

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND

BUILDING PERMIT

This is to certify that JOHN STREET ASSOCIATES» ST

Located At 54 ST JOHN

Job ID: 2011-08-1853-HVAC

CBL: 070 - - A - 005 - 001 - - - -

has permission to Install air handler on roof

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**

[Handwritten signature and date 8/22/11]

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
 - **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
 - **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**
1. **A final sign off shall be submitted by the designing engineer stating the structural work and HVAC work were installed in compliance with the approved plan.**

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.



PORTLAND MAINE

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

Director of Planning and Urban Development
Penny St. Louis

Job ID: 2011-08-1853-HVAC

Located At: 54 ST JOHN

CBL: 070 - - A - 005 - 001 - - - -

Conditions of Approval:

Zoning

1. This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.
2. This permit is being issued with the condition that the unit will meet the noise level standard outlined in section 14-252(a), and if the decibel level exceeds the maximum level allowed, action shall be taken to bring the noise level down to within the permissible level.

Fire

Installation shall comply with City Code Chapter 10.

Fuel-fired boilers shall be protected in accordance with NFPA 101, *Life Safety Code*.

NFPA 54, *National Fuel Gas Code*;

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

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

Building

1. 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.
2. Application approval based upon information provided by applicant. Any deviation from approved plans requires separate review and approval prior to work.
3. A final sign off shall be submitted by the designing engineer stating the structural work and HVAC work were installed in compliance with the approved plan.

City of Portland, Maine - Building or Use Permit Application

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

Job No: 2011-08-1853-HVAC	Date Applied: 8/2/2011	CBL: 070 - - A - 005 - 001 - - - - -	
Location of Construction: 54 ST JOHN ST (70)	Owner Name: ST JOHN STREET ASSOCIATES	Owner Address: PO BOX 4821 PORTLAND, ME - MAINE 04112	Phone:
Business Name:	Contractor Name: Sterling Refrigeration	Contractor Address: 600 Airport Boulevard, Suite 100, Morrisville, NC 27560	Phone: 919-388-0372
Lessee/Buyer's Name:	Phone:	Permit Type: HVAC	Zone: I-Mb
Past Use: Barber Foods	Proposed Use: Same -- Barber Foods -- install one refrigerated air handler on roof	Cost of Work: 692000.000000	CEO District:
		Fire Dept: <input checked="" type="checkbox"/> Approved w/conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A	Inspection: Use Group: HVAC Type: Signature: <i>[Signature]</i>
Proposed Project Description: Install Erapco Unit (refrigerated air handler) on Roof		Pedestrian Activities District (P.A.D.)	
Permit Taken By:		Zoning Approval	

<p>1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</p> <p>2. Building Permits do not include plumbing, septic or electrical work.</p> <p>3. 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.</p>	<p>Special Zone or Reviews</p> <p><input type="checkbox"/> Shoreland</p> <p><input type="checkbox"/> Wetlands</p> <p><input type="checkbox"/> Flood Zone</p> <p><input type="checkbox"/> Subdivision</p> <p><input type="checkbox"/> Site Plan</p> <p><input type="checkbox"/> Maj <input type="checkbox"/> Min <input type="checkbox"/> MM</p> <p>Date: <i>08/17/11</i></p>	<p>Zoning Appeal</p> <p><input type="checkbox"/> Variance</p> <p><input type="checkbox"/> Miscellaneous</p> <p><input type="checkbox"/> Conditional Use</p> <p><input type="checkbox"/> Interpretation</p> <p><input type="checkbox"/> Approved</p> <p><input type="checkbox"/> Denied</p> <p>Date:</p>	<p>Historic Preservation</p> <p><input checked="" type="checkbox"/> Not in Dist or Landmark</p> <p><input type="checkbox"/> Does not Require Review</p> <p><input type="checkbox"/> Requires Review</p> <p><input type="checkbox"/> Approved</p> <p><input type="checkbox"/> Approved w/Conditions</p> <p><input type="checkbox"/> Denied</p> <p>Date: <i>ASB</i></p>
	CERTIFICATION		

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.

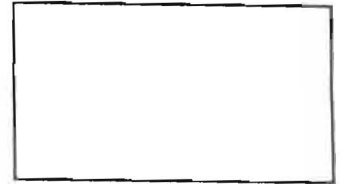
SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE

2011-08-1853



FILL IN AND SIGN WITH INK

APPLICATION FOR PERMIT HEATING OR POWER EQUIPMENT



To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL 70.A.5 Use of Building Food Processing Date 8-1-2011
 Name and address of owner of appliance BARBER FOODS LLC
54 ST. JOHN STREET PORTLAND MAINE 04102
 Installer's name and address STERLING REFRIGERATION 600 AIRPORT BOULEVARD
SUITE 100 MORRISVILLE, NC 27560 Telephone 1-919-388-0372

Location of appliance:

- Basement
- Floor
- Attic
- Roof

Type of Fuel:

- Gas
- Oil
- Solid

Appliance Name:

EVAPCO UNIT

U.L. Approved Yes No

Will appliance be installed in accordance with the manufacture's installation instructions? Yes No

IF NO Explain:

The Type of License of Installer:

- Master Plumber # _____
- Solid Fuel # _____
- Oil # _____
- Gas # PNT-1132
- Other _____

AAA

Type of Chimney:

- Masonry Lined
Factory built NA
- Metal
Factory Built U.L. Listing # NA
- Direct Vent
Type N.A. UL# _____

Type of Fuel Tank

- Oil
- Gas

NA NATURAL GAS FROM NORTH UTILITIES 1128

Size of Tank NA

Number of Tanks NA

Distance from Tank to Center of Flame NA feet.

Cost of Work: \$ 691,900.00

Permit Fee: \$ 6940.00

Approved

Fire: _____
 Ele.: _____
 Bldg.: _____

Approved with Conditions

- See attached letter or requirement

Signature of Installer

Michael M. Fisher

Inspector's Signature

RECEIVED

DEPT. OF BUILDING INSPECTIONS
 CITY OF PORTLAND MAINE
 AUG 2 2011

Date Approved

8-2-2011

White - Inspection

Yellow - File

Pink - Applicant's

Gold - Assessor's Copy

Spear & Associates, LLC

July 21, 2011

E-MAIL LETTER

Mr. Mike Cushing
Barber foods
54 St. John Street
Portland, ME 04102

Subject: Barber Foods
Rooftop HVAC Units
Portland, Maine

Dear Mike:

This is a follow up of our discussion regarding the four new air units to be installed over the roof of the existing Barber Foods facility.

The first air unit is to be installed on a new steel platform over the existing meat processing area at the south end of the building, tying into the existing columns below.

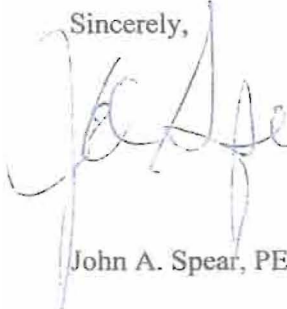
The next air unit is to be installed over the roof of the stuffing area on the east side of the building, again tying into the existing columns below.

The third and fourth air units will be installed on the roof joists of the two pack-out rooms on the north end of the building.

We have inspected all four areas and have calculated the new loads that the existing structures will receive. We have determined that the existing structures in all four areas have sufficient capacity to handle the new loads.

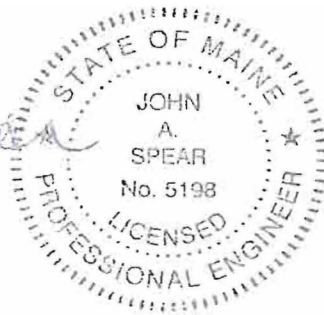
Please let me know if there are questions on this.

Sincerely,



John A. Spear, PE

CC: Eric Pugh



AHU-4

Progressive Washdown

<p>New Air Handler, AHU-4: Services Meat Prep (South End of Process) Air Handler itself includes:</p>	
<p>VSD for Main Fans and Exhaust Fans Motor Driven Return Air and Exhaust dampers: Auto Positioned Roughing Filters plus 95% HEPA filters Separate Cooling and Heating (Reheat) aluminum coils "Cleanup" mode, Main Heater Purge Mode: Modulated Heating and minimum cooling Revert Mode: Maximum Cooling Economiser cycle: Estimate reduces refrigeration costs by \$9000 per year; Will "overdeliver" ODA to reduce load on AHU-1 at select periods</p>	
<p>INSTALLATION: INCLUDES ELECTRICAL, STRUCTURAL, REFRIGERATION, GAS, DRAINS Duct Rework: Existing for AHU-1, drops and East West trunk intact... Diffuser in 1991 section; plus "new" drop, drip pan to act as air return Structural steel: Stubbed off Cols 1991 Addition; oversize perimeter Utilizing existing Columns "as found"; new steel to be Shop & Field Painted Electrical, roofwork (curbs and similar), condensate drains, vessel, insulation appropriate Valves and controls: All included "Basic" data to Machine Room FES control system</p>	<p>\$466,200</p>
<p>instrumentation, wiring and similar Custom Software to level of modifying that addressing big-plant batch process</p>	<p>\$177,500</p>
<hr/>	
<p>Engineering and Project Management, including Development of the Sequence; SIR Development of Control System PSM Documentation as applicable; hands on training for both the refrigeration operators and the Clean Up Crew supervisors;</p>	<p>\$48,200 691900</p>

7/11/11 Total..... ⁵691,900.⁰⁰

Ann Machado - Re: FW: Sound Data: Air Handling Units and Exhaust Fans and etc.

From: Lannie Dobson
To: Ann Machado; Mike Cushing
Date: 8/8/2011 1:54 PM
Subject: Re: FW: Sound Data: Air Handling Units and Exhaust Fans and etc.

Ann will be in on Monday. I have forwarded this e-mail to her. Thank you, Lannie Dobson

>>> Mike Cushing <mike_cushing@barberfoods.com> 8/8/2011 1:18 PM >>>
Lannie, here is the additional information on the 3 make up units and Air Handler 4. This will explain the decibel levels for all the units. The cover letter explains it fairly well. Would you please add this information to the permit requests and see that Ann gets a copy as she had some questions also.

Resp.
MMC

RECEIVED

AUG 15 2011

From: Eric Pugh [mailto:Eric@sterling-refrigeration.com]
Sent: Friday, August 05, 2011 3:09 PM
To: Mike Cushing
Subject: Sound Data: Air Handling Units and Exhaust Fans and etc.

Dept. of Building Inspections
City of Portland Maine

In response to your request for Sound Pressure Level data for the Equipment associated with the revisions to the ventilation system:

Referencing Sterling Drawing 1108-900;

RE: Area Designated 1a, the Stuffing Prep Room

We intend to put the Exhaust Fan on top of the original old duct drop that is currently fed by the AHU-3 and terminates near column F.3/9.7.

The attached data sheet for Model 300-50 Greeheck shows its sound spectrum: 69 dBA 18.5 Sones is mean. (See PDF Attached).

RE: My Area 4; The Pack Out Area; Exhaust Fan to be installed near Column N/3.95

Exhaust Fan (same PDF att'd) is Model 420- 50 and its mean values are 68 dBA and 18 Sones.

Those are manufacturers data for full speed operation "as delivered"; both of those fans maintain interior pressures utilizing VFD's.

For the semi-custom Air Handlers and Air Make Up units with insulated enclosures: none of the manufacturers have specific data for all the versions and options that can be supplied on a unit of a given air flow capacity.

The Air Make Up Units (New) AMU-1, 2, 3:

The HEPA-Filtered Heaters do not have any "exposed" noise data; the fans are contained in a double wall box insulated in the factory with full face filter banks on both intake and discharge. Frankly you have to touch these things to know if they are operating or not. You can't tell by sound alone...The Fan Data (Greenheck) at the selected speeds indicates 78 dBA but you would have to be inside the box to feel that. That specific number applies to AMU-1 (Stuffing Prep). AMU-2 and AMU-3 are lower sound pressure levels than that...

For the Refrigerated Air Handlers: New one being AHU-4

The prevailing mode is Process and the process fan is contained within the enclosure similar to above; they are in fact foamed in place urethane boxes with interior bulkheads and each wall is a considerable distance from the fan. The most intensive transmission would pass through the floor. Inside the unit on the Fan Discharge section: AHU-4's data would be 84 dBA for the Process Mode fan.

The Cleanup Mode exhausters are through the wall of the unit and discharge to the outside. These are VFD controlled according to interior building pressures.

For AHU-4 there are (2) such fans and their sum mean pressure level would be 90 dBA at full speed, both fans operating, measured from the discharge side, motor on the Intake side.

With the considered changes we are slowing the air flow on AHU-1 in both modes. Its exhaust fans will be operating at approximately 80% speed.; the fan motors are on the intake side. We do not have specific sound data ratings for those fans but typical vane axial performance would indicate a decrease in SPL of 5.5 dBA.

Each of the refrigerated air handlers are equipped with these exhaust fans. They are only active during most of the clean up and dry out process for each separate portion of the building. The cycle of these processes is such that the fans will not be at full speed at the same time. During the entire time they are active, the fans on the refrigeration condensers will be operating at reduced capacity so the total energy of that sound source will be reduced.

Disclaimer: This message is intended only for the use of the individual or entity to which it is addressed and may contain information which is privileged, confidential, proprietary, or exempt from disclosure under applicable law. If you are not the intended recipient or the person responsible for delivering the message to the intended recipient, you are strictly prohibited from disclosing, distributing, copying, or in any way using this message. If you have received this communication in error, please notify the sender and destroy and delete any copies you may have received.



CPA

CRITICAL PROCESS AIR SYSTEMS™



THE IDEAL SOLUTION
FOR PRECISE CONTROL OF
TEMPERATURE, HUMIDITY & AIRBORNE CONTAMINANTS





Finding the right solution for rooftop applications such as critical process and make-up air requires the right engineering expertise and experience. EVAPCO has over 220 combined years of experience and design expertise in industrial heat transfer equipment as well as nearly 120 combined years of air quality control application support. This combination of understanding and product offering ensures that EVAPCO will select and manufacture the right CPA System to meet your specific requirements. Your decision to purchase an EVAPCO CPA System with its innovative design and superior performance is the ideal solution for your critical air-handling needs.



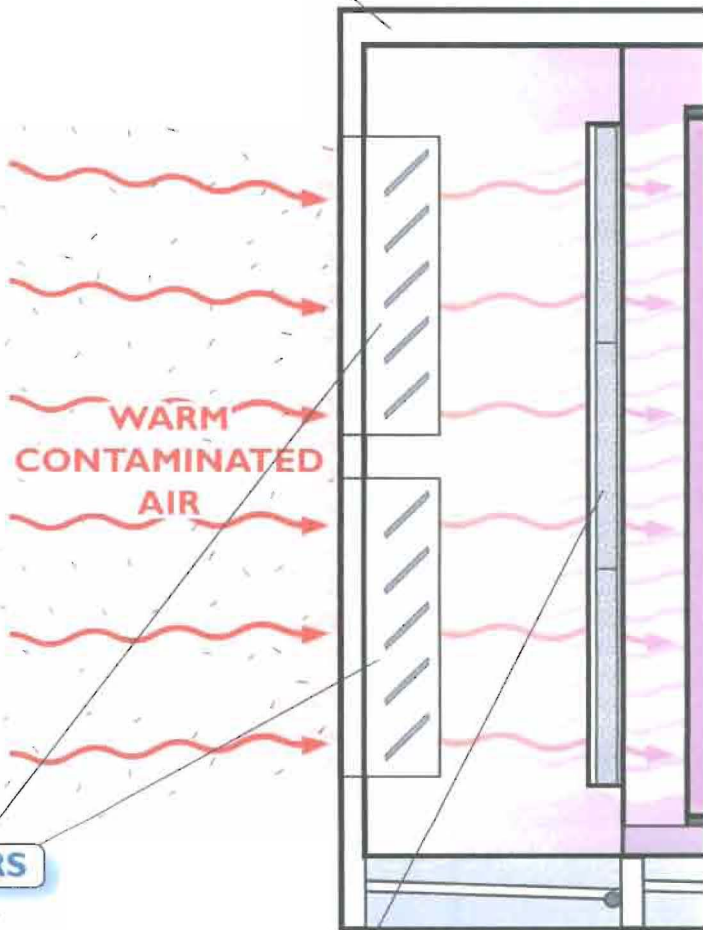
The new state-of-the-art manufacturing facility in Lake View, Iowa was designed and built to produce every CPA System to EVAPCO's exacting standards of quality.

CPA SYSTEM™

The CPA System is engineered to deliver conditioned, purified air to critical food preparation, production and packaging areas in your facility. The CPA System

UNIT CASING

- Sanitary, cleanable, double wall design
- 100% drainable pans throughout
- Insulation thickness to match the application
- Galvanized, stainless steel or aluminum construction



DAMPERS

- Direct drive
- Low leak rate
- Maintains desired outside air flow rate and pressure

PRE-FILTER

- 4" thick throwaway, pleated or washable
- Maintains interior unit cleanliness
- Extends final filter life



includes patented technology to provide maximum thermal efficiencies, air purification/filtration to meet stringent air quality standards, and control packages to monitor and actuate the functions of the critical process unit.

COOLING COIL

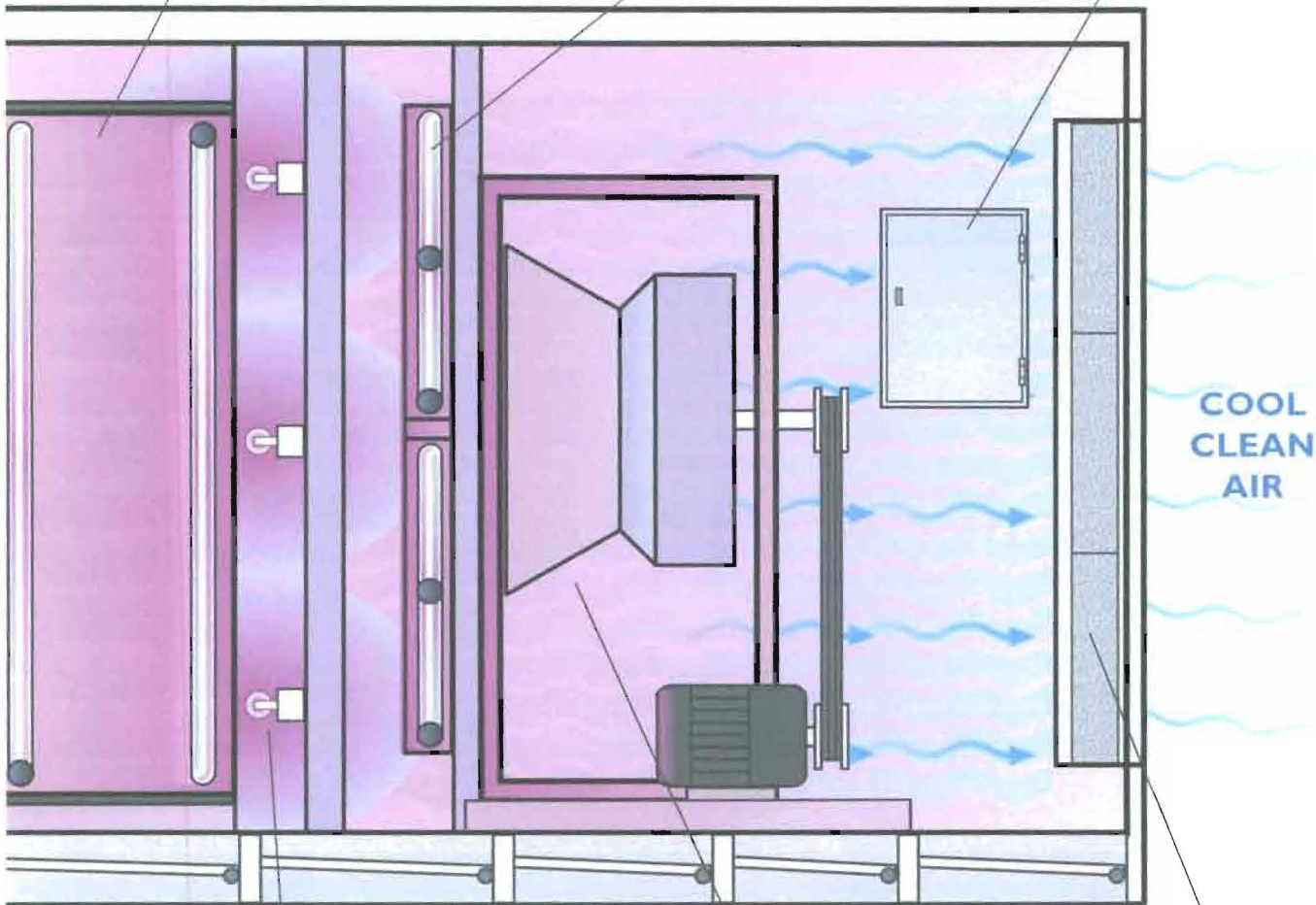
- Standard construction includes ST Series Finned Coil Technology— 304L stainless steel tube/aluminum fins
- Optional copper tube/aluminum finned or all stainless steel coils are available
- High heat transfer efficiency

AIR HEATING

- Steam
- Brine/glycol
- Hot gas
- Natural gas or propane

CONTROLS

- Complete, project specific control systems available
- Stand alone DDC or PLC
- Integration with plant systems
- Fully tested prior to shipment



ESS™

- UVC germicidal light system
- Virtually eliminates air contaminants
- Preserves coil cleanliness
- Eliminates manual coil cleaning

FAN SECTION

- Low sound
- High capacity/efficiency
- TEFC fan motor
- Plenum type centrifugal fan

FINAL FILTERS

- 95% (1 micron) to 99.99% HEPA filters (0.1 microns)
- Controls discharge air purity



SUPERIOR HYGIENE AND PERFORMANCE THROUGH INNOVATIVE DESIGN



Superior Cleanliness

- The industry's most sanitary enclosure design that minimizes fastener heads on the interior walls and ceiling.
- The "100% free flow" drain pan eliminates stagnant water.
- Optional 304 stainless steel interior enclosure panel construction.

SUPERIOR PERFORMANCE: "ST SERIES" FINNED COILS

Standard cooling coils in CPA Systems® are constructed with EVAPCO "ST Series" finned coil technology utilizing type 304L stainless steel tube and aluminum fins.

- Round, Heavy Wall Tubes Manufactured by EVAPCO Result in Consistent Tube Quality and Availability
- Standard 1.05" Diameter Stainless Steel Tube
- Tube & Fin Spacing for Maximum Performance and Superior Hygiene
- Tube Material Meets B31.5 Refrigerant Piping Code Requirement
- Hydraulically Expanded for Consistent Tube to Fin Collar Contact
- Entire Coil is Pressure Tested to 400 psig
- Optional 5/8" Diameter Stainless Steel or Copper Tube Available

The ST Series finned coil technology is the result of extensive Research & Development where it was thoroughly tested in EVAPCO's Low Temperature Environmental Test Chamber.

Lower Operating and Maintenance Costs

- EVAPCO ST Series Finned Coil results in the lowest fan horsepower.
- Specifying the ESS will maintain the evaporator coil in "like new" condition which yields optimum heat transfer efficiency and maintains design air flow.
- The ESS will provide cleaner interior surfaces which will extend the life of the final filters.
- The ESS virtually eliminates the need for cleaning equipment, solutions, chemicals and labor.

Standard Construction Features

- Unique, double wall enclosure panels.
- EVAPCO ST Series, heavy wall finned coils manufactured per ASME/ANSI B31.5 and factory charged with nitrogen.
- Heavy gauge G-235 mill hot dip galvanized steel components for superior corrosion protection.

STATE OF THE ART CONTAMINANT CONTROL: ESS™ TECHNOLOGY

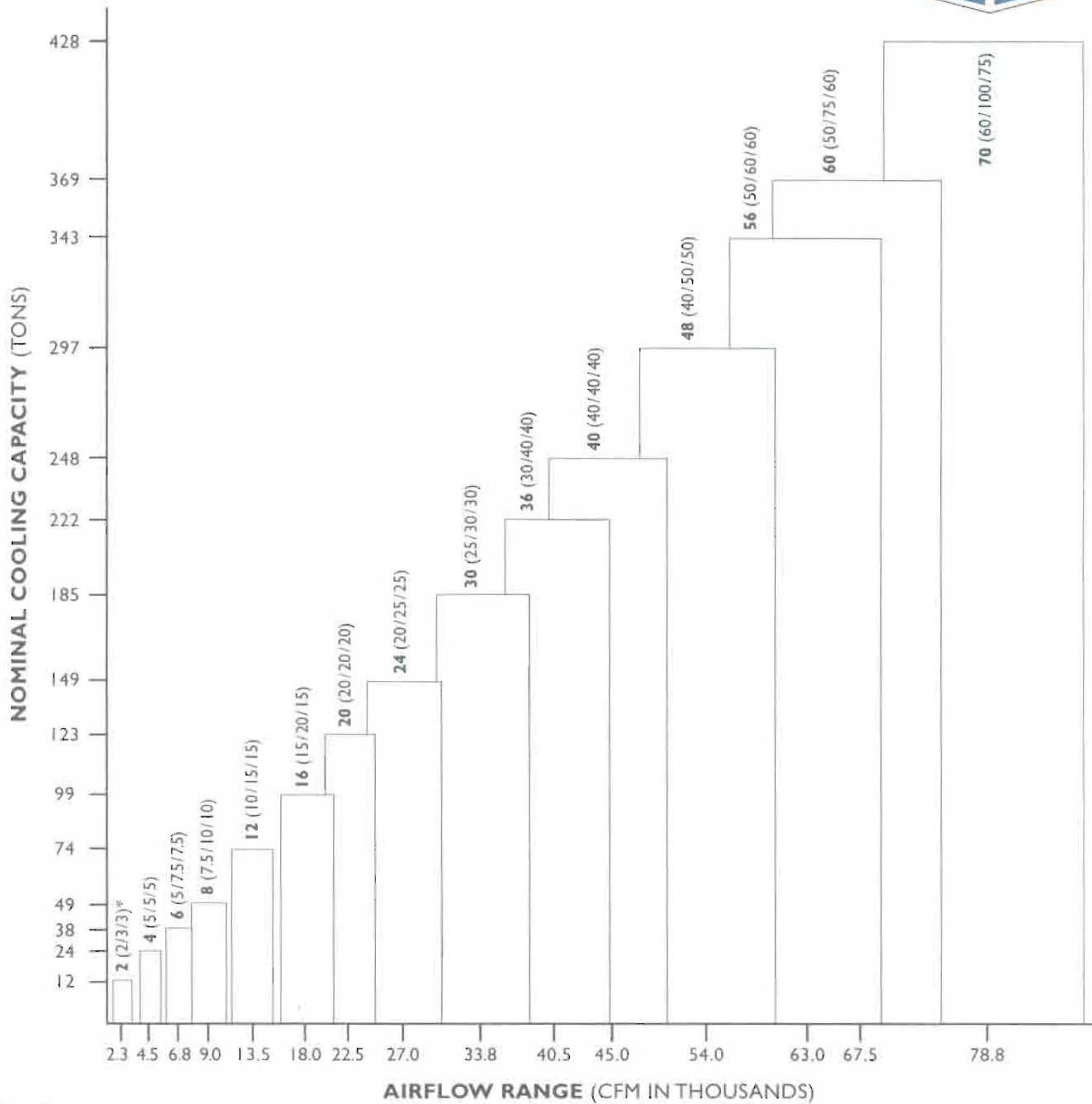
Specifying the EVAPCO Sanitizing System (ESS™) with your CPA System will virtually eliminate hazardous bioaerosols from the cooling coil/pan, resulting in hygienically clean air and improved product quality while maintaining system performance and significantly reducing annual maintenance costs.

- Provides Full Germicidal Effect at Low Air Temperatures
- Greater than Seven Times the Effect of a Standard UV Bulb
- Destroys Byproducts from Mold and Bacteria
- Lower Operating and Maintenance Costs



Including the ESS™ with your CPA System will ensure effective cleaning of the cooling coil and pan, as well as provide continuous cool clean air to your critical food processing areas.

CPA SYSTEM PERFORMANCE DATA



NOTES:

- Nominal cooling capacities are based on 75°F entering air dry bulb temperature; 35°F saturated suction temperature; 12 rows, 8 FPI, stainless steel tube/aluminum fin coil.
 - To obtain nominal cooling capacities for a CPA model with 99.97% HEPA final filter efficiency, multiply the associated model capacity shown above by 0.8. Air flow rates for these models are at the lowest value indicated.
 - To obtain nominal cooling capacities for a 50°F entering air dry bulb temperature and 30°F saturated suction temperature, multiply the associated model capacity shown above by 0.5.
 - Information shown above is for estimating purposes only and subject to change without notice.
- * Numbers in parentheses represent nominal fan motor horsepowers.

MODEL NUMBER NOMENCLATURE

CPA-24-95

Critical Process Air Unit

Nominal Airflow (CFM in thousands)

Highest Filter Efficiency

To formulate your critical process air model number, begin with the designation "CPA", followed by the nominal airflow (boldface number above bar), and end with the highest filter efficiency value (i.e. 30, 95 or 99). A standard feature for all CPA models is pre-filters, with 30% efficiency. When final filters are required, their associated efficiency (95 or 99) is shown at the end of the model number (see above example).



CPA SYSTEM™ COOLING AND HEATING NOMINAL CAPACITIES

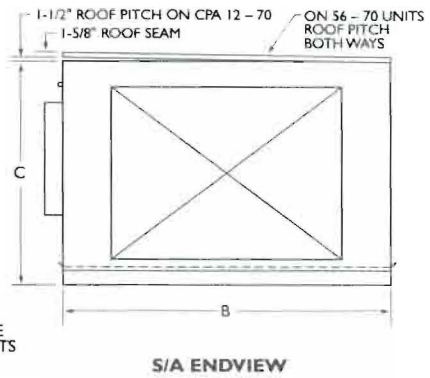
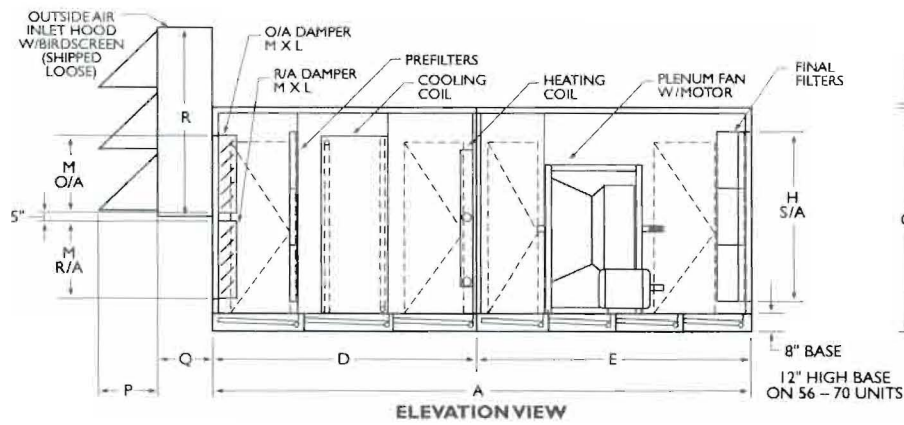
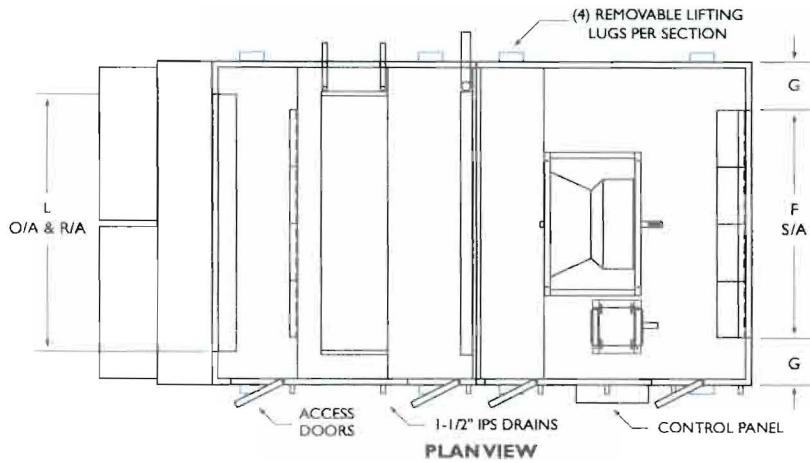
Model	Air Flow Range	Pre-filter Efficiency	Final Filter Efficiency	Motor H.P.	Nominal Cooling Capacity ⁽¹⁾	Nominal Cooling Capacity ⁽²⁾	Nominal Heating Capacity ⁽³⁾
CPA-2-30	2,000 - 2,500	30%	N/A	2	12.1	5.6	244
CPA-4-30	4,000 - 5,000	30%	N/A	5	24.4	11.3	486
CPA-6-30	6,000 - 7,500	30%	N/A	5	37.6	17.4	730
CPA-8-30	8,000 - 10,000	30%	N/A	7.5	49.4	22.9	972
CPA-12-30	12,000 - 15,000	30%	N/A	10	74.1	34.3	1458
CPA-16-30	16,000 - 20,000	30%	N/A	15	98.6	45.6	1944
CPA-20-30	20,000 - 25,000	30%	N/A	20	122.5	56.7	2430
CPA-24-30	24,000 - 30,000	30%	N/A	20	148.5	68.7	2916
CPA-30-30	30,000 - 37,500	30%	N/A	25	185.1	85.7	3646
CPA-36-30	36,000 - 45,000	30%	N/A	30	222.2	102.8	4374
CPA-40-30	40,000 - 50,000	30%	N/A	40	248.3	114.9	4860
CPA-48-30	48,000 - 60,000	30%	N/A	40	297.3	137.6	5832
CPA-56-30	56,000 - 70,000	30%	N/A	50	343.4	158.9	6804
CPA-60-30	60,000 - 75,000	30%	N/A	50	369.1	170.8	7290
CPA-70-30	70,000 - 87,500	30%	N/A	60	427.8	198.0	8506
CPA-2-95	2,000 - 2,500	30%	95%	3	12.1	5.6	244
CPA-4-95	4,000 - 5,000	30%	95%	5	24.4	11.3	486
CPA-6-95	6,000 - 7,500	30%	95%	7.5	37.6	17.4	730
CPA-8-95	8,000 - 10,000	30%	95%	10	49.4	22.9	972
CPA-12-95	12,000 - 15,000	30%	95%	15	74.1	34.3	1458
CPA-16-95	16,000 - 20,000	30%	95%	20	98.6	45.6	1944
CPA-20-95	20,000 - 25,000	30%	95%	20	122.5	56.7	2430
CPA-24-95	24,000 - 30,000	30%	95%	25	148.5	68.7	2916
CPA-30-95	30,000 - 37,500	30%	95%	30	185.1	85.7	3646
CPA-36-95	36,000 - 45,000	30%	95%	40	222.2	102.8	4374
CPA-40-95	40,000 - 50,000	30%	95%	40	248.3	114.9	4860
CPA-48-95	48,000 - 60,000	30%	95%	50	297.3	137.6	5832
CPA-56-95	56,000 - 70,000	30%	95%	60	343.4	158.9	6804
CPA-60-95	60,000 - 75,000	30%	95%	75	369.1	170.8	7290
CPA-70-95	70,000 - 87,500	30%	95%	100	427.8	198.0	8506
CPA-2-99	2,000	30%	99.97%	3	10.0	4.6	196
CPA-4-99	4,000	30%	99.97%	5	19.6	9.1	389
CPA-6-99	6,000	30%	99.97%	7.5	30.4	14.1	584
CPA-8-99	8,000	30%	99.97%	10	40.2	18.6	778
CPA-12-99	12,000	30%	99.97%	15	60.5	28.0	1166
CPA-16-99	16,000	30%	99.97%	15	80.5	37.3	1555
CPA-20-99	20,000	30%	99.97%	20	99.0	45.8	1944
CPA-24-99	24,000	30%	99.97%	25	119.7	55.4	2333
CPA-30-99	30,000	30%	99.97%	30	149.6	69.2	2917
CPA-36-99	36,000	30%	99.97%	40	180.1	83.4	3499
CPA-40-99	40,000	30%	99.97%	40	202.2	93.6	3888
CPA-48-99	48,000	30%	99.97%	50	240.1	111.1	4666
CPA-56-99	56,000	30%	99.97%	60	278.1	128.7	5443
CPA-60-99	60,000	30%	99.97%	60	297.9	137.9	5832
CPA-70-99	70,000	30%	99.97%	75	348.3	161.2	6805

Notes:

- Nominal cooling capacities are based on 75°F entering air dry bulb temperature; 35°F saturated suction temperature; 12 rows, 8 FPI, stainless steel tube/aluminum fin coil.
- Nominal cooling capacities are based on 50°F entering air dry bulb temperature; 30°F saturated suction temperature; 12 rows, 8 FPI, stainless steel tube/aluminum fin coil.
- Capacities are based on a 90°F temperature rise through the heating system.
- Information shown above is for estimating purposes only and subject to change without notice.

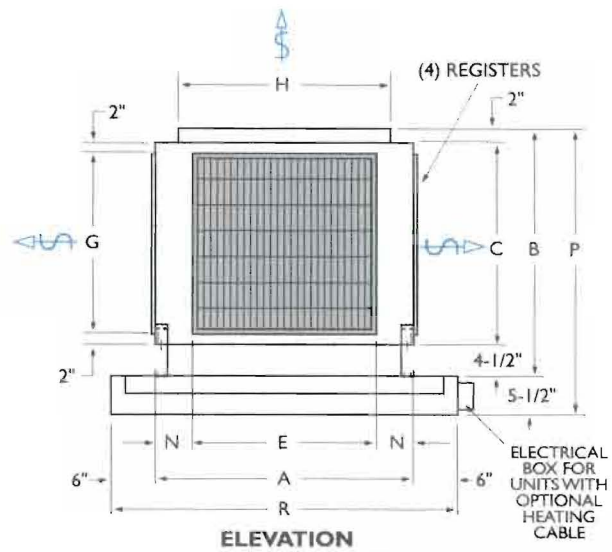
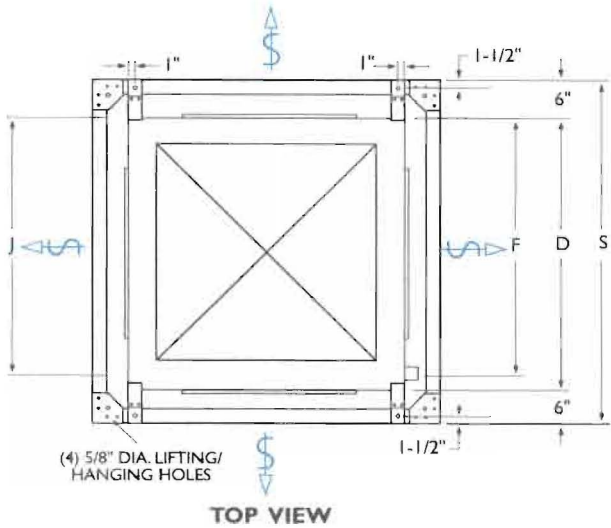
CPA SYSTEM™ BASE UNIT

DIMENSIONAL DATA



Model	A	B	C	D	E	F	G	H	L	M	P	Q	R
CPA-2-95/99	175	56-1/4	50	-	-	24	16	24	24	12	12	12	29
CPA-4-95/99	183	64-1/4	50	-	-	48	8	24	48	12	12	12	29
CPA-6-95/99	183	80-1/4	50	-	-	72	4	24	60	14	18	15	40-1/2
CPA-8-95/99	190	80-1/4	72	-	-	48	16	48	48	24	18	18	40-1/2
CPA-12-95/99	216	98-1/4	72	108	108	72	13	48	72	24	24	22	52-1/2
CPA-16-95/99	216	118-1/4	72	108	108	96	11	48	96	24	24	22	52-1/2
CPA-20-95/99	222	134-1/4	87	118	114	120	7	48	96	30	24	22	78
CPA-24-95/99	222	134-1/4	93	108	114	96	19	72	108	32	24	22	78
CPA-30-95/99	234	148-1/4	99	114	120	120	14	72	128	32	24	30	78
CPA-36-95/99	234	162-1/4	105	114	120	144	9	72	138	38	16	39	89
CPA-40-95/99	246	162-1/4	116	114	132	120	21	96	138	42	16	39	89
CPA-48-95/99	246	162-1/4	134	114	132	144	9	96	138	48	18	42	99
CPA-56-95/99	252	188.25	138	120	132	168	10	96	144	50	18	42	99
CPA-60-95/99	264	200	138	120	144-1/4	168	16	108	160	50	18	42	99
CPA-70-95/99	264	220	138	120	144-1/4	192	14	108	180	50	18	42	99

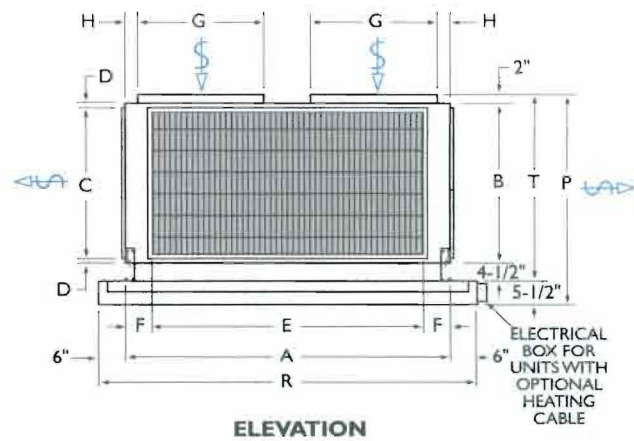
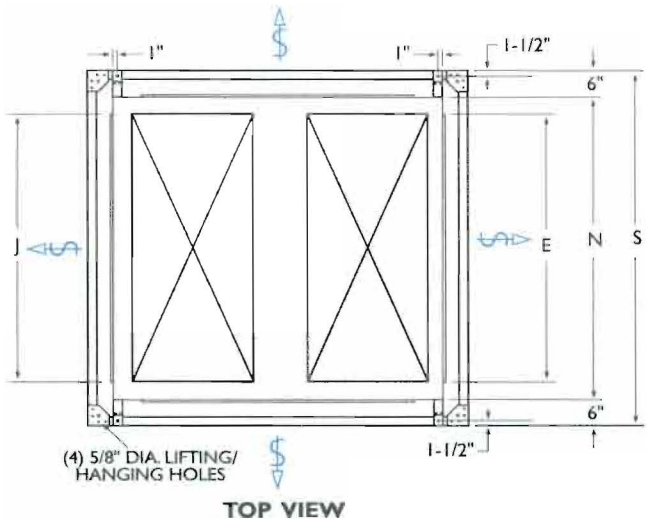
SUPPLY DIFFUSER & RETURN DROP BOX DIMENSIONAL DATA AND WEIGHTS



Nominal CFM*	Model	Model	A	B	C	D	E	F	G	H	J	N	P**	R	S	WEIGHT (lbs.)
2,500	LD-2.5	DB-2.5	20	20-1/2	14	20	12	12	10	14	14	4	26	32	32	100
5,000	LD-5	DB-5	28	22-1/2	16	28	20	20	12	20	20	4	28	40	40	150
7,500	LD-7.5	DB-7.5	32	26-1/2	20	32	24	24	16	26	26	4	32	44	44	200
10,000	LD-10	DB-10	36	34-1/2	28	36	24	24	24	30	30	6	40	48	48	220
15,000	LD-15	DB-15	44	34-1/2	28	44	36	36	24	36	36	7	40	56	56	325
20,000	LD-20	DB-20	54	34-1/2	28	48	48	48	24	48	36	7	40	66	60	410
25,000	LD-25	DB-25	68	34-1/2	28	56	60	48	24	60	36	10	40	80	68	540
30,000	LD-30	DB-30	84	34-1/2	28	68	76	60	24	76	36	4	40	96	80	740

* For room temperatures below 55°, use one diffuser size larger.

** Dimension shown is for heated drain pan model. Subtract 5.5" from "P" for non-heated model.



Nominal CFM*	Model	Model	A	B	C	D	E	F	G	H	J	N	P**	R	S	T	WEIGHT (lbs.)
40,000	LD-40	DB-40	72	36	32	2	60	6	27	3	60	68	48	84	80	42-1/2	910
50,000	LD-50	DB-50	80	36	32	2	72	4	30	3	72	80	48	92	92	42-1/2	1,075
60,000	LD-60	DB-60	90	44	40	2	72	10	36	4	72	80	56	104	92	50-1/2	1,100
75,000	LD-75	DB-75	98	44	40	2	90	4	36	4	90	98	56	110	110	50-1/2	1,200

* For room temperatures below 55°, use one diffuser size larger.

** Dimension shown is for heated drain pan model. Subtract 5.5" from "P" for non-heated model.



CPA SYSTEM WEIGHTS

Model	2	4	6	8	12	16	20	24	30	36	40	48	56	60	70
Base unit-30%	2,720	3,105	3,655	4,590	6,460	7,305	8,130	9,225	10,040	11,825	11,985	13,690	16,065	17,810	20,600
Base unit-95%	3,200	3,650	4,300	5,400	7,600	8,595	9,560	10,850	11,810	13,910	14,100	16,105	18,900	20,950	24,230
Base unit-99%	3,300	3,800	4,500	5,600	8,100	9,135	9,770	11,810	13,005	15,635	15,840	18,320	21,050	23,340	27,025
Inlet Hood	220	270	320	345	510	600	905	1,110	1,210	1,720	1,720	1,810	1,970	2,140	2,140
Integral Exhaust	1,540	1,650	1,870	2,510	2,750	3,000	3,660	3,870	4,135	4,885	5,220	5,740	6,410	7,210	7,910
12' Roof Curb	385	415	440	450	525	560	585	600	625	670	675	675	715	750	790
18" Roof Curb	505	535	570	585	685	725	760	775	805	875	875	875	930	975	1,030
COOLING COIL ONLY															
Stainless Steel/Aluminum Fin															
4 Row, 8FPI	150	260	425	560	760	1000	1210	1450	1740	2090	2370	2780	3040	3280	3725
6 Row, 8FPI	200	390	600	760	1050	1350	1700	1910	2425	2900	3290	3875	4250	4590	5225
8 Row, 8FPI	250	490	750	900	1400	1800	2150	2510	3150	3690	4210	4960	5440	5885	6710
10 Row, 8FPI	300	550	850	1060	1550	2000	2450	2960	3650	4350	5050	6000	6610	7140	8200
12 Row, 8FPI	350	650	1000	1250	1800	2350	2850	3500	4300	5100	5850	6950	7650	8300	9500
Copper Tube / Aluminum Fin															
4 Row, 8FPI	85	150	210	260	370	470	580	670	850	1,080	1,150	1,365	1,580	1,695	1,895
6 Row, 8FPI	115	205	290	360	520	670	835	960	1,230	1,545	1,650	1,965	2,285	2,450	2,745
8 Row, 8FPI	145	260	375	465	675	870	1,085	1,255	1,605	2,010	2,150	2,565	3,000	3,205	3,590
10 Row, 8FPI	175	315	455	565	825	1,070	1,335	1,550	1,985	2,475	2,650	3,165	3,690	3,960	4,440
12 Row, 8FPI	205	375	540	675	980	1,275	1,595	1,845	2,365	2,970	3,160	3,775	4,405	4,720	5,300
STEAM COIL ONLY															
Copper Tube / Aluminum Fin															
1 Row, 8FPI	45	65	90	105	135	170	200	235	330	365	405	470	515	570	600
2 Row, 8FPI	55	85	130	150	205	260	320	375	510	570	635	760	830	925	980
Direct Fired Burner															
	100	110	120	140	200	250	275	350	450	550	650	750	850	950	1,000

Notes:

1. All weights are in pounds.
2. All weights are shipping weights.
3. Consult the factory for optional coil weights.
4. Direct fired burner weights are estimates only.
5. Weights are for nominal unit capacity and should be used for estimating purposes only.

Surge Drums		
Tonnage	Drum Size	Weight
18	12-3/4" x 48"	350
30	16" x 60"	450
50	20' x 72"	625
77	24" x 72"	750
120	30" x 96"	1,200
175	36" x 96"	1,500
240	42" x 120"	2,100



Advanced Technology—Available Today

The EVAPCO Research & Development Center, located at the Corporate Headquarters in Taneytown, MD has over 60,000 square feet dedicated to research and product development. Experienced R&D Engineers perform product and application research year round in six environmental test chambers.



The Research Center features the industry's largest low temperature, insulated environmental test chamber. The conditions in the test chamber are controlled by a fully functional ammonia refrigeration system designed to operate at suction temperatures as low as -40° F.



EVAPCO is committed to providing the most innovative products to meet today's stringent application needs and has dedicated the necessary resources to provide that technology today.

Evaporative Condensers



Induced Draft Models



Forced Draft Models

**Custom
Recirculators
& Vessels**



Evaporators



Horizontal & Vertical
Recirculators

Cooling Towers & Closed Circuit Coolers



Induced Draft Models



Forced Draft Models





**EVAPCO—Your ONE SOURCE
FOR QUALITY REFRIGERATION SYSTEM COMPONENTS.**



- ★ World Headquarters/
Research and
Development Center
- EVAPCO Facilities

EVAPCO, Inc. — World Headquarters & Research/Development Center

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PRODUCTS AND SERVICES.**





TYPICAL EDF SPECIFICATIONS

1/8/06

UNIT CONSTRUCTION:

Casing:

The exterior casing of the prefilter, burner and blower sections shall be constructed of 16 gauge, G235 galvanized steel, unpainted.

The prefilter, burner and blower section(s) shall be single wall, un-insulated. (optional – double wall fully insulated).

If the unit is supplied with a cooling coil and/or final filter section, this section shall be of a double wall construction with a 16-gauge G235 galvanized steel inner liner complete with drain pan and a 18 gauge, G235 unpainted exterior casing (optional stainless steel liner).

The cooling coil/95% filter section shall be insulated with 2" non-combustible fiberglass insulation (optional - 2" polyurethane insulation).

Roof:

The exterior of the base unit shall be a minimum of 18 gauge, G235 galvanized steel.

Frame:

The unit frame shall be a minimum of 10 gauge, G235 galvanized steel, fully welded. Optional – the frame shall be designed for curb mounting of the unit.

Access Doors:

The access doors shall be provided with a 24 gauge, G235 exterior. Interiors of the doors on the cooling coil/final filter section shall be a minimum of 24 gauge, G90 galvanized steel.

Outside Air Dampers: (optional)

The dampers shall be parallel blade, with nylon bearings.

The construction shall be a minimum 16 gauge, G90 galvanized steel blades with a 12 gauge galvanized steel casing (Optional stainless steel).

Blowers:

The blowers shall consist of a centrifugal plenum type blower.

The blower wheel shall be supported by two outboard bearings, self-aligning, ball bearing, pillow-block and shall be designed for a minimum of 200,000 hours average life.

The blower shaft shall be ground and polished and shall be coated with a rust inhibitor.

The system shall be supplied with a set of fixed sheaves, cast iron type (optional – adjustable sheaves with plus or minus 7% adjustability).

The overload service factor used for V-belt drive selection shall be not less than 1.25

The V-belt drive shall be of a standard capacity and furnished with reinforced rubber belts.

Optional - the blower, motor and drive shall be spring isolated and be complete with a flexible ducting at the blower discharge.

Optional - the drive shall be complete with a belt guard.

Optional – the bearings shall have plastic extended grease lines run to the outside of the unit casing.

Motors:

The motors shall be standard TEFC duty (optional - premium efficiency and/or VFD compatible).

HEATING OPTIONS:

Steam Coils:

The steam coil shall have _____ rows and _____ fins per inch.

The steam coil shall be in the preheat position (optional - reheat position).

The steam coil shall be constructed with copper tubes and aluminum fins (optional - stainless steel tubes and aluminum fins or carbon steel tubes and aluminum fins).

The coil shall be designed for a maximum operating pressure of 25 psi (optional - 100 psi steam).

The capacity of the coil shall be _____ BTUH using _____ PSIG steam at the steam coil.

The steam coil shall be designed for a _____ ° F entering air temperature.

The coil shall be designed for a maximum face velocity of 800 feet per minute.

Hot Water or Glycol Heating Coils:

The hot water coil (optional – glycol coil) shall have _____ rows and _____ fins per inch.

The coil shall be supplied in the preheat position (optional - reheat position).

The coil shall be constructed with copper tubes and aluminum fins (optional - stainless steel tubes and aluminum fins, carbon steel tubes and fins, all aluminum or all stainless steel). Coil shall meet strength requirements of ASME/ANSI B31.5.

The coil shall have _____ BTUH capacity using _____ ° F hot water (optional -glycol).

The coil shall require _____ GPM of hot water (optional - _____ GPM of _____ % propylene glycol).

The water (or glycol) coil pressure drop shall be _____ feet.

The coil shall be designed for a _____ ° F entering air temperature.

The coil shall be designed for a maximum face velocity of 800 feet per minute.

Hot Gas Ammonia Heating Coil:

The hot gas ammonia coil shall have _____ rows and _____ fins per inch.

The hot gas coil shall be supplied in the preheat position (optional - reheat position).

The hot gas ammonia coil shall be constructed with hot dipped galvanized steel construction, Thermal-Pac® design (optional - all aluminum construction, Thermal-Pac® design, stainless steel tube and aluminum fins or all stainless steel). Coil shall meet strength requirements of ASME/ANSI B31.5.

The capacity of the coil shall be _____ BTUH using _____ ° F hot gas ammonia condensing temperature.

The hot gas ammonia coil shall be designed for a _____ ° F entering air temperature.

The coil shall be designed for a maximum face velocity of 800 feet per minute.

Direct Fired Heating Section:

The unit shall be designed with a direct-fired heating section. The direct-fired burner shall have a cast iron header with stainless steel baffle plates.

The burner shall have a _____ BTUH capacity.

The burner shall be designed for 1-5 PSI natural gas pressure (optional - 8-14" or high pressure systems above 5 PSI).

The controls shall be full modulating and be designed in accordance with Factory Mutual (FM) insurance guidelines (optional - IRI insurance guidelines).

The gas train shall be complete with all safety devices and controls.

COOLING OPTIONS:

Recirculating/ Direct Expansion/ Flooded Cooling Coils:

The cooling coil shall have _____ rows and _____ fins per inch.

The coil shall be designed for recirculating ammonia (minimum 3 to 1 feed rate) (optional - direct expansion or flooded).

The coil shall have a _____ ton capacity using a _____ °F saturated suction temperature.

The capacity of the coil shall be based on a room temperature of _____ ° F dry bulb and a coil entering air temperature of _____°F dry bulb / _____°F wet bulb.

The coil shall be constructed using EVAPCO's exclusive Thermal-Pac® design, with 0.060" wall tubes and 0.014" thick fins hot dipped galvanized steel, aluminum coil with 0.058" thick aluminum tubes and 0.014" thick aluminum fins, 0.025" stainless steel tubes and 0.014" thick aluminum fins or all stainless construction. Coil shall meet strength requirements of ASME/ANSI B31.5. All coils shall be charged with nitrogen prior to shipment.

The coil shall be designed for a maximum face velocity of 625 feet per minute.

Chilled Water or Glycol Cooling Coils:

The cooling coil shall have _____ rows and _____ fins per inch.

The coil shall have a _____ ton capacity using _____ GPM of _____ °F chilled water (optional - _____% propylene glycol).

The water (or glycol) pressure drop through the coil shall be _____ feet.

The coil capacities are based on a ____° F dry bulb / ____° F wet bulb entering air temperature.

The coil shall be constructed with copper tubes and aluminum fins (optional - hot dipped galvanized steel, all aluminum construction, stainless steel tube and aluminum fin, or all stainless steel). Coil shall meet strength requirements of ASME/ANSI B31.5.

FILTRATION:

Prefilters:

Prefilters shall be 30%, pleated filters, with synthetic media (optional - aluminum or stainless steel washable filters).

The unit shall be supplied with one initial set of filters (optional - the unit shall be supplied with two sets of filters).

The prefilters shall be held in individual holding frames.

Optional – prefilter differential pressure gauge to indicate when the filters should be changed.

Final Filters:

The final filters shall be a 95%, microfibre glass wet laid paper with aluminum separators (the same material used in HEPA, absolute filters). The filters shall be of a cartridge filter. The 95% filter shall have a rating of 95% efficient on a 1 micron particle size (optional – 99.97% DOP absolute HEPA filter. The media in the HEPA filter shall be a fine fiberglass. The HEPA filter shall have a rating of 99.97% on a 0.3-micron particle size).

Each of the filters shall have their own individual holding frames for upstream service. The holding frame shall be constructed of galvanized steel (stainless steel if the interior of the filter section is stainless steel).

The final filter section is complete with a differential pressure gauge.

The unit is supplied with one set of final filters (optional - unit supplied with two sets of final filters).

ACCESSORIES

Outside Air Inlet Hood:

The unit includes an outside air inlet hood constructed of G235 galvanized steel.

The hood shall be complete with a bird screen (optional - insect screen).

The hood shall be shipped separate from the unit.

ELECTRIC CONTROLS:

Each unit shall be supplied with an electro-mechanical control system.

The following are some of the many options, which are available for control systems.

- Main control panel, control transformer and terminal blocks.
- Outside air damper controls for systems with 100% makeup air.
- Room thermostats (typically mounted in the remote panel).
- Motorized steam valve (field mounted). Trap by others.
- Magnetic motor starters mounted in the control panel.
- Non-fused disconnect switches mounted in the control panel.
- Remote fiberglass (optional - stainless steel) control panels which can include:
 - blower on/off switch
 - blower indicating light
 - burner indicator light
 - dirty filter light
- Steam coil freeze stats.
- Hot water 3-way control valves.
- Chilled water/glycol 3-way control valves.
- Room dehumidistat located in the remote control panel.
- Natural gas heating controls.
- Discharge air ammonia detector.
- Smoke detectors.
- Interior service lights.
- Service receptacles.
- Room pressurization control.
- Heating coil face and bypass dampers and damper controls.
- Two-speed motors and starters.
- Exhaust motor starters.
- RVS, ASME surge drums mounted on top of the unit complete with dual relief valves.
- PLC or DDC controls.



CITY OF PORTLAND, MAINE
Department of Building Inspections

Original Receipt

8.2. 20 11

Received from Timber Tools

Location of Work 54 S. Nehill

Cost of Construction \$ _____ Building Fee: _____

Permit Fee \$ _____ Site Fee: _____

Certificate of Occupancy Fee: _____

Total: \$16,940

Building (IL) _____ Plumbing (I5) _____ Electrical (I2) _____ Site Plan (U2) _____

Other 11.1A

CBL: 70-11-5

Check #: 752500

Total Collected \$ \$16,940

**No work is to be started until permit issued.
Please keep original receipt for your records.**

Taken by: [Signature]

WHITE - Applicant's Copy
YELLOW - Office Copy
PINK - Permit Copy