

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK CITY OF PORTLAND BUILDING PERMIT



This is to certify that ______ Turnpike Properties

Located At 108 INDUSTRIAL WAY

Job ID: 2012-01-3128-HVAC

CBL: 326- B-001-001

has permission to Install York Affinity Air Condenser Unit

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED. A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

Fire Prevention Officer

Code Enforcement Officer / Plan Reviewer

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY PENALTY FOR REMOVING THIS CARD



Strengthening a Remarkable City, Building a Community for Life . www.portlandmaine.gov

Director of Planning and Urban Development Penny St. Louis

Job ID: 2012-01-3128-HVAC

Located At: <u>108 INDUSTRIAL</u> WAY CBL: 326- B-001-001

Conditions of Approval:

Fire

Installation shall comply with City Code Chapter 10.

NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems;

NFPA 91, Standard for Exhaust Systems for Air Conveying Vapors, Gases, Mists, and Noncombustible Particulate Solids;

NFPA 70, National Electrical Code; and the manufacturer's published instructions.

Building

- 1. Application approval based upon information provided by applicant. Any deviation from approved plans requires separate review and approval prior to work.
- Separate permits are required for any electrical, plumbing, sprinkler, fire alarm HVAC systems, heating appliances, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.
- 3. All penetrations through rated assemblies must be protected by an approved firestop system installed in accordance with ASTM E 814 or UL 1479, per IBC 2009 Section 713.

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

lob No: 2012-01-3128-HVAC	Date Applied: 1/20/2012		CBL: 326- B-001-001					
Location of Construction: 08 INDUSTRIAL WAY	Owner Name: TURNPIKE PTROPERT	TIES, INC	Owner Address: 405 WESTERN AV SOUTH PORTLA	Phone:				
Business Name:	Contractor Name: Haley, Matt		Contractor Addr 539 Elm ST BIDI	Phone: (207) 28	4-8571			
Lessee/Buyer's Name: New England Life Care	Phone:		Permit Type: HVAC - HVAC	Zone: I-M				
Past Use:	Proposed Use:	Life Care	Cost of Work: 40000.00		CEO D	District:		
	y Air le pad — 2011-10-	Fire Dept: Signature:	Conditions Inspect Use Grou Type: TMC Signatur	tion: WINA S				
Proposed Project Description nstall York Affinity Air Condens	n: eer Unit		Pedestrian Activities District (P.A.D.)					
Permit Taken By:			Zoning Approval					
 This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. Building Permits do not include plumbing, septic or electrial work. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work. 		Special Zo Shorelar Wetland Flood Zo Subdivis Site Plar Maj	nd s none sion MinMM	Zoning Appeal Variance Miscellaneous Conditional Use Interpretation Approved Denied	Historic Preservation Not in Dist or Landmark Does not Require Review Requires Review Approved Approved w/Conditions Denied Date:			

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE C	OF WORK, TITLE	DATE	PHONE

Fill IN AND SH	IGN WITH INK						
APPLICATION FOR PERMIT							
HEATING OR POW							
To the INSPECTOR OF BUILDINGS, PORTLAND, ME. The undersigned hereby applies for a permit to install	l the following heating, cooking or power equipment in						
accordance with the Laws of Maine, the Building Code of the $O(1)$? City of Portland, and the following specifications:						
ocation / CBL New England Like Cave Solo-B-1	Use of Building Medical Date 1/18/12						
Name and address of owner of appliance 108A Industria	Tothe Way, Partled ME 04103						
installer's name and address Haley's Metal Shop, Inc	e. Matt waln						
Broddefnel, ME 04005	Telephone <u>207-284-857</u>						
location of appliance: outside on pad	Type of Chimney: N/A No venting						
Basement Floor Attic Roof	Masonry Lined regid						
	ratory built						
Type of Fuel: N A	Metal Feature Duilt III Listing #						
	Factory Built U.L. Listing #						
Appliance Name: York Affinity 5-ton Alv- (00)	Direct Vent						
U.L. Approved & Yes D No	TypeRECENVED						
Will appliance be installed in accordance with the manufacture's	Type of Fuel Tank N/A INN 20 2012						
installation instructions? 🛛 Yes 🖸 No							
F NO Explain:	Gas Dept. of Building						
	Size of Tank						
The Type of License of Installer:	Number of Tanks						
Master Plumber #							
Solid Fuel #	Distance from Tank to Center of Flame feet.						
Gas #	Cost of Work: \$ 39, 404.00						
Other	Permit Fee: \$						
Approved	Approved with Conditions						
Fire:	See attached letter or requirement						
Ele.:							
	Inspector's Signature Date Approved						
Signature of Installer As Mo	4 they 1/20/12						
White - Inspection Yellow - File Pint	k - Applicant's Gold - Assessor's Copy						

12035-14500424872 F Blanket PO. LEtty - 749-9253 West buis AHU-32 prece of Austhalian

Ann Machado - New England Life Care Permit

From:Matt Haley <mhaley@haleysmetal.com>To:"amachado@portlandmaine.gov" <amachado@portlandmaine.gov>Date:1/23/2012 9:55 AMSubject:New England Life Care Permit

Anne,

Just spoke with my man on site and the condenser pad will be on pavement.

Thank you,

Matt

Matthew J. Haley Sheet Metal Operations Manager Haley's Metal Shop, Inc. 539 Elm Street Biddeford, ME 04005 Office: (207) 284-8571 Cell: (207) 252-1011 Fax: (207) 284-9597 www.haleysmetal.com





JAN 2 3 2012

Dept. of Building Inspections City of Philiand Maine

Noble Associates, Inc.

317 Libbey Industrial Parkway Suite100 Weymouth, MA 02189

Roger Dieffenbach

Ph. 781 337 1630 fx. 781 337 9289 email: <u>rogerd@building-automation.com</u>

SUBMITTAL

DATE:

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January 5, 2012

PROJECT:

New England Life Care Cleanroom

CONTRACTOR:

Haley's Metal Shop Inc. Biddeford, ME

SUBMITTED BY:

Noble Associates

SUBMITTAL COVERING: Indeeco Electric Duct Heater



ELECTRIC DUCT HEATERS CERTIFIED PRINT

 $\mathbf{\Lambda}$

provide L4 overhang

1

CUSTOMER: Noble Associates 317 LibbeyPark Way Weymouth, MA 02189 PHONE NO: FAX NO: ATTENTION: Estimator						INDEECO SALES REPRESENTATIVE: Noble Associates 317 LibbeyPark Way Weymouth, MA 02189 PHONE NO: 781-337-1630 ATTENTION: Roger Dieffenbach									
ATTEN	TION: Estim	nator						ATTENTION: Roger Dieffenbach							
JOB N	AME: nE Life	e Care (Cleanroo	m				FILE: New England Life Care Cleanroom.pch							
CUST	OMER P.O. N	UMBE	R:					REF	P. P.O.	NUMBE	ER:				
					INSIDE	EDUCT		1			REFER TO ATTACHED SHEET FO	REXPLANATION			
Item			HEATER		DIMEN (IN IN	NSIONS CHES)	SUPPLY		CTRL	CTRL		AIR	OVER	FIG.	
No	TAG NO.	QTY	TYPE	KW	WIDTH	HEIGHT	PHASE	SIGS	VOLIS	OPTION	SPECIAL FEATURE CODE	FLOW	HANG	NO	
1		1	QUA	5.00	20.00	16.00	208/3	1	24	к	C9,E35,E23,L6,M6,Q,Q3,T2,U6,Z2	UG	L6	1	

TOTAL

1

INDEECO - 425 HANLEY INDUSTRIAL COURT - ST.LOUIS, MO 63144-1594



ELECTRIC DUCT HEATERS CERTIFIED PRINT

Page 1B of 1 01/05/2012

CUSTOMER P.O. NUMBER:

APPROVALS - Any heater which contains a ""U"" in the ""HEATER TYPE"" column, is listed by Underwriters Laboratories (UL). Any heater which contains a ""C"" in this column, is listed by Canadian Standards Association (CSA) MINIMUM AIR VELOCITY - This is the minimum uniform face air velocity (in feet per minute or meters per minute) required for proper operation of the heater at inlet temperatures up to and including 80 °F (27 ° C) if Application air velocities are less, contact your INDEECO factory representative.

WIRING DIAGRAM - INDEECO wiring diagrams are typical and use numbered check blocks to fully detail the specific built-in controls for each heater.

MINIMUM INCOMING WIRE GAUGE AND QUANTITY - Wire gauge (GA) is based upon the ampacities for 75 °C rated wire (90 °C for CSA listed heaters) in Table 310-16 of the NEC (Table 2 of CEC for CSA listed heaters.) Maximum wire ampacities are derated per NEC 424-3(b) and note 8 to Table 310-16 (Table 5C and 62-114(7) of the CEC for CSA listed heaters). When the load exceeds the capacity of 500 MCM wire, terminal blocks are furnished for two or more parallel conductors per phase. The number of such conductors is indicated under (QTY/PH) below. Aluminum conductors are not recommended and terminal blocks are not sized for aluminum wire. For heater/panel combination, the wire gauge shown on the heater line is for the heater to panel interconnecting wire. The wire gauge shown on the panel line is for the incoming power wiring.

			REF	ER TO I	DIM	ENSION	IS IN INC G. ON AT	CHES	ED DRA	WING				MIN		WIRING DIAGRAM	MI	NIMUM
Item No	w	н	С	М	OL	OR	Ρ	D	E	F	G	N	N FIG. NO	AIR VEL FPM	NUMBER	CHECK BLOCKS	GA	WIRE QTY/PH
1	20.00	16.00	8.00	21.50	12.75	0.75	18.00		6.00				1	166	930-4-1122-349-A-00	05, 21, 85	12	1



ELECTRIC OPEN COIL DUCT HEATERS

HEATER TYPE

This print covers the following heater types: QUA Open Coil Standard, Slip-In QUZ Open Coil Standard, Flanged 860U Standard Remote Panel

XUB Open Coil Custom, Slip-In ZUB Open Coil Custom, Flanged 830U Custom Remote Panel

INDEECO duct heaters utilize the finest construction principles and techniques, 80% nickel, 20% chromium coils are supported by ceramic bushings mounted in corrosion-resistant steel brackets, using a patented floating design that prevents breakage due to thermal expansion. The coils are machine crimped into stainless steel terminals which are insulated with high temperature ceramic bushings. The heater frame is constructed of heavy gauge corrosionresistant steel and is provided with generous flanges for structural rigidity. All heaters, except QUZ, are suitable for installation in ducts with up to one inch of interior lining.

All heaters include both automatic and manual reset thermal cutouts (not heat limiters or fusible links). All controls are factory-wired to clearly marked terminal blocks for field connections. Properly sized knockouts are provided. All heaters are supplied complete with wiring diagrams and installation instructions, and all are given a dielectric test at a minimum of 1200 volts before shipment.

UNDERWRITERS LISTING AND NATIONAL ELECTRIC CODE

INDEECO duct heaters and panels with a "U" in the type designation are listed by UL under reference E23192 and E53412. As such, they are suitable for installation with zero clearance to combustible surfaces and for use with heat pumps and central air conditioners. They are also supplied with all necessary provisions for installation in full accordance with the National Electric Code.

INSTALLATION

INOEECO slip-in duct heaters are installed by inserting through a rectangular opening cut in the side of the ductwork and are secured to the duct with sheet metal screws. To install INDEECO flanged duct heaters, flanges must be provided on the duct to match the heater flanges, both on the entering and leaving air sides. The heater is secured to the ductwork by sheet metal screws or bolts through the mating flanges.

When the duct heater is being used in conjunction with an air conditioning or heat pump unit, it must be installed at least 48" from that unit. Per NEC requirements, a minimum of 3-1/2 feet of accessible working space clearance must be provided on the terminal box side of the heater. Care should be taken to follow all instructions found in the Installation, Operating and Maintenance instruction sheet supplied with each heater.

CONTROL OPTIONS

The following table indicates the basic control components which are supplied with each of the standard control options.

STANDARD CONTROL OPTIONS							
Option	G Basic	J Pneumatic	K SCR				
Thermal Cutouts	X	X	X				
Airflow Switch	X	X	X				
Control Transformers	X	0	0				
Fuses (for heaters over 48 amps)	x	X	х				
Disconnect Switch	X	X	X				
Contactors (de-energizing)	x	0	0				
PE Switches		X					
SCR Controller			X				
Thermostat	0		0				

X Standard O Provide as necessary

SPECIAL FEATURES

INDEECO heaters are available with a wide variety of special features and constructions. Your guotation or certified print includes a column for special feature codes. The codes in this column, as defined by the table below, describes details of both the standard control options, as well as any special features on the heater in question,

SPECIAL FEATURE CODE DEFINITIONS

Aluminized Steel Frame & Terminal Box
Stainless Steel Frame & Terminal Box
Stainless Steel Elements
.6 Terminal Box Overhang (See Figs. 10 & 11
No Overhang, C=M (See Fig. 7)
7 Manual Thermal Cutout
Remote Manual Reset Rod
Fan Relay (000 is control voltage)
Pilot Light Each Stage On
Pilot Light Insufficient Air
Pllot Light Heater On
Pliot Light-Overtemperature
Disconnect Switch-Power
Pilot Switch-Control Circuit
4 Airflow Switch Positive
5 Aldlow Switch Negative
Disconnect Switch-Control Circuit
Disc. Switch-Control Circuit Fan Relay
SOLITECH STEP CONTROLLER
2200 Ohm input-Deadband
135 Ohm input-Proportional
4-20mA input-Proportional
with Transducer-Proportional
0-10VDC input-Proportional
Stop Controller-0-10VDC Thermostat
Control Circuit Transformer, Fused
Primary
F4 Control Circuit Transformer
U9 Airflow Direction (See Flas. 10 & 11)
Protective Screens-Both Sides
Pressure Plate-Inlot Side
Protective Screens-One Side
5 Automatic Thormal Cutout

425 Hanley Industrial Court * St. Louis, MO * 63144 (314) 644-4300 * FAX (314) 644-5332 * www.indeeco.com







Specific Requirements

Airflow Uniformity

To prevent hot spots, airflow must be uniformly distributed across the heater face. Figure 5 illustrates typical heater misapplications which result in nonuniform airflow. The heater's UL Listing requires that it not be installed closer than 4' (122 cm) downstream or upstream from a fan outlet, abrupt transition or other obstructions. Elbows or turns must be located at least 4' (122 cm) from inlet of the heater and 2' (61 cm) from outlet of the heater.

If such an installation cannot be avoided, consult your local INDEECO representative for assistance. We can provide a pressure plate, non-heated zones or special low watt density coils to overcome these problems. Final approval of such applications is up to the local inspection authority.



Heater too close to elbow



Heater adjacent to transition

Figure 5.



Heater partially blocked by filter or frame member



Heater too close to fan



Multiple Heaters in the Duct

INDEECO heaters are designed to be used singly, not in series in a duct. Since INDEECO heaters can be furnished in virtually any size and KW rating, series installation of heaters can be avoided.

For very large heaters, field installation and shipping may be simplified by using two or more sections designed for parallel installation, illustrated by Figure 6. Each section, furnished in the flanged design, has individual thermal cutouts. Terminal blocks are provided to interconnect these cutouts in the field. Sections rest stably one on top of the other. Special angle iron frames are available to accommodate multiple section units on special order.

Heaters more than 6' (152 cm) high are normally provided in sections, but larger single section heaters can be provided. Consult your local INDEECO representative for details.



Figure 6.

Clearance

INDEECO heaters are UL Listed for zero clearance to combustible surfaces. Thus, there is no minimum distance between combustible materials and the section of duct housing the heater, or the heater itself. However, the terminal box must be accessible for servicing. The NEC requires a minimum workspace at least 30" (76 cm) wide by 42" (107 cm) deep for access to the heater terminal box. More space is required for large heaters and for removal of slip-in heaters which are over 42" long.

In addition, sufficient clearance must be provided for convection cooling of all heaters with built-in SCR power controllers (Figure 7). Allow at least 5" (12.7 cm) of free air space around the cooling fins extending from the heater terminal box. Enclosing the fins in any fashion, insulating them, or preventing them from being cooled by normal convection will cause controller failure and void the heater warranty.



Figure 7.



Specific Requirements

UL and NEC Requirements

All INDEECO electric duct heaters described in this catalog meet the requirements of Underwriters Laboratories (UL) and the National Electrical Code (NEC) unless otherwise indicated.†

Heaters furnished with one of the Control Options on pages 10 and 11 are automatically UL Listed and meet NEC requirements. Custom designed heaters must meet certain requirements to comply with UL and the NEC. The areas of particular concern are outlined below.

Overtemperature Protection – Duct heaters must be supplied with both primary and secondary overtemperature protection. All INDEECO heaters are provided with both automatic and manual reset thermal cutouts to serve this function.

Airflow Interlocks – An airflow interlock must be provided to keep the heater from operating with extremely low or no airflow. INDEECO's standard, a built-in differential pressure airflow switch described on page 15, senses static pressure in the duct as an indicator of airflow. Separate wiring to the fan motor or its controls is unnecessary.

Alternative methods for detecting airflow include:

- The fan relay, described on page 15, provides a positive electrical interlock with the fan circuit.
- 2. A separate contactor, built into the duct heater, can energize the fan when the duct heater is on.
- A terminal block to allow field connection of external contacts that close the circuit only when the fan is operating.

Contactors – Contactors connected to the thermal cutout and airflow interlock circuits must be provided by the duct heater manufacturer. Practically speaking, this means that all but small single-phase heaters must be supplied with either contactors built into the heater terminal box or into a remote panelboard. INDEECO's standard is to supply de-energizing contactors which break only one line of single-phase circuits and two lines of three-phase circuits. Disconnecting contactors are available if required.

Overcurrent Protection -- For heaters drawing more than 48 amps, the duct heater manufacturer must provide some means of overcurrent protection either built into the terminal box or a remote panelboard. While fuses or circuit breakers are available to meet this requirement, INDEECO's standard is fuses.

Disconnecting Means – All duct heater installations require a disconnecting means at or within sight of the heater controls. We recommend that a built-in, snapacting, door interlocking disconnect switch with marked "on" and "off" positions be specified on all duct heaters. This insures the ultimate in safety, since the heater and built-in controls cannot be serviced without turning the disconnect switch off. It is also far less expensive than one obtained and installed in the field.

International Requirements

INDEECO heaters can be supplied to operate from any electrical system throughout the world. Single and three-phase voltages through 600 volts are available. As described on pages 24 through 31, all type QUA and QUZ standard heaters are available in 380, 400 or 415 volt, three-phase ratings. All INDEECO heaters will operate on either 50 or 60 Hz.

† Although UL requirements are uniform throughout the country, local electrical codes may deviate from the NEC. For information on local requirements, consult your INDEECO representative.



Installation Information

Heater Installation

Slip-in heaters slide through a rectangular opening in the side of the duct per Figure 8. The heater is designed for 1/4" (6.35 mm) clearance around the inside of the duct. Slip-in construction is normally preferred for ducts up to 4' (122 cm) wide, but can be furnished for any width. The heaters are held in place with sheet metal screws through the back of the terminal box into the duct. However, if the duct is over 3' (91 cm) wide, supporting rails in the bottom of the duct are recommended.

Flanged heaters are attached to matching external duct flanges per Figure 9. The heaters are secured by using either sheet metal screws or bolts and nuts through the flanges.

A special flanged construction installed with conventional HVAC slip-and-drive connectors is also available. See page 40 for details.

Either flanged or slip-in heaters can be installed in fiberglass ducts as illustrated in Figure 10. Note that a sheet metal liner must be installed into the fiberglass duct work, extending at least 6" (152 mm) beyond the heater terminal box on both sides, more if required for structural rigidity.

Field Wiring

Built-in power terminal blocks are sized for incoming copper conductors with 75°C insulation, rated to carry 125% of the heater load. However, lines may be sized to carry 100% of the heater load if a) the heater is rated at 50 KW or more, and b) the heater is controlled by a cycling device such as a multi-staged thermostat, step controller or SCR power controller. Terminal blocks and knockouts on such heaters will accommodate either 100% or 125% conductors. See Table I for field conductor and conduit sizing up to 500 MCM wiring. For higher amperages, terminal blocks are furnished for two or more parallel conductors per phase.

In general, aluminum conductors are not recommended and terminal blocks are not sized for aluminum. Consult your INDEECO representative if aluminum wire is specified for a particular job.



Figure 8.



Figure 9.



Figure 10,



When control power is taken from the heater's load

circuit lines, INDEECO provides for the overcurrent

protection of all control circuits as required by NEC

or UL. When control circuit power is obtained from

a separate source outside the heater, it is necessary

for the installer to provide overcurrent protection for

all control conductors.

Field control wiring should also be copper conductors with 75°C insulation. Thermostat circuits for SCR's and step controllers are NEC Class II. Many small heaters with 24 volt control circuits are also NEC Class II. When Class II wiring is permissible, it will be shown on the wiring schematic. Other control circuits are NEC Class I.

Table I

			KW 1	n Voltages	Shown			Wire/	Trade Conduit Size		load	
New Yorkin		Single	-Phase		1	hree-Pha	se	AWG or	(Ind	hes)	Amps	
	120V	208V	240V	277V	208V	240V	480V	мсм	1Ø	3Ø		
	1.4	2.4	2.8	3.3	4.3	4.9	9.9	14	1/2	3/2	12	
	1.9	3.3	3.8	4.4	5.7	6.6	13.3	12	3/2	3/2	16	
	2.8	4.9	5.7	6.6	8.6	9.9	19.9	10	1/2	3/4	24	
	4.8	10.8	9.6	11.0	14.4	16.6	33.2	8	3/4	1	40	
	6.2	10.8	12.4	14.4	18.7	21.6	43.2	6	1	1	52	
	8.1	14.1	16.3	18.8	24.4	28.2	56.5	4	1	11/4	68	
Sized	9.6	16.6	19.2	22.1	28.8	33.2	66.5	3	1	11/4	80	
For	11.0	19.1	22.0	25.4	33.1	38.2	76.4	2	11/4	11/4	92	
125%	12.4	21.6	24.9	28.8	37.4	43.2	86.4	1	11/4	11/2	104	
of	14.4	24.9	28.8	33.2	43.2	49.8	99.7	1/0	11/4	11/2	120	
Heater	16.8	29.1	33.6	38.7	50.4	58.1	116.3	2/0	11/2	2	140	
Load	19.2	33.2	38.4	44.3	57.6	66.5	133.0	3/0	11/2	2	160	
	22.0	38.2	44.1	50.9	66.2	76.4	152.9	4/0	2	2	184	
	24.4	42.4	48.9	56.5	73.4	84.8	169.6	250	2	21/2	204	
	27.4	47.4	54.7	63.2	82.1	94.7	189.5	300	2	21/2	228	
	29.8	51.6	59.5	68.7	89.3	103.0	206.1	350	21/2	3	248	
	32.2	55.7	64.3	74.2	96.5	111.4	222.8	400	21/2	3	268	
	36.5	63.2	73.0	84.2	109.5	126.3	252.7	500	21/2	3	304	
							54.0	6	1	1	65	
							70,7	4	1	1	85	
							83.1	3	1	11/4	100	
							95.6	2	11/4	11/4	115	
Sized						54.0	108.1	1	11/4	11/2	130	
For				-	54.0	62.4	124.7	1/0	11/4	11/2	150	
100%					63.0	72.7	145.5	2/0	11/2	2	175	
Heater				55.4	72.1	83.1	166.3	3/0	11/2	2	200	
Load			55.2	63.7	82.9	95.6	191.2	4/0	2	2	230	
		53.0	61.2	70.6	91.9	106.0	212.0	250	2	21/2	255	
		59.2	68.4	78.9	102.6	118.4	236.9	300	2	21/2	285	
		64.5	74.4	85.9	111.7	128,9	257.7	350	21/2	3	310	
		69.7	80.4	92.8	120.7	139.2	278.5	400	21/2	3	335	
		79.0	91.2	105.3	136.9	158.0	315.9	500	21/2	3	380	

Field Wiring and Conduit Sizing* for Incoming Conductors

*These tabulations are based on Table 310-16 of the NEC. Not more than 3 conductors in a raceway; 75°C rated copper wire.





SUBMITTAL DATA

For: Approval

Order #:

Date:

1/11/2012

Project: NELC

Project #:

Location: Portland, Maine

Dept. of Building Inspections City of Port and Family

RECEIVED

Date 1/11/2012 Project Name NELC Project Number

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••

Client / Purchaser

Submittal Summary Page

Qty	Tag #	Model #	Description
1		CZB06011	5 Ton, Air Conditioner, R-410A, 208/230-1-60
1		MA20DN11	Modular Air Handler, 2000 CFM Nominal, 24.5" Wide Cabinet, 115-1-60
1		MC60D3XH1	5.0 Ton Nominal, Multiposition Cased Coil, 24 1/2" Wide Cabinet, Flex Coil, No TXV Factory Installed, Horizontal Drain Pan (Factory Installed)
1		S1-1TVM4J1	TXV KIT,R410A,5/8 M X 5/8 F,SPORLAN
1		S1-02431995000	Hard Start Kit
1		S1-2LA06700424	Low Ambient Pressure Switch Kit (R-410a)

Equipment start-up and commissioning by a factory trained technician is recommended. Contact your supplying distributor or sales representative for additional information & guidance.



ORK York Affinity Series R-410A Split System Air

Conditioner

Project Name: NELC

		Cooling F	Performa	nce	
Total ca Sensible Refrigera Seasona Ambient Power in	capacity capacity ant type al Efficiency DB temp.	56.1 MBH 40.92 MBH R410A 13.00 SEER 86.8 °F 4.58 kW			
		Electr	ical Data	1	
Power s Unit min Unit max	upply circuit ampa cover-curre	208/230	0-1-60 34.40 Amps 60 Amps		
		Dimensio	ns & We	ight	
Hgt Weight v	39.5 in. vith factory i	Wth	31 in. 260 lbs.		
		Clea	rances		
Right Top	1 in. 4 in.	Front Bottom	24 in. 0 in.	Back Left	1 in. 1 in.
		Matchup	Informat	tion	
ARI Refe	erence Num ed Capacity	ber		83	30940 57 MBH 13 00 SEER

System: CZB06011, MA20DN11, MC60D3XH1, S1-1TVM4J1 **Jnit Features**

- Unit Cabinet Constructed of Pre-Painted Steel
- Featuring a Slide-Down Control Compartment Allowing Easy Access to Control Components Along with Angled Service Valves to Reduce Overall Installation Time and Cost
- Single Circuit 1 Stage Cooling with Scroll Compressor
- Each Compressor is Protected Against Abnormal Pressures by an Internal Pressure Relief Valve and Factory Installed High and Low Pressure Controls Solid Core Liquid Line Filter Drier
- Internally Protected Condenser Fan Motor
- Swept Wing Condenser Fan
- . Fully-Louvered Coil Guard

Warranty

Ton

- Five (5) Year Limited Parts Warranty
- Ten (10) Year Limited Compressor Warranty
- Eligible for Premium Ten (10) Year Limited Parts Warranty and Limited Lifetime Compressor Warranty when Installed as a Complete York Matched System (See Warranty Policy for Details)

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Page: 3

Model #: CZB06011



Page: 4

Conditioner

Project Name: NELC Model #: CZB06011 Quantity: 1 System: CZB06011, MA20DN11, MC60D3XH1, S1-1TVM4J1 **Factory Installed Options** CZB06011 **Product Category:** С Air Conditioner Z Chassis: R-410A в **Product Identifier:** Nominal Cooling Capacity: 060 5 Ton 1 208/230-1-60 Voltage: 1 **Product Generation: Field Installed Accessories** S1-02431995000 - Hard Start Kit (1.2 S1-2LA06700424 - Low Ambient Pressure Switch Kit (R-410a) (0.8 lbs) lbs)



York Indoor Air Handler

Page: 6

Project Name: NELC			Model #: MA20DN11
Quantity: 1		System:	CZB06011, MA20DN11, MC60D3XH1, S1-1TVM4J1
Cooling Performance			the second se
Total capacity Sensible capacity Entering DB temp. Entering WB temp. Leaving DB temp. Leaving WB temp.	56.1 MBH 40.92 MBH 75 °F 64 °F 55.1 °F 54.0 °F		
Supply Air Blower Performa	nce		
Supply air Ext. static pressure Blower speed description Elevation Drive type	1900 CFM 0.6 IWG HIGH 62 ft. DIRECT		TYORK
Indoor Electrical Data			and the second second
Power supply Unit min circuit ampacity Unit max over-current protection	115-1-60 14.30 Amps 15 Amps		A SHOW AND A
Indoor Dimensions & Weig	ht	Unit Features	
Hgt 25 in. Len 21.5 in. Wti Weight with factory installed options	h 24.5 in. 91 lbs.	Unit Cabinet Constru Direct Drive Blower v	icted of Pre-Painted Steel with Multi-Speed PSC Motor
Matchup Information		Warranty	
ARI Reference Number ARI Rated Capacity ARI Rated Efficiency	830940 57 MBH 13.00 SEER	 Five (5) Year Limited Ten (10) Year Limited Homeowner) 	d Parts Warranty (with Registration to Original
Made in USA	ing		



York

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Indoor Air Handler

Project Name: NELC

Model #: MA20DN11

Quantity: 1

CZB06011, MA20DN11, MC60D3XH1, S1-1TVM4J1

Factory Installed Options

System:

MA20DN11

The second s		
Product Type:	MA	Modular Air Handler
Nominal Airflow:	20	2000 CFM Nominal
Cabinet Width:	D	24.5" Wide Cabinet
Options:	Ν	
Voltage:	1	115-1-60
Product Generation:	1	

York

Page: 8

Project Name: NELC Indoor Air Handler

Model #: MA20DN11



COMBUSTIBLE FLOOR BASE ACCESSORY





All dimensions are in inches. They are subject to change without notice. Certified dimensions will be provided upon request.

Floor Base			Dimer	isions	
Models	Used with	A	В	C	D
1FB1817	MA08B, MA12B	19.9	18.0	14.9	16.9
1FB1821	MA16C	23.4	21.5	18.4	20.4
1FB1824	MA14D, MA20D	26.9	25.0	21.9	23.9

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SUPPLY

ORG

HIGH MED LOW

HIGH

R

L2

460 VOLT BLOWER

MOTOR

TAPE END & CAP

WITH WIRE NUT

460 VOLT

BLOWER PUR

MOTOR

460V - BLOWER SPEED CONNECTIONS

-Lt

ORG

HIGHO

MEDIUM

460 VOLT BLOWER MOTOR

TERMINAL BLOCK

ORG

MERSI

NOU

LOW

460 VOLT

SIPPLY 2

460V - LINE POWER CONNECTIONS

YEL

115 or 230 VOLT

BLOWER MOTOR

BLOWER SPEED CONNECTIONS

FACTORY WIRED TO

TRANSFORMER

FACTORY WIRED TO

FAN MOTOR RELAY TERMINAL ON

CONTROL BOARD

(2) 3-PHASE BREAKERS

CONNECT TRANSFORMER LEADS WITH WIRE NUTS

PUR

2

ñ

뉗

0 CAP

BRN

C MED

OHIGH

OLOW



	Dimensions				Wiring K.O.'s ¹		Conne	ections	
Models	A	В	C	D E	J	К	Line	Size	
	Height	Width	Total Height	U	E	Power	Control	Liquid	Vapor
MA08B	25	17-1/2		16-1/2	14-19/32			-	-
MA12B ²	25	17-1/2	1	16-1/2	14-19/32	7/8 (1/2), 1-3/8(1) 1-23/32, (1-1/4) 1-31/32, (1-1/2)	7/8 (1/2)	-	-
MA14D	25	24-1/2		23-1/2	21-19/32			-	-
MA16C ²	25	21	ţ.	20	18-3/32			-	-
MA20D ²	25	24-1/2		23-1/2	21-19/32			-	-
MC188**H	22	17-1/2	1	16-1/2	16-3/8	-	-		
MC24B**H	26.5	17-1/2	1	16-1/2	16-3/8	-	-	İ	
MC30B**H	26.5	17-1/2		16-1/2	16-3/8	-	-	t	3/4
MC35B**H	22	17-1/2	47 to 57 Depending on combination.	16-1/2	16-3/8	-	-	1	
MC35C**H	26-1/2	21		20	19-7/8	-	-	1	
MC36B**H	26.5	17-1/2		16-1/2	16-3/8	-	-	1	
MC36C"H	26.5	21		20	19-7/8	-	-	1	
MC42B**H	32	17-1/2		16-1/2	16-3/8	-	-	2/0	
MC42C**H	32	21	1. 0	20	19-7/8	-	-	3,0	
MC43B**H	32	17-1/2	1	16-1/2	16-3/8	-	-	t	
MC43C**H	32	21		20	19-7/8	-	-	1	7/8
MC48C**H	32	21		20	19-7/8-	-	-		
MC48D**H	32	24-1/2	1	23-1/2	23-3/8	~	-		
MC60D**H	32	24-1/2		23-1/2	23-3/8	-	-		
MC61D**H	36	24-1/2	61	23-1/2	23-3/8	-	-	1	
MC62D**H	36	24-1/2	01	23-1/2	23-3/8	_	-	1	

1. Parenthesis indicate conduit size.

May be either 115-1-60, 208/230-1-60 or 460-3-60.
 ** - 2A, 2C indicates TXV, 3X indicates TXV must be field supplied. See Outdoor Unit.

"H" models are available with a factory installed horizontal drain pan.

* YORK

York Indoor Air Handler

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Project Name: NELC

Quantity: 1

Model #: MA20DN11

CZB06011, MA20DN11, MC60D3XH1, S1-1TVM4J1

MA Typical Wiring

System:

COOLING MODELS WITH/WITHOUT ELECTRIC HEAT WIRING



SINGLE-STAGE COOLING WIRING



Optional dehumidification humidistat switch contacts open on rise.

** Maybe required.

Note: Not applicable to 115 volt models.

 "Y" Terminal on Air Handler Control Board must be connected for full CFM and applications requiring 60 second blower off delay for SEER enhancement.

2. Move HUM STAT Jumper on AH Control Board to YES position if Humidistat is used.

3. MODE Jumper on AH control board should be set to HP for heat pumps.

4. To change quantity of heat during HP defrost cycle - Reverse connections at W1 & W2 on Air Handler Control Board.

TYPICAL APPLICATIONS WITH MC MULTI-POSITION COILS





York

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York Add-on Coils

Project Name: NELC Model #: MC60D3XH1

CZB06011, MA20DN11, MC60D3XH1, S1-1TVM4J1

YORK





- · Durable Finish Inside and Out Coil Casings are Made of Pre-Painted Steel. The Pre-Treated Flat Galvanized Steel Provides a Better Paint to Steel Bond, which Resists Corrosion and Rust Creep. All Internal Metal Parts are Made of G90 Galvanized.
- Coil may be Installed Upflow, Downflow, or Horizontal Right or Left
- Copper Tube/Aluminum Fin Coil
- Sweat Connect Fittings

Warranty

- · Five (5) Year Limited Parts Warranty
- Extended Ten (10) Year Limited Parts Warranty when product is registered online within 90 days of purchase for replacement or closing for new home construction. This Warranty does not apply for R-22 or 3-Phase systems.

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Project Name: NELC

York York Add-on Coils

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MC60D3XH1

Quantity: 1

.

CZB06011, MA20DN11, MC60D3XH1, S1-1TVM4J1

Model #:

MC Coil Dimensions

System:

Dimensions - MC Coils

DIMENSIONS



COIL - MC

Dimensions - MC Coils

					Refrig	erant	Factory
Model	A	в	С	D	Line	Size	Installed
			1.00	10.00	Liquid	Vapor	TXV
MC18A3XH1	14.5	22	13 3/8	13.5	3/8	3/4	None
MC18A4FH1	14.5	22	13 3/8	13.5	3/8	3/4	4F
MC18B3XH1	17.5	22	16 3/8	16.5	3/8	3/4	None
MC18B4FH1	17.5	22	16 3/8	16.5	3/8	3/4	4F
MC24A3XH1	14.5	26.5	13 3/8	13.5	3/8	3/4	None
MC24A4FH1	14.5	26.5	13 3/8	13.5	3/8	3/4	4F
MC24B3XH1	17.5	26.5	16 3/8	16.5	3/8	3/4	None
MC24B4FH1	17.5	26.5	16 3/8	16.5	3/8	3/4	4F
MC30A3XH1	14.5	26.5	13 3/8	13.5	3/8	3/4	None
MC30A4FH1	14.5	26.5	13 3/8	13.5	3/8	3/4	4F
MC30B3XH1	17.5	26.5	16 3/8	16.5	3/8	3/4	None
MC30B4FH1	17.5	26.5	16 3/8	16.5	3/8	3/4	4F
MC32A3XH1	14.5	22	13 3/8	13.5	3/8	3/4	None
MC32A4FH1	14.5	22	13 3/8	13.5	3/8	3/4	4F
MC32A4GH1	14.5	22	13 3/8	13.5	3/8	3/4	4G
MC35B3XH1	17.5	22	16 3/8	16.5	3/8	3/4	None
MC35B4FH1	17.5	22	16 3/8	16.5	3/8	3/4	4F
MC35B4GH1	17.5	22	16 3/8	16.5	3/8	3/4	4G
MC35B4HH1	17.5	22	16 3/8	16.5	3/8	3/4	4H
MC35C3XH2	21	26.5/22	19 7/8	20	3/8	3/4	None
MC35C4FH1	21	22	19 7/8	20	3/8	3/4	4F
MC35C4GH1	21	22	19 7/8	20	3/8	3/4	4G
MC35C4HH1	21	22	19 7/8	20	3/8	3/4	4H
MC36A3XH1	14.5	26.5	13 3/8	13.5	3/8	7/8	None
MC36A4FH1	14.5	26.5	13 3/8	13.5	3/8	7/8	4F
MC36A4GH1	14.5	26.5	13 3/8	13.5	3/8	7/8	4G
MC36A4HH1	14.5	26.5	13 3/8	13.5	3/8	7/8	4H
MC36B3XH1	17.5	26.5	16 3/8	16.5	3/8	7/8	None

					Refrig	erant	Factory
Model	A	в	C	D	Line Size		Installed
					Liquid	Vapor	TXV
MC36B4FH1	17.5	26.5	16 3/8	16.5	3/8	7/8	4F
MC36B4GH1	17.5	26.5	16 3/8	16.5	3/8	7/8	4G
MC36B4HH1	17.5	26.5	16 3/8	16.5	3/8	7/8	4H
MC36C3XH1	21	26.5	19 7/8	20	3/8	7/8	None
MC36C4FH1	21	26.5	19 7/8	20	3/8	7/8	4F
MC36C4GH1	21	26.5	19 7/8	20	3/8	7/8	4G
MC36C4HH1	21	26.5	19 7/8	20	3/8	7/8	4H
MC37A3XH1	14.5	26.5	13 3/8	13.5	3/8	3/4	None
MC37A4FH1	14.5	26.5	13 3/8	13.5	3/8	3/4	4F
MC42B3XH1	17.5	32	16 3/8	16.5	3/8	7/8	None
MC42B4FH1	17.5	32	16 3/8	16.5	3/8	7/8	4F
MC42B4HH1	17.5	32	16 3/8	16.5	3/8	7/8	4H
MC42C3XH1	21	32	19 7/8	20	3/8	7/8	None
MC42C4FH1	21	32	19 7/8	20	3/8	7/8	4F
MC42C4HH1	21	32	19 7/8	20	3/8	7/8	4H
MC43B2FH1	17.5	26.5	16 3/8	16.5	3/8	3/4	4F
MC43B3XH1	17.5	26.5	16 3/8	16.5	3/8	7/8	None
MC43B4GH1	17.5	26.5	16 3/8	16.5	3/8	7/8	4G
MC43B4KH1	17.5	26.5	16 3/8	16.5	3/8	7/8	4K
MC43C2FH1	21	26.5	19 7/8	20	3/8	7/8	4F
MC43C3XH1	21	26.5	19 7/8	20	3/8	7/8	None
MC43C4GH1	21	26.5	19 7/8	20	3/8	7/8	4G
MC43C4KH1	21	26.5	19 7/8	20	3/8	7/8	4K
MC48C3XH1	21	32	19 7/8	20	3/8	7/8	None
MC48C4FH1	21	32	19 7/8	20	3/8	7/8	4F
MC48C4HH1	21	32	197/8	20	3/8	7/8	4H
MC48C4JH1	21	32	19 7/8	20	3/8	7/8	4J
MC48C4KH1	21	32	19 7/8	20	3/8	7/8	4K
MC48D3XH1	24.5	32	23 3/8	23.5	3/8	7/8	None
MC48D4FH1	24.5	32	23 3/8	23.5	3/8	7/8	4F
MC48D4HH1	24.5	32	23 3/8	23.5	3/8	7/8	4H
MC48D4JH1	24.5	32	23 3/8	23.5	3/8	7/8	4J
MC48D4KH1	24.5	32	23 3/8	23.5	3/8	7/8	4K
MC60D3XH1	24.5	32	23 3/8	23.5	3/8	7/8	None
MC60D4GH1	24.5	32	23 3/8	23.5	3/8	7/8	4G
MC60D4HH1	24.5	32	23 3/8	23.5	3/8	7/8	4H
MC60D4JH1	24.5	32	23 3/8	23.5	3/8	7/8	4J
MC60D4KH1	24.5	32	23 3/8	23.5	3/8	7/8	4K
MC62D3XH1	24.5	36	23 3/8	23.5	3/8	7/8	None
MC62D4HH1	24.5	36	23 3/8	23.5	3/8	7/8	4H
MC62D4JH1	24.5	36	23 3/8	23.5	3/8	7/8	4J
MC62D4KH1	24.5	36	23 3/8	23.5	3/8	7/8	4K

All MC coils include a factory installed horizontal drain (3X) = Models require field installed metering device.

Refrigerant line sizes may require larger lines for extended line lengths. See York bulletin #690.01-AD1V for details.

Unitary Sales Tool v1.5.4.0



	0.1.1.0.1.1
	Original Receipt
	1.20 20 12
Received from	Hale is metal
ocation of Work	JUSA Fil
Cost of Construction	Building Fee:
Permit Fee	\$ Site Fee:
	Certificate of Occupancy Fee:
	Total:
Building (IL) Plun	nbing (I5) Electrical (I2) Site Plan (U2)
Other	
BL: 26-3-	1
	Total Collected s 120
heck #:	
heck #:	
heck #:	to be started until permit issued.
No work is Please kee	to be started until permit issued. p original receipt for your records.
No work is Please kee Taken by:	to be started until permit issued. p original receipt for your records.
No work is Please kee Taken by:	to be started until permit issued. p original receipt for your records.