXYQ144TTJU	138	11.5 EER	10.6 EER	154	3.72 COP	3.2 COP	208/3/60	
ACHP-4	UNITS D.E. & H	RXYQ192TTJU	184	12.3 EER	10.6 EER	206	3.6.COP	3.2 COP	208/3/60	
ACHP-5	UNITS F & G	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP	208/3/60	
ACHP-6	UNITS J& M	RXYQ216TTJU	206	11.7 EER	10.6 EER	231	3.65 COP	3.2 COP	208/3/60	
ACHP-7	UNITS K&L	RXYQ144TTJU	138	11.5 EER	10.6 EER	154	3.72 COP	3.2 COP	208/3/60	
ACHP-8	LOBBY	RZQ24PVJU9	24	XX EER	XXEER	27	XX COP	XX COP	208/1/60	
	NOTES:	1	1,262			1,414	¢	ACCESSORIE	ES.	

NOTES:

- 1. SELECTIONS BASED ON EQUIPMENT MANUFACTURED BY DAIKIN.
- 2. RATINGS BASED ON 95 DEG FAMBIENT TEMPERATURE FOR COOLING
- 3. RATINGS BASED ON 10 DEG F AMBIENT TEMPERATURE FOR HEATING
- 4. PROVIDE REFRIGERANT PIPING, COMPONENTS AND SPECIALTIES, SIZED & INSTALLED AS PER THE MFR'S RECOMMENDATIONS.
- 5. PROVIDE MFR'S INTELLIGENT TOUCH CONTROLLER WITH TENANT BILLING.

ACCESSORIES:

- 1. LOW AMBIENT HEATING & C
- 2. POWER DISCONNECT SWITC
- 3. SYSTEM SHALL PROVIDE HI
- 4. UNIT SHALL HAVE INVERTER
- 5. CONDENSER COIL GUARD.
- 6. ROOF SUPPORT RAILS WITH



It is the first responsibility of every citizen to question authority.

~ Benjamin Franklin

				COOLING		HEATING			E
UNIT	SERVICE	MODEL	CAPACITY	PROPOSED	CODE MIN.	CAPACITY	PROPOSED	CODE MIN.	V
NO,		NO.	MBH	EFFICIENCY	EFFICIENCY	мвн	EFFICIENCY	EFFICIENCY	
ACHP-1	UNITS A & R	RXYQ192TTJU	184	12.3 EER	10.6 EER	206	3.6 COP	3.2 COP	2
ACHP-2	UNITS B,C & Q	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP	2
ACHP-3	UNITS D,E, & H	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP	2
ACHP-4	UNITS F & G	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP	2
ACHP-5	UNITS P & N	RXYQ120TTJU	114	12.1 EER	10.6 EER	129	3.46 COP	3.2 COP	2
ACHP-6	UNITS J & M	RXYQ192TTJU	184	12.3 EER	10.6 EER	206	3.6 COP	3.2 COP	2
ACHP-7	UNITS K & L	RXYQ120TTJU	114	12.1 EER	10.6 EER	129	3.46 COP	3.2 COP	2
ACHP-8	LOBBY	RZQ24PVJU9	24	12.0 EER	XXEER	27	XX.COP	3.38 COP	2
		-	1 100						1
	NOTES:		1,100			1,240		ACCESSOR	ES
	1. SELECTIONS BA	SED ON EQUIPME	ENT MANUFACT	JRED BY DAIKIN.	6		1	LOW AMBIE	NT
	2. RATINGS BASED	ON 95 DEG.F AN	BIENT TEMPER	ATURE FOR COO	LING		2	POWER DIS	cc
	3. RATINGS BASED	ON 10 DEG.F AN	FING		3	SYSTEM SH	AL		
	4. PROVIDE REFRI	GERANT PIPING, (COMPONENTS A	ND SPECIALTIES	i.		4	. UNIT SHALL	HA
	SIZED & INSTALL	LED AS PER THE M	MFR'S RECOMM	ENDATIONS			5	CONDENSE	2 5
	5. PROVIDE MFR'S	INTELLIGENT TO	UCH CONTROLL	ER WITH TENANT	BILLING.		6	ROOF SUPP	OF

				COOLING		HEATING			E
UNIT	SERVICE	MODEL	CAPACITY	PROPOSED	CODE MIN.	CAPACITY	PROPOSED	CODE MIN.	V
NO,		NO.	МВН	EFFICIENCY	EFFICIENCY	мвн	EFFICIENCY	EFFICIENCY	
ACHP-1	UNITS A & R	RXYQ192TTJU	184	12.3 EER	10.6 EER	206	3.6 COP	3.2 COP	2
ACHP-2	UNITS B,C & Q	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP	2
ACHP-3	UNITS D,E, & H	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP	2
ACHP-4	UNITS F & G	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP	2
ACHP-5	UNITS P & N	RXYQ120TTJU	114	12.1 EER	10.6 EER	129	3.46 COP	3.2 COP	2
ACHP-6	UNITS J & M	RXYQ192TTJU	184	12.3 EER	10.6 EER	206	3.6 COP	3.2 COP	2
ACHP-7	UNITS K & L	RXYQ120TTJU	114	12.1 EER	10.6 EER	129	3.46 COP	3.2 COP	2
ACHP-8	LOBBY	RZQ24PVJU9	24	12.0 EER	XX.EER	27	XX.COP	3.38 COP	2
	NOTES:	4		1,240	/ 1,454	4 ACCESSORI	IES		
	1. SELECTIONS BAS	SED ON EQUIPME	ENT MANUFACTU	RED BY DAIKIN.			1	. LOW AMBIE	NT
	2. RATINGS BASED	ON 95 DEG.F AN	BIENT TEMPERA	TURE FOR COO	LING		2	POWER DIS	CC
	3. RATINGS BASED	ON 10 DEG.F AN	ſNG		3	SYSTEM SH	AL		
	4. PROVIDE REFRIC	GERANT PIPING, (COMPONENTS AN	ID SPECIALTIES	i.		4	. UNIT SHALL	HA
	SIZED & INSTALL	ED AS PER THE	MFR'S RECOMME	NDATIONS.			5	CONDENSE	RC
	5. PROVIDE MFR'S	INTELLIGENT TO	UCH CONTROLLE	R WITH TENANT	BILLING.		6	ROOF SUPP	OF

				COOLING			HEATING			
UNIT	SERVICE	MODEL	CAPACITY	PROPOSED	CODE MIN.	CAPACITY	PROPOSED	CODE MIN.		
NO,		NO.	MBH	EFFICIENCY	EFFICIENCY	MBH	EFFICIENCY	EFFICIENCY		
ACHP-1	UNITS A & R	RXYQ192TTJU	184	12.3 EER	10.6 EER	206	3.6 COP	3.2 COP		
ACHP-2	UNITS B,C & Q	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP		
ACHP-3	UNITS D,E, & H	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP		
ACHP-4	UNITS F & G	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP		
ACHP-5	UNITS P & N	RXYQ120TTJU	114	12.1 EER	10.6 EER	129	3.46 COP	3.2 COP		
ACHP-6	UNITS J & M	RXYQ192TTJU	184	12.3 EER	10.6 EER	206	3.6 COP	3.2 COP		
ACHP-7	UNITS K & L	RXYQ120TTJU	114	12.1 EER	10.6 EER	129	3.46 COP	3.2 COP		
ACHP-8	LOBBY	RZQ24PVJU9	24	12.0 EER	XXEER	27	XX.COP	3.38 COP		
_	NOTES:	1	- <u>I</u> -	620 /	1,454	ACCESSORIES				
	1. SELECTIONS BA	SED ON EQUIPME	NT MANUFACTUR	ED BY DAIKIN.			1	LOW AMBIENT		
2. RATINGS BASED ON 95 DEG.F AMBIENT TEMPERATURE FOR COOLING							2	POWER DISCO		
	3. RATINGS BASED	ON 10 DEG.F AM	BIENT TEMPERATURE FOR HEATING				3	SYSTEM SHAL		
	4. PROVIDE REFRI	SERANT PIPING, C	OMPONENTS AN	D SPECIALTIES,			4	UNIT SHALL H		
	SIZED & INSTALL	ED AS PER THE	AFR'S RECOMMEN	DATIONS.			5	CONDENSER		
	5. PROVIDE MFR'S	INTELLIGENT TOU	CH CONTROLLER	WITH TENANT	BILLING		6	ROOF SUPPO		

				COOLING		HEATING			E
UNIT	SERVICE	MODEL	CAPACITY	PROPOSED	CODE MIN.	CAPACITY	PROPOSED	CODE MIN.	N
NO,		NO.	MBH	EFFICIENCY	EFFICIENCY	мвн	EFFICIENCY	EFFICIENCY	1
ACHP-1	UNITS A & R	RXYQ192TTJU	184	12.3 EER	10.6 EER	206	3.6 COP	3.2 COP	2
ACHP-2	UNITS B,C & Q	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP	2
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ACHP-4	UNITS F & G	RXYQ168TTJU	160	10.6 EER	10.6 EER	180	3.49 COP	3.2 COP	2
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ACHP-8	LOBBY	RZQ24PVJU9	24	12.0 EER	XX.EER	27	XX COP	3.38 COP	2
	NOTES:	+	225 / *	1,262		310 /	1,454	ACCESSORI	IES
	1. SELECTIONS BAS	SED ON EQUIPME	ENT MANUFACTI	JRED BY DAIKIN.	6		1	. LOW AMBIE	NT
	2. RATINGS BASED	ON 95 DEG.F AN	BIENT TEMPER	ATURE FOR COO	LING		2	POWER DIS	CC
	3. RATINGS BASED	ON 10 DEG.F AN	TING		3	SYSTEM SH	AL		
	4. PROVIDE REFRIC	SERANT PIPING, C	COMPONENTS A	ND SPECIALTIES	i.		4	. UNIT SHALL	HA
	SIZED & INSTALL	ED AS PER THE M	MFR'S RECOMM	ENDATIONS.			5	CONDENSE	RC
	5. PROVIDE MFR'S	INTELLIGENT TO	UCH CONTROLL	ER WITH TENANT	BILLING.		6	ROOF SUPP	POF



The Joy of Flex

http://bit.ly/2wDSHCY

http://www.energyvanguard.com/blog/joy-flex



Post-Occupancy Discoveries

From Data and

Operational Perspectives

"It's so quiet."

"It's so comfortable."

Thanks.

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steve@helixrebar.com