



I. IDENTIFICATION

- V. FEE SUMMARY (for office use only)**

		Update	Update
1. Building	\$ 95		
2. Electrical	35		
3. Plumbing			
4. Fire Protection			
5. Elevator Devices			
6. Subtotal	\$		
7. Less 20% for State Plan Review			
8. Subtotal	\$		
9. DCA Training Fee	2		
10. Subtotal			
11. Cert. of Occupancy			
12. Other			
13. TOTAL	\$ 122		

VI. BUILDING/SITE CHARACTERISTICS

1. Number of Stories _____
2. Height of Structure _____ ft.
3. Area — Largest Floor _____ sq. ft.
4. New Building Area _____ sq. ft.
5. Volume of New Structure _____ cu. ft.
6. Construction Classification _____
7. Total Land Area Disturbed _____ sq. ft.
8. Flood Hazard Zone _____
9. Base Flood Elevation _____ ft.
10. Wetlands: yes _____
no _____
11. Max. Live Load _____
12. Max. Occupancy Load _____

office use only

II. PROPOSED WORK

1. ☐ Minor Work
2. ☐ New Building
3. ☐ Addition
4. ☒ Alteration
5. ☐ Fire Protection
6. ☐ Plumbing
7. ☒ Electrical
8. ☐ Elevator Devices
9. ☐ Asbestos Abat. Subch. 8
10. ☐ Lead Hazard Abatement
11. ☐ Demolition

TOTAL COSTS

Est. Cost

OPTIONAL (for office use only)

Plans Rec'd by	Date Rec'd	Rejection Date	Approval Date	Re- viewer	Resubmission Dates		Re- viewer
					Approval	Rejection	
JRS	7/28/99		7/29/99	FM	8/31/99		DL
			7-25-99	7/26	12/17/99		

III. DO YOU WANT: (optional)

- ☐ Partial Releases
- ☐ Prototype Processing

IV. DOES OR WILL YOUR BUILDING CONTAIN ANY OF THE FOLLOWING?

1. ☐ Elevators/Escalators/Lifts/
Dumbwaiters/Moving Walks
2. ☐ High Pressure Boilers
3. ☐ Pressure Vessels
4. ☐ Refrigeration Systems
5. ☐ Cross-Connections/Backflow Preventers
6. ☐ Hazardous Uses/Places of Assembly
7. ☐ Sprinklers
8. ☐ Smoke Control Systems in Open Wells
9. ☐ Underground Storage Tanks

VII. DESCRIPTION OF BUILDING USE

A. RESIDENTIAL

1. ☒ Hotels (R-1)
2. ☐ Multi-Family (R-2)
3. ☐ Two-Family (R-3) BOCA
4. ☐ Two-Family (R-4) CABO
5. ☐ One-Family (R-3) BOCA
6. ☐ One-Family (R-4) CABO

No. of dwelling units:

Before Construction

After Construction

Net Gain or Loss

B. NON-RESIDENTIAL

1. State Specific Use:

- 2. Use Group:**

3. Change in Use Group, Indicate Former:

CERTIFICATION IN LIEU OF OATH

I. OWNER SECTION (to be completed if the applicant is the owner in fee)

I hereby certify that I am the owner in fee of the property listed on Page 1.

Mark the following applicable boxes:

- A. ☐ I further certify that a new home (private residence) will be constructed on this property for my own use and occupancy. This dwelling is to be occupied by myself and is not to be used for any purpose other than single family residential use. I attest that all construction, plumbing, or electrical work will be done, in whole or in part, by me or by subcontractors under my supervision, in accordance with all applicable laws; and, I further acknowledge that said new home is not covered under the New Home Warranty and Builders Registration Act (N.J.S.A. 46:3B-1 et seq.) and that such fact shall be disclosed to any person purchasing this property within ten years of the date of issuance of a certificate of occupancy.

I UNDERSTAND THAT IN MARKING BOX A, I ACKNOWLEDGE THAT I AM ASSUMING RESPONSIBILITY FOR THE WORK DONE ON SAID PROPERTY, THE CONDITION OF THE PROPERTY PRIOR TO, DURING, AND AFTER ANY WORK PERFORMED, AND FOR THE PERFORMANCE OF THE SUBCONTRACTORS I HIRE, EMPLOY, OR OTHERWISE CONTRACT OR WITH WHOM I MAKE AGREEMENTS TO PERFORM WORK. I AM VOLUNTARILY AND KNOWINGLY ASSUMING THIS RESPONSIBILITY.

- B. ☐ I further certify the following as required by the New Jersey Uniform Construction Code, N.J.A.C. 5:23-2.15(e)1.vii:

I personally prepared the plans submitted for: 1) the new home referred to in A.; or, 2) an addition, alteration, renovation, or repair to an existing single family residence owned and occupied by myself and located on the property listed on Page 1; or, 3) a new structure that will be physically separate from, but that will be deemed part of, an existing single family residence that is owned and occupied by myself and located on the property listed on Page 1.

- C. ☐ I further certify that I will perform or supervise the following work:

C.1. ☐ Building C.2. ☐ Fire Protection

I further certify that I will perform the following work:

C.3. ☐ Electrical C.4. ☐ Plumbing

- D. ☐ I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I understand that if any of the above statements are willfully false, I am subject to punishment.

Signature

Date

7/28/99

II. AGENT SECTION (to be completed if the applicant is not the owner in fee)

I hereby certify the following as required by the Uniform Construction Code, N.J.A.C. 5:32-2.15(d): the proposed work is authorized by the owner in fee; and I have been authorized by the owner in fee to make this application as his agent.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I understand that if any of the above statements are willfully false, I am subject to punishment.

☒ Check if contractor.

Agent Name

PRISM HEAT & A.C.

Address

17 S. SALORS QUAY DR.

BRICK N.J. 08723

Telephone

(732) 477-9441

Signature

Conrad Haganfeld

III. ☐ LEAD HAZARD ABATEMENT: Include Homeowner or Building Owner Affidavit as per N.J.A.C. 5:17.

OFFICE DATE RECEIVED: _____

VIII. PRIOR APPROVALS CHECKLIST (office use only)	LOCAL APPROVAL		COUNTY APPROVAL		REGIONAL APPROVAL		STATE APPROVAL		COMMENTS
	Prelimin. Initial	Final Date	Prelimin. Initial	Final Date	Prelimin. Initial	Final Date	Prelimin. Initial	Final Date	
☐ Zoning Officer									
☐ Planning Board									
☐ Zoning Board									
☐ Sewer Authority									
☐ Water Authority									
☐ Police Department									
☐ Health Department									
☐ Soil Conservation									
☐ N.J. Department of Community Affairs									
☐ N.J. Department of Transportation									
☐ N.J. Department of Environmental Protection									
☐ Utility Dig No.									
☐									
☐									

IX. SUBCODES AND SPECIAL REGULATIONS APPLICABLE (office use only—optional)

Name of Code & Edition	Name of Code & Edition	Other
Building _____	Energy _____	
Electrical _____	Barrier Free _____	
Plumbing _____	Flood Hazard _____	
Fire Protection _____	As Built Elevation Cert. _____	
Mechanical _____	Other _____	

X. CERTIFICATES ISSUED (office use only)

	DATE ISSUED	DATE EXPIRED	DATE REISSUED	DATE EXPIRED
☐ Temporary Certificate of Occupancy	No. _____	_____	_____	_____
☐ Temporary Certificate of Compliance	No. _____	_____	_____	_____
☐ Continued Certificate of Occupancy	No. _____	_____	_____	_____
☐ Certificate of Compliance	No. _____	_____	_____	_____
☐ Certificate of Occupancy	No. _____	_____	_____	_____
☐ Certificate of Approval	No. _____	_____	_____	_____
☐ Lead Abatement Clearance Certificate	No. _____	_____	_____	_____

TOWNSHIP OF BRICK
401 CHAMBERS BRIDGE RD
DIVISION OF INSPECTIONS

UCC NEW JERSEY
CONSTRUCTION
PERMIT

0002
992871*#

BLOCK	549 #	0.00
LOT	5 #	0.00
BUILDING		85.00
ELECTRIC*		35.00
D.C.A.		2.00
TOTAL		122.00
CASH		122.00
CHANGE		0.00
	0023A005	12:40

07/30/99 NO. 5

Date Issued 07/30/99
Contract #
Permit # 99-28/1

IDENTIFICATION

Block 549

Lot 5

Unit

Work Site Location 2524 HOPPER AVE MAIL CONNECTION

VENTILATION SYSTEM

Construction PRISM HEATING & A/C
Address 1155 SAILOR'S CREEK RD
BRIDGE, NJ 08823-

Owner In Fee LA SHELIA, DEBBIE
Address 1063 MT CARMEL BLVD
TUCSON AZ 85724-

Telephone 1331471-2477

Telephone 1331471-2477
Fax 1331471-2477
Mobile 972-3445515

It is hereby certified that the information on which this permit is based is true and correct.

1.1 BUILDING 1.1 PLUMBING 1.1 LEAD HAZARD ABATEMENT
1.1 ELECTRICAL 1.1 FIRE PROTECTION 1.1 DISINFECTION
1.1 ELEVATOR DEVICES 1.1 ASBESTOS ABATEMENT 1.1 OTHER
1.1 SUBMERGENCE & MISC

DESCRIPTION OF WORK:

MAIL CONNECTION VENTILATION SYSTEM TO REMOVE CHIMNEY FUMES FROM MAIL
PRODUCTS AND REPLACE W/ FRESH AIR.
AT RECEPTION PLAZA

NOTE: If construction does not commence within one (1) year of date of issuance,
on its construction ceases for a period of six (6) months. This permit is void.

Estimated Cost of Work \$ 3,500

07/30/99
Date

H.C.C. 1170 Rev. 1/85

J. Casanova
Construction Official

PAVING (ASPH) USE PERMIT
Filing Fee 85
Processing Fee 45
Permitting Fee 45
Elevation Devices 0
Other 0
DCA Training Fee 2
Rec. of Occurrence 0
Other 0
Total 122
Contract No. X
Cash X
Collected By W/P

TOWNSHIP OF BRICK
401 CHAMBERS BRIDGE RD
DIVISION OF INSPECTIONS

UCC NEW JERSEY
BUILDING
SUBCODE
TECHNICAL SECTION

Date Received 07/28/99
Date Issued 7/30/99
Control # C29-95
Permit # 99-2871

A. IDENTIFICATION-APPLICANT: COMPLETE ALL APPLICABLE INFORMATION, WHEN CHANGING
CONTRACTORS, NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000

Block 549 Lot 5 Quad
Work Site Location 2524 HOOPER AVE NAIL CONNECTIO

VENTILATION SYSTEM

Owner in Fee LA STELLA, DEBBIE

Address 1953 MT CARMEL BLVD

TOWNS RIVER, NJ 08723-

Tele. (732) 477-8477

Contractor PRISM HEATING & A/C

Address 17 S SAILORS QUAY DR

BRICK, NJ 08723-

Tele. (732) 477-9111 Fax ()

Lic. No. or Bldgs. Reg. No.

Federal Emp. No. 22-353513

JOB SUMMARY (Office Use Only)

PLAN REVIEW Date Initial

☐ No Plans *7-29-99 FM*

☐ All

☐ Footing

☐ Foundation

☐ Frame

☐ Other

Joint Plan Review Required:

☐ Eject ☐ Plumb ☐ Fire

SUBCODE APPROVAL ☐ Elev

☐ CO ☐ CCO ☐ CA

Date:

Approved By:

INSPECTIONS

Type

Footing

Foundation

Slab

Frame

Barrierfree

Insulation

Finishes

Energy

Mechanical

TCO

Other

Final

Barrierfree

Dates (Month/Day)

Failure Failure Approval Initial

Est. Cost of Bldg. Work:

1. New Bldg. \$ 0

2. Alteration \$ 3,000

3. Total (1+2) \$ 3,000

Industrialized Building:

☐ State Approved

☐ HUD

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner
of record and am authorized to make this application.

Signature

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK

NAIL CONNECTION VENTILATION SYSTEM TO REMOVE CHEMICAL FUMES FROM NAIL
PRODUCTS AND REPLACE W/ FRESH AIR.

AT RED LION PLAZA

Per E-2 Aire Brochure FM

TYPE OF WORK

☐ New Building

☐ Addition

☒ Alteration

☐ Roofing

☐ Siding

☐ Fence 0 Height (exceeds 6')

☐ Sign 0 Sq. Ft.

☐ Pool

☐ Asbestos Abatement Subchapter 8

☐ Lead Haz. Abatement NJAC 5:17

☐ Other

Other

☐ Demolition

FEE (Office Use Only)

\$ 0

\$ 0

\$ 85

\$ 0

\$ 0

\$ 0

\$ 0

\$ 0

\$ 0

\$ 0

\$ 0

\$ 0

Administrative Surcharge \$ 0

Minimum Fee \$ 0

TOTAL FEE \$ 85

Collected By: DCA Training Fee \$ 2

UCF NEW JERSEY
ELECTRICAL
SUBCODE
TECHNICAL SECTI

Date Received 07/28/99
Date Issued 7/30/99
Control # C29-95
Permit # 92 7871

TECHNICAL SITE DATA
NO. SIZE IT

Block	Lot	Qua{
549	5	
World Site Location 2524 HOOPER AVE NAIL CONNECTIO		

VENTILATION SYSTEM

Owner in Fee LA STELLA, DEBBIE

Address 1953 MT CARMEL BLVD

-----TOMS RIVER, NJ 08723-----

Tele. (732) 506-9421 Fax ()

Contractor EASTERN

Address 829 ROSS ST

-----TOM'S RIVE-----

Tele. (732) 506-9421

Lic. No. or Bldrs=

Federal Emp. No.

B. ELECTRICAL CHARACTERISTICS

Use Group - Present	B	Proposed	B

```

[ ] Pole/Ped # ----- [ ] Temporary [ ] Other

```

Building Occupied as ----- Utility Co.

Estimated Cost of Electrical Work \$ 500

JOB SUMMARY (Office Use Only)

PLAN REVIEW

☒ No Plans Required

Joint Plan Review Required:

	Bldg	Plant
1		
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{ } Fire { } Elevator

```

Elect Plans Approve

Date: 1-29-27

Approved By:

SUBCODE APPROVAL

1000

Date: 12-13-85

APPROVED BY:

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of record and am authorized to make this application and perform the work listed on this application.

Applicant's Signature/Contractor's Seal and Signature

[[] Licensed Electrical Contractor [] Exempt Applicant

COMMERCIAL

*Q3-43 Contract
8301 Spence
W.A.D. #10*

Paid [] Check #
Collected by: _____

Administrative Surcharge	\$	0
Minimum Fee	\$	0
TOTAL FEE	\$	35
DCA Training Fee	\$	0

U.C.C. F120 (rev. 3/95)

TOWNSHIP OF BRICK
401 CHAMBERS BRIDGE RD
DIVISION OF INSPECTIONS

UCC NEW JERSEY
ELECTRICAL
SUBCODE
TECHNICAL SECTION

Date Received 07/28/99
Date Issued 7/30/99
Control # C29-95
Permit # 99-2871

A. IDENTIFICATION-APPLICANT: COMPLETE ALL APPLICABLE INFORMATION, WHEN CHANGING
CONTRACTORS, NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000

D. TECHNICAL SITE DATA

FEE (Office Use Only)

Block 549 Lot 5 Quad
Work Site Location 2524 HOOPER AVE NAIL CONNECTIO

VENTILATION SYSTEM

Owner in Fee LA STELLA, DEBBIE

Address 1953 MT CARMEL BLVD

TOWNS RIVER, NJ 08723-

Tele. (732) 506-9421 Fax ()

Contractor EASTERN SHORE ELEC CON

Address 829 ROSS ST

TOWNS RIVER, NJ 08753-

Tele. (732) 506-9421

Lic. No. or Bldgs. Reg. No. 14501

Federal Emp. No. [REDACTED]

B. ELECTRICAL CHARACTERISTICS

Use Group - Present B Proposed B

[] Pole/Pole [] Temporary [] Other

Building Occupied as Utility Co.

Estimated Cost of Electrical Work \$ 500

JOB SUMMARY (Office Use Only)

PLAN REVIEW

[X] No Plans Required

Joint Plan Review Required:

[] Bldg [] Pkch

[] Fire [] Elevator

[] Effect Plans Approved

Date: 7-29-99

Approved By: [Signature]

SUBCODE APPROVAL

[] CO [] CCO [] CA

Date:

Approved By:

INSPECTIONS

Type Failure Failure Approval Initial

Rough

Temp Serv

Const Serv

TCO

Other

Service

Final

Temp. Cut-in-Card Date Issued

Final Cut-in-Card Date Issued

ITEM

NO. SIZE

Lighting Fixtures

Receptacles

Switches

Detectors

Light Poles

Motors-Fract HP

Emergency & Exit Lights

Communications Points

Alarm Devices/F.A.C. Panel

TOTAL NUMBERS

Pool Permits/with UL Lights

Storage Pool/Spa/Hot Tub

KW Elect Range/Receptacle

KW Over/Surface Unit

KW Elect Water Heater

KW Elect Dryer/Receptacle

KW Dishwasher

HP Garbage Disposal

KW Central A/C Unit

HP/KW Space Heater/Air Handler

Baseboard Heat

HP Motors 1/2 HP

KW Transformer/Generator

AMP Service

AMP Subpanels

AMP Motor Control Center

KW Elect Sign/Outlet Light

Other

Other

Administrative Surcharge \$

Minimum Fee \$

TOTAL FEE \$ 35

DCA Training Fee \$

279-0959

SUN. - 9:00 AM

Nail Connections - Smith, NJ - Debbie

main area to be treated

20 x 36 x 10 - 6 nail stations

720²/ft. 7200³/ft. 3ACH = 360 CFM

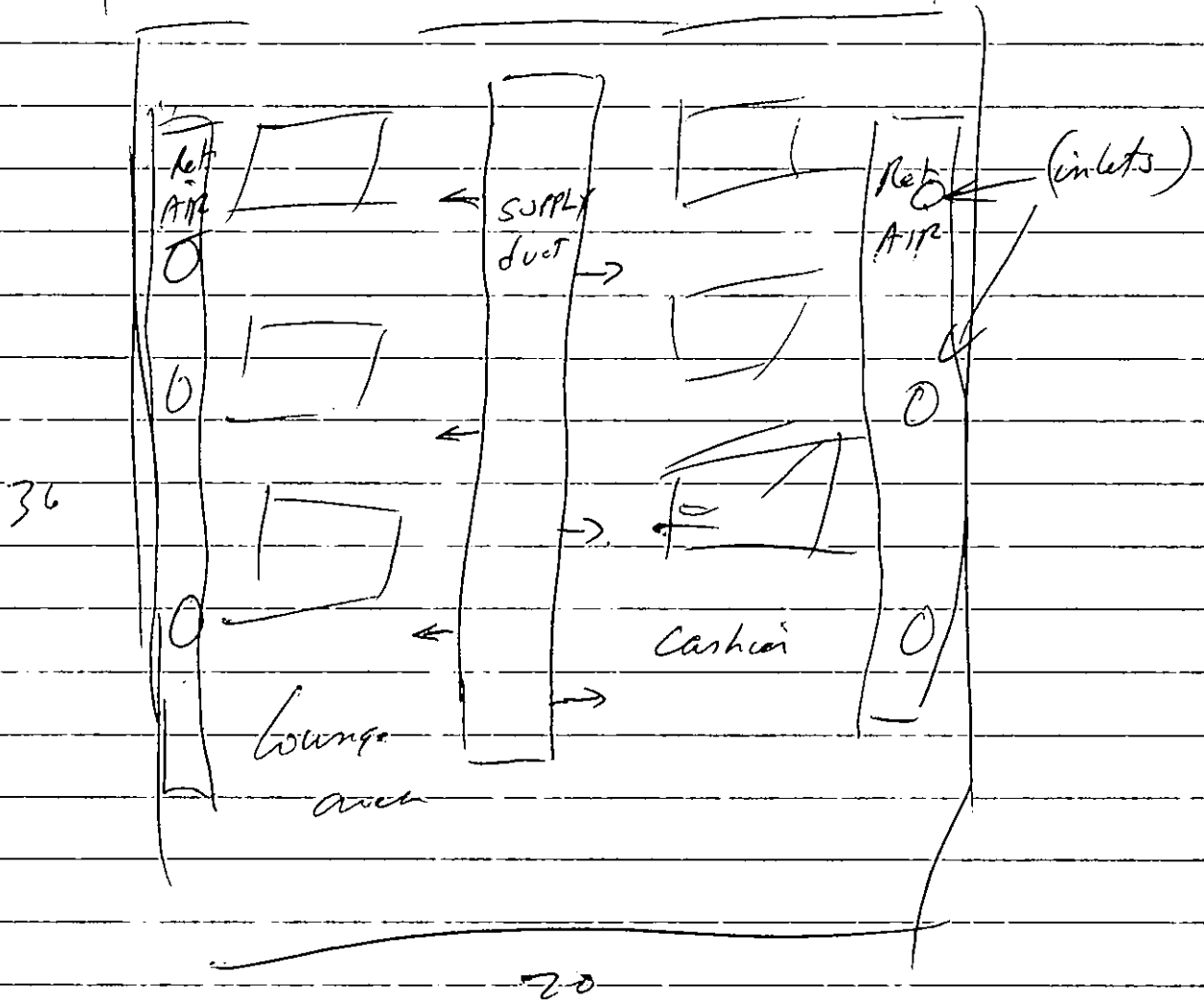
Suggest 1-E2V340 (415 CFM) approx. CFM @ 3" esp = 330 CFM
also - 1-RV125 Spruce fan operated by adjustable speed
control switch to be used as (1) Backup to provide
"extra" exhaust as needed and (2) to assure nail
salon remains under a negative pressure. This is important
because salon owner states primary reason for having
problem taken care of is due to odor complaints from
next door post office. Also, it's important to
determine if area above drop ceiling is common to
all stores. If so, care must be exercised to insure no
return air gets into this space. All return ducts
+ exhaust duct must be carefully sealed.

Contractor to determine best location to install
unit but if room permits, area above drop ceiling
would be best.

Lot-5 Block T49

Add 6-9-10-12.02
Lots

luncheon room
offices, etc



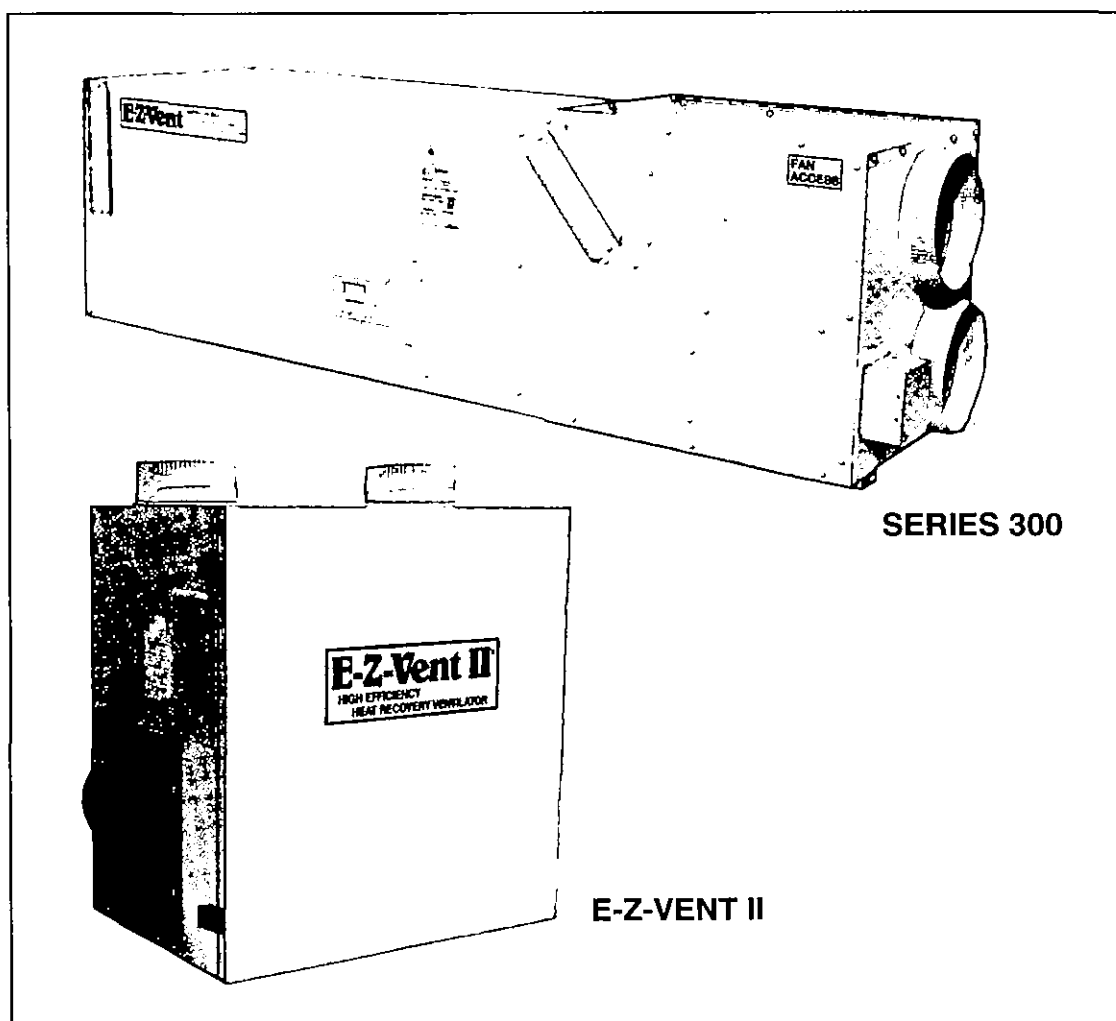
Supply duct in center directing air towards both walls
return duct on each side with inlet grilles above
each station.

Contractor to insure that exhaust air flow is greater than
supply to assure negative pressure or better yet, use RV $\frac{125}{100}$
fan electrically interlocked to provide negative pressure.

INSTALLATION AND OWNERS MANUAL

E-Z-VENT[®]

SERIES 300 AND E-Z-VENT II



DES CHAMPS LABORATORIES WHOLESALE DIVISION

Heat Recovery Ventilation Systems

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STOP!

**READ THIS MANUAL THOROUGHLY BEFORE BEGINNING INSTALLATION
OR PURCHASING MATERIALS!**

WARNINGS

1. **BEFORE BEGINNING INSTALLATION OR PURCHASING MATERIALS, READ ALL INSTRUCTIONS IN THIS MANUAL CAREFULLY AND THOROUGHLY.**
2. All wiring must conform to local codes. Use the National Electrical Code if a local code does not exist.
3. Your E-Z-VENT is designed to operate on 115 Volt A.C. 60 Hz (cycle) only.
4. The wiring should be permanent. **DO NOT USE EXTENSION CORD.** Please see the section on electrical wiring/control diagrams and instructions.
5. **DO NOT** connect the E-Z-VENT to a kitchen range hood exhaust. The grease and dirt could clog the unit and result in an **EXTREME FIRE HAZARD.**
6. **DO NOT** connect the E-Z-VENT to a gas or electric clothes dryer.
7. **DO NOT** use the E-Z-VENT to recover energy from your furnace or flue pipe.
8. During warm, humid weather the ventilation air will not be able to effectively remove moisture. A dehumidifier may be the practical solution.
9. When installed in an unheated space, there is the possibility of condensation forming on the external casing of the E-Z-VENT. In those cases an application of external insulation may be necessary.

UNPACKING AND INSPECTION

All E-Z-VENT units have been carefully packaged for safe shipment. After receiving your unit, open the top side of the box as indicated by the 'THIS SIDE UP' marking. Remove the E-Z-VENT from the box and visually inspect for obvious physical damage. If there is any damage, report it immediately to the trucker or your dealer. **No return shipment without return authorization.**

All fan motors have been factory tested for quiet, efficient operation and should be problem-free. However, it is recommended that the unit be tested after unpacking **BEFORE** it is mounted. If there is a problem with your fan motor, contact your dealer immediately.

CAUSES OF INDOOR AIR POLLUTION

Indoor air pollution can come from many sources and in varying degrees. The following examples list a few of these pollutants and some of their sources. This may help you in your ductwork design planning:

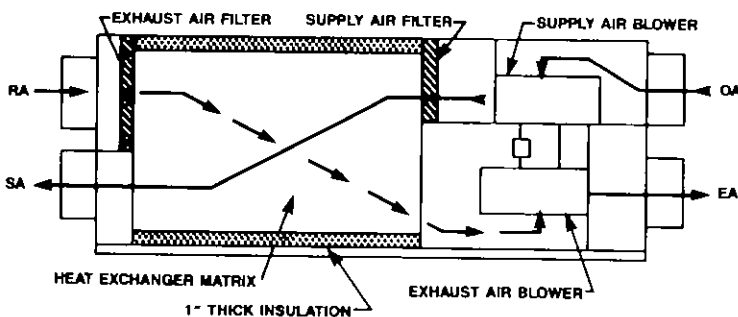
Formaldehyde:	Foam Insulation; Plywood; Particle Board; Paneling; Furnishing; Fabrics and Carpet Adhesives; Kitchen Counter Tops; Wallpaper, Protective Coatings for Wooden Floors
Nitrogen Oxides & Carbon Monoxide:	Gas and Oil Stoves; Vehicles; Smoking; Cooking; Wood Stoves; Furnaces, Kerosene Heaters
Organic Compounds:	Aerosols; Smoking; Cleaning Agents; Carpets; Wall Coverings; Linoleum; Waxes; Adhesives; Fabrics; Rubber; Plastic; Paints
Particulate Pollutants:	Smoking; Cooking; Gas Stoves; Dust
Ozone:	Aerosols; Electronic Air Cleaners; Photocopying Machines; Direct Current Electric Motors
Radon:	Stone; Soil Gas; Water; Brick; Concrete; Ceramic Tiles; Gypsum Board
Benzopyrene:	Cigarette Smoke
Chlordane:	Pesticide used for pest control
Non-Methane Hydrocarbons:	Solvents; Wood Preservatives; Paints
High Humidity:	Ground Moisture; Cooking; Bathing; People; Plants; Animals

HOW E-Z-VENT WORKS

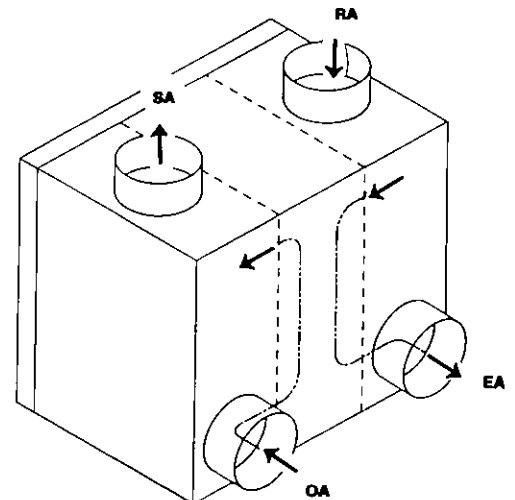
The E-Z-VENT energy recovery unit contains an air-to-air plate type heat exchanger. Counterflow airstreams are brought into close proximity, separated by one continuous die-formed and folded sheet of aluminum which acts as a primary heat transfer surface. The configuration of the heat transfer matrix creates two separate and distinct air passages. As both airstreams flow through the heat exchanger, in a counterflow

manner, the heat is transferred from the warmer outgoing room air to the cooler incoming outside air. In summer, when mechanical cooling is utilized, the reverse happens; cool inside air reduces the temperature of the warmer outside air as they pass through the heat exchanger. This transfer of heating and cooling from exhaust to incoming air results in a substantial energy savings.

E-Z-VENT SERIES 300



E-Z-VENT II



SPECIFICATIONS AND DIMENSIONS

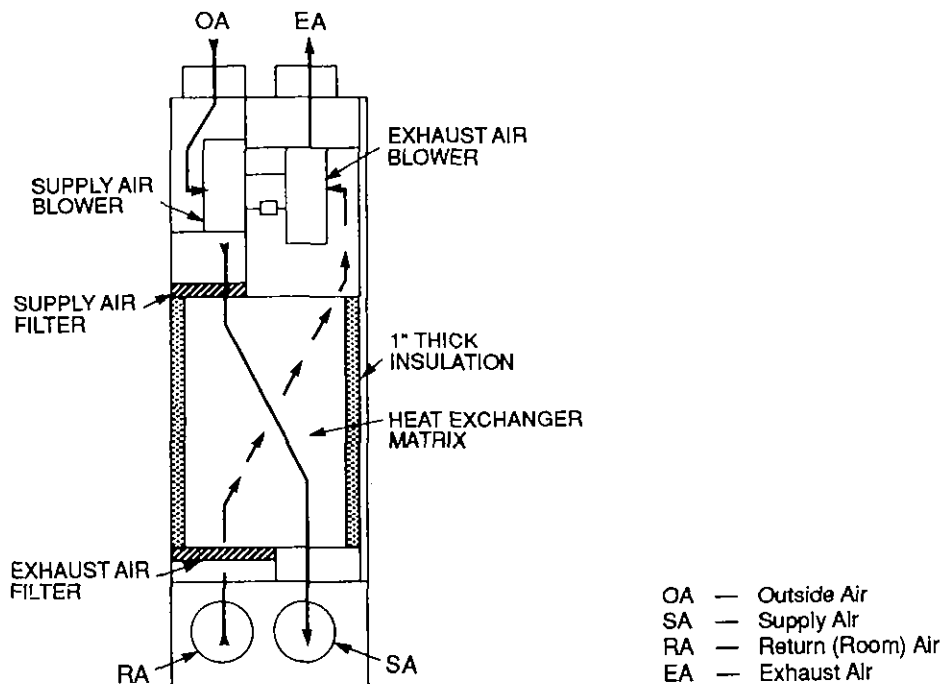
Note: Applies to all models:

115/1/60 Electric service
-50 to 130°F Operating range
Galvanized steel cabinets

Aluminum counter flow heat exchanger
Condensate drain(s)
Thermally protected motors with non lube ball bearings

MODEL	E-Z-VENT II	EZV 310	EZV 320	EZV 340
Rated Airflow (CFM) (Lo/High Speed)	0-240 Adjustable	110/145	165/220	310/415
@ 0.20" Ext. S.P.	0-219 Adjustable	97/136	150/201	271/362
@ 0.30" Ext. S.P.	0-198 Adjustable	84/121	139/186	249/333
@ 0.40" Ext. S.P.	0-191 Adjustable	76/103	133/178	240/320
Effectiveness	70%	85%	84%	83%
Overall Size LxHxW Inches	17x26x24	58x18¾x14	58x18¾x14	61x18¾x18
Shipping Weight	78 lbs.	105 lbs.	105 lbs.	130 lbs.
Electrical FLA	4.0 (6.7) w/defrost	0.8	1.5	3.0
Duct Connections (4) Dia. Collar	6"	6"	6"	8"
Supply Air Filter	8x16x1	7x14x½	7x14x½	8x18x½
Exhaust Air Filter	8x16x1	9x14x½	9x14x½	8x18x½
Blower(s) 6" Dia. Centrifugal	2	2	2	2
Motor(s) Size (HP)	(2) .05	.044	.094	(2) .094

Optional Vertical Base Installed



DELIVERED AIR TEMPERATURE

The following charts give the consumer an approximation of the delivered (supply) air temperatures of the E-Z-VENT under a variety of conditions.

SERIES 300 SUMMER OPERATION

Refer to Chart A to determine your indoor air temperature. When determined, refer to Chart B and determine outdoor temperature and outdoor relative humidity. The 4 blocks in Chart A correspond to the 4 blocks shown in Chart B.

Example: Indoor air temperature - 65°F
Outdoor temperature - 85°F
Outdoor RH (%) - 60%

Refer to Chart A

60°	65°
70°	75°

 and note 65°F is in the upper right corner. Refer to Chart B and find vertical column for 85°F, head across to intersecting quad for 60% RH

68°	70°
74°	78°

70 appears in the upper right corner and the number found in this block is the supply air temperature (70°F) that corresponds to the stated conditions.

WINTER OPERATION

Use Chart A and determine outdoor temperature and % of relative humidity *inside* the home. The winter conditions are therefore calculated using Chart C in the same manner as determining summer conditions using Chart B.

E-Z-VENT II SUMMER OPERATION

Refer to Chart A to determine your indoor air temperature. When determined, refer to Chart D and determine outdoor temperature and outdoor relative humidity. The 4 blocks in Chart A correspond to the 4 blocks shown in Chart D.

Example: Indoor air temperature - 65°F
Outdoor temperature - 85°F
Outdoor RH (%) - 60%

Refer to Chart A

60°	65°
70°	75°

 and note 65°F is in the upper right corner. Refer to Chart D and find vertical column for 85°F, head across to intersecting quad for 60% RH

71°	73°
76°	79°

70 appears in the upper right corner and the number found in this block is the supply air temperature (70°F) that corresponds to the stated conditions.

WINTER OPERATION

Use Chart A and determine outdoor temperature and % of relative humidity *inside* the home. The winter conditions are therefore calculated using Chart E in the same manner as determining summer conditions using Chart D.

E-Z-VENT SERIES 300

CHART A

Indoor Air Temperature

CHART B

Summer Supply Temperature (T2, ° F)

Outdoor Relative Humidity (% RH1)

60°	65°
70°	75°

Outdoor Temperature (T1, °F)

	50%	60%	70%	80%	90%	100%
75	64 : 68 71 : 75	64 : 68 71 : 74	64 : 68 71 : 75	67 : 68 71 : 75	69 : 70 72 : 75	72 : 73 74 : 75
80	65 : 69 73 : 76	65 : 69 73 : 76	68 : 69 73 : 76	71 : 72 73 : 76	73 : 74 76 : 77	76 : 77 78 : 79
85	67 : 70 74 : 78	68 : 70 74 : 78	72 : 73 74 : 78	75 : 76 77 : 78	77 : 78 80 : 81	80 : 81 82 : 83
90	69 : 72 75 : 79	72 : 74 75 : 79	76 : 77 78 : 79	79 : 80 81 : 82	82 : 83 84 : 85	85 : 86 87 : 88
95	72 : 73 77 : 80	76 : 77 78 : 80	80 : 81 82 : 83	83 : 84 85 : 86	86 : 87 88 : 89	89 : 90 91 : 92
100	76 : 77 78 : 82	80 : 81 82 : 83	84 : 85 86 : 87	88 : 89 90 : 91	91 : 92 93 : 94	94 : 95 96 : 97

CHART C

Winter Supply Temperature (T2, ° F)

Indoor Relative Humidity (% RH3)

	10%	20%	30%	40%	50%	60%
-20	39 : 43 47 : 51	41 : 45 49 : 53	42 : 47 51 : 56	44 : 48 53 : 58	45 : 50 55 : 59	46 : 51 56 : 61
-15	40 : 44 47 : 52	42 : 46 50 : 54	43 : 48 52 : 57	45 : 49 54 : 59	46 : 51 55 : 60	47 : 52 57 : 62
-10	41 : 45 49 : 52	43 : 47 51 : 55	44 : 48 53 : 57	46 : 50 55 : 59	47 : 51 56 : 61	48 : 53 58 : 63
-5	43 : 46 50 : 54	43 : 48 52 : 56	45 : 49 54 : 58	46 : 51 55 : 60	48 : 52 57 : 62	49 : 53 58 : 64
0	44 : 48 51 : 55	44 : 48 53 : 57	46 : 50 55 : 59	47 : 52 56 : 61	48 : 53 58 : 63	50 : 54 59 : 65
5	45 : 49 53 : 56	45 : 49 53 : 57	47 : 51 55 : 60	48 : 53 57 : 62	49 : 54 59 : 63	50 : 55 60 : 66
10	47 : 50 54 : 58	47 : 50 54 : 58	48 : 52 56 : 61	49 : 53 58 : 62	50 : 55 59 : 64	51 : 56 61 : 67
15	48 : 52 55 : 59	48 : 52 55 : 59	48 : 52 57 : 61	50 : 54 58 : 63	51 : 55 60 : 65	52 : 56 61 : 67
20	49 : 53 57 : 60	49 : 53 57 : 60	49 : 53 57 : 62	50 : 55 59 : 64	52 : 56 61 : 65	53 : 57 62 : 68
25	51 : 54 58 : 62	51 : 54 58 : 62	51 : 54 58 : 62	51 : 55 60 : 64	52 : 57 61 : 66	53 : 58 62 : 69
30	52 : 56 59 : 63	52 : 56 59 : 63	52 : 56 59 : 63	52 : 56 60 : 65	53 : 57 62 : 66	54 : 58 63 : 69
35	53 : 57 61 : 64	53 : 57 61 : 64	53 : 57 61 : 64	53 : 57 61 : 65	53 : 58 62 : 67	54 : 58 64 : 70
40	55 : 58 62 : 66	53 : 55 62 : 66	58 : 56 62 : 66	55 : 58 62 : 66	55 : 58 63 : 67	55 : 59 64 : 66
45	56 : 60 63 : 67	56 : 60 63 : 67	56 : 60 63 : 67	56 : 60 63 : 67	56 : 60 63 : 67	56 : 60 64 : 67
50	57 : 61 65 : 68	57 : 61 65 : 68	57 : 61 65 : 68	57 : 61 65 : 68	57 : 61 65 : 68	57 : 61 65 : 68
55	59 : 62 66 : 70	59 : 62 66 : 70	59 : 62 66 : 70	59 : 62 66 : 70	59 : 62 60 : 70	59 : 62 66 : 70
60	60 : 64 67 : 71	60 : 64 67 : 71	60 : 64 67 : 71	60 : 64 67 : 71	60 : 64 67 : 71	60 : 64 67 : 71
65	X : 65 69 : 72	X : 65 69 : 72	X : 65 69 : 72	X : 65 69 : 72	X : 65 69 : 72	X : 65 69 : 72
70	X : 74 70 : 74	X : 74 70 : 74	X : 74 70 : 74	X : 74 70 : 74	X : 74 70 : 74	X : 74 70 : 74

CHART D

Summer Supply Temperature (T₂, ° F) Outdoor Relative Humidity (% RH1)

Outdoor Temperature (T ₁ , ° F)	50%		60%		70%		80%		90%		100%	
	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁
75	65	69	65	69	65	69	67	69	69	71	72	73
	72	75	72	75	72	75	72	75	73	75	74	75
80	67	70	67	71	69	70	71	72	74	74	76	77
	74	77	75	78	74	77	74	77	76	77	78	79
85	69	72	71	73	73	74	75	76	78	79	81	82
	75	79	76	79	75	79	77	79	79	81	83	83
90	71	74	73	74	77	78	80	81	83	83	85	86
	77	80	77	80	79	80	81	82	84	86	87	88
95	73	76	77	78	81	82	84	85	87	88	90	90
	79	82	79	82	82	83	86	87	88	90	91	92
100	77	78	81	82	85	86	89	90	92	93	95	96
	81	84	83	84	87	87	90	91	93	95	96	97

CHART E

Winter Supply Temperature (T₂, ° F) Indoor Relative Humidity (% RH3)

Outdoor Temperature (T ₁ , ° F)	10%		20%		30%		40%		50%		60%	
	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁
-20	31	34	32	36	34	38	35	39	37	41	38	42
	38	41	40	43	42	46	44	48	45	50	47	50
-15	33	36	34	37	35	39	37	41	38	42	39	44
	39	43	41	45	43	47	45	49	47	51	48	52
-10	35	38	35	39	37	41	38	42	39	44	41	45
	41	44	42	46	44	48	46	50	48	52	49	53
-5	37	40	37	40	38	42	40	43	41	45	42	46
	43	46	44	47	46	50	47	52	49	53	51	54
0	38	42	38	42	40	43	41	45	42	46	43	47
	45	48	45	49	47	51	49	53	50	55	52	55
5	40	43	40	43	41	45	42	46	43	47	45	49
	47	50	47	50	48	52	50	54	52	56	53	56
10	42	45	42	45	42	46	43	47	45	49	46	50
	48	52	48	52	50	53	51	55	53	57	54	58
15	44	47	44	47	44	47	45	48	46	50	47	51
	50	53	50	53	51	54	52	56	54	58	55	59
20	46	49	46	49	46	49	46	50	47	51	48	52
	52	55	52	55	52	56	54	57	55	59	56	60
25	47	51	47	51	47	51	47	51	48	52	49	53
	54	57	54	57	54	57	55	59	56	60	57	61
30	49	52	49	52	49	52	49	52	49	53	50	54
	56	59	56	59	56	59	56	59	57	61	59	62
35	51	54	51	54	51	54	51	54	51	54	52	55
	57	61	57	61	57	61	57	61	58	62	60	63
40	53	56	53	56	53	56	53	56	53	56	53	56
	59	62	59	62	59	62	59	62	59	63	61	64
45	55	58	55	58	55	58	55	58	55	58	55	58
	61	64	61	64	61	64	61	64	61	64	62	65
50	56	60	56	60	56	60	56	60	56	60	56	60
	63	66	63	66	63	66	63	66	63	66	63	66
55	58	61	58	61	58	61	58	61	58	61	58	61
	65	68	65	68	65	68	65	68	65	68	65	68
60	60	63	60	63	60	63	60	63	60	63	60	63
	66	70	66	70	66	70	66	70	66	70	66	70
65	X	65	X	65	X	65	X	65	X	65	X	65
	68	71	68	71	68	71	68	71	68	71	68	71
70	X	X	X	X	X	X	X	X	X	X	X	X
	70	73	70	73	70	73	70	73	70	73	70	73

E-Z-VENT LOCATION

The E-Z-VENT may be installed in a basement, utility room, attic, closet or heated crawl space. Generally, the order of preference would be:

- **BEST LOCATION:** Basement, Utility Room or Closet
- **ACCEPTABLE LOCATION:** Attic or Heated Crawl Space
- **POOR LOCATION:** Any area exposed to outside temperature including an unheated crawl space or garage.

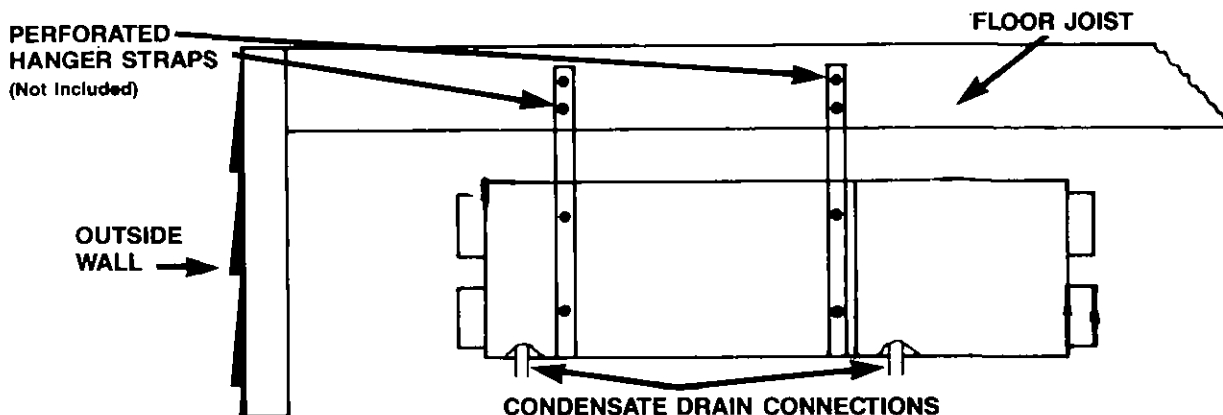
In most cases, installation in the basement is preferable because:

1. The basement allows easy access for installation and maintenance.
2. Installing ductwork in the basement is relatively easy.
3. Penetrating the vapor barrier with ductwork in the basement ceiling is less critical than doing so in the attic floor.
4. When outside supply and exhaust vents are installed below the lowest supply or return grille within the house, the chances of cold backdraft through the ductwork when the E-Z-VENT is off are minimized. A backdraft damper would therefore not be necessary.

INSTALLATION AND MOUNTING OF E-Z-VENT SERIES 300

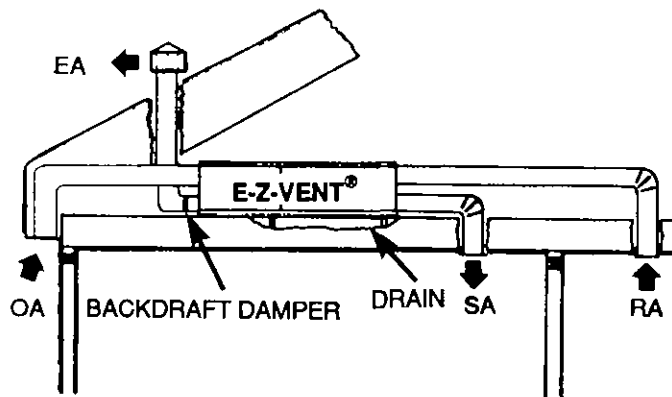
Basement or Suspended Installation

1. Suspend the E-Z-VENT from the floor joists by cradling the unit with two (2) perforated hanger straps (not provided) and fasten them securely to the joists.
2. Care should be taken not to block fan access, filters or condensate drain tubes with the straps.
3. If desired, one or two screws (not longer than 1") can be inserted through the hanger straps into the unit. **DO NOT** put screws in the bottom of the unit as condensate leakage could result.
4. The E-Z-VENT unit should be mounted so it is perfectly level.
5. Mount the E-Z-VENT as close to an outside wall as possible so that duct runs can be minimized. (But keep in mind the ductwork design for the rest of the house.)
6. If possible, mount the E-Z-VENT so that the outside supply and exhaust ducts can be placed on the south side (or sunny side) of the house. This will provide a small amount of preheating of incoming air.
7. See DUCTWORK DESIGN Section before installing ductwork.
8. Be sure to allow access for maintenance.
9. Allow room for drain and make provisions for drainage of condensate. See DRAINAGE Section.



Attic or Non-Suspended Mounting

1. Mount E-Z-VENT at the top of the joists or truss cord.
2. The E-Z-VENT should be mounted so it is perfectly level.
3. Allow room for drain pipe and drainage system. See DRAINAGE Section.
4. Mount the E-Z-VENT as close to an outside wall as possible to minimize ductwork. Ductwork to and from the heated space and areas outside the envelope of the home will require insulation.
5. See DUCTWORK DESIGN Section before installing ductwork.
6. If the E-Z-VENT is installed in the attic or in any location where it is not at least 3 feet BELOW the lowest supply and exhaust grille, a backdraft damper should be installed in the exhaust duct on the cold side of the E-Z-VENT.
7. Be sure to allow access for maintenance.

**Utility/Laundry Room Installation**

1. Where space is at a minimum, E-Z-VENT Series 300 can be installed vertically with an optional vertical mounting base. See options section.

DESIGNING AND INSTALLING THE DUCTWORK SYSTEM (Also see E-Z-Install Method)

The ductwork system could be the most difficult part of the installation, but with careful planning and an understanding of the system, it can be made easy. **Good ductwork design is critical to airflows and heat recovery!**

Note:

Proper planning of your ductwork system should not only include removing polluted air and replacing it with fresh air, it should also include a balanced system so there are no stagnant areas and drafts. Therefore, the placement of outside/supply and exhaust/return ducts will be important.

Location of Supply (Fresh) and Return (Polluted) Air Ducts

1. RETURN AIR ducts should be placed in rooms with the highest pollution and humidity levels. These could include the kitchen, bathroom and laundry rooms (or any room with high usage or pollution levels).
2. SUPPLY AIR ducts should be placed in living rooms, bedrooms, family rooms and hallways.

These are only **SUGGESTED** areas of placement. All homes will vary. Take these factors into consideration for your home:

1. Are there smokers in the house? If so, where do they usually smoke?
2. Do you do a lot of cooking?
3. Do you have many parties (and where)?
4. Do you have a gas stove?
5. Where is the most carpeting, furniture, paneling, etc. that will contain pollutants?
6. Are there certain damp areas in the home?
7. Do you have a pet and where does it usually stay?
8. Ask yourself questions such as these about the pollutants and humidity in your home to locate the highest contamination areas.

Ductwork from the E-Z-VENT to the HOUSE INTERIOR

1. All ductwork should be as short as possible. This will minimize ductwork and labor costs.
2. Choose the proper ductwork (galvanized steel if possible). Some areas of the ductwork that are in an unheated area must be insulated.
3. Limit the number of elbows and tees or extreme changes of direction. Make bends as gradual as practical. The less you have, the greater the airflow and heat recovery.
4. Use a high quality duct tape to securely fasten all ductwork joints to minimize heat losses.
5. **DO NOT** put ductwork in exterior, insulated walls.
6. Install main dampers in the supply/return ductwork just opposite the E-Z-VENT on the warm side to prevent drafts when the E-Z-VENT is not operating and for system balancing. (See Figure 7 in next section).
7. The outside/supply ducts should be located as far away from the exhaust/return as practical to produce an even flow and avoid drafts or stagnant areas.

Ductwork from the E-Z-VENT to the House Exterior

1. **MAKE SURE** the supply duct and the exhaust duct are at least 6 to 8 feet apart.
2. If the supply duct is placed on the south side (or sunny area) of the house, this will provide a small amount of pre-heating of incoming air.
3. Avoid placing the supply duct downwind from the exhaust air duct, otherwise the supply may become contaminated.
4. For basement installation, place ducts high enough off the ground so that they won't be obstructed by snow, leaves, etc. Place a downward directing cover with screen on the outside wall to cover the duct to prevent foreign matter and insects from entering.
5. **DO NOT** spray insecticides, etc., near outside supply air duct.
6. Turn E-Z-VENT off if you are using large quantities of lawn chemicals, etc. outside.
7. **DO NOT** take outside supply air from garage or other areas of possible contamination (such as near garbage or outside pet houses).
8. For attic installation, if one line is to go through the roof at its termination point, this should be the exhaust air duct. The outside supply duct can be placed in the soffit or end gable.
9. It is usually easiest to take the outside supply and exhaust ducts through the rim or band joints (header) rather than through the foundation wall in a basement installation.

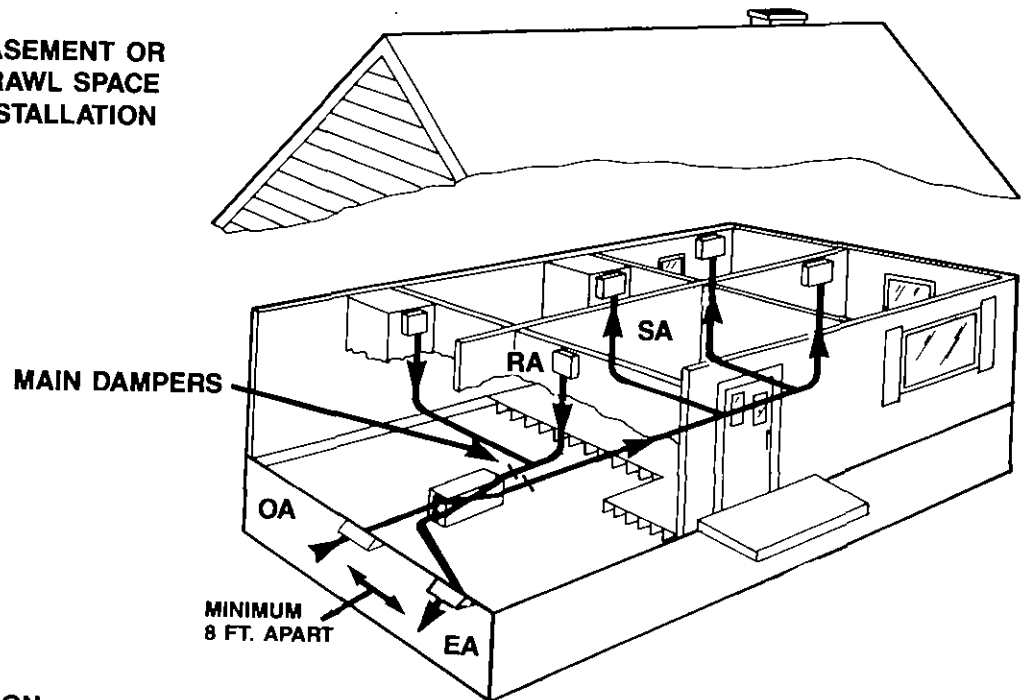
Note:

Wherever your E-Z-VENT is installed, the exhaust duct from the unit to the outside should be pitched TOWARD the E-Z-VENT at a slope of about $\frac{1}{4}$ " per foot. This will eliminate condensate from collecting in the ductwork and will enable it to run into the E-Z-VENT and be drained away. IT IS IMPORTANT to securely fasten and seal duct joints to prevent leakage.

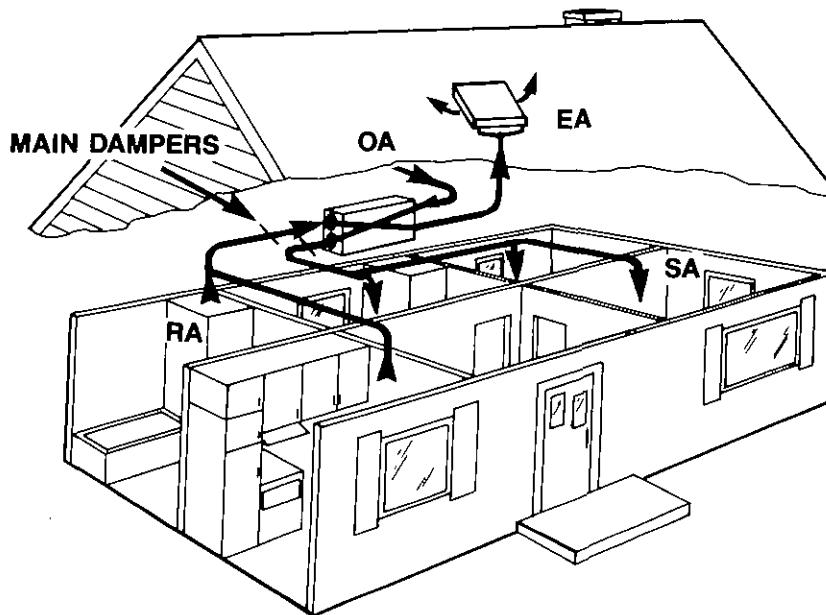
— TIPS AND CAUTIONS ABOUT DUCTWORK INSTALLATION AND DESIGN (Continued) —

The installation diagrams below showing ductwork and airflows are only typical and may vary depending on your particular installation and number of supply and exhaust ducts you choose to install and where you choose to locate them. If you have an unusual application, please consult your dealer or the DLI Residential Division.

BASEMENT OR CRAWL SPACE INSTALLATION



ATTIC INSTALLATION



INSULATION

Insulation serves to avoid unnecessary heat or cooling loss (depending on the time of year). Therefore, portions of the ductwork that are in an unheated space should be insulated. Also, if the E-Z-VENT is in an unheated space, a covering of external insulation would further retard heat loss and the possibility of condensation forming on the casing.

The preferred ductwork is galvanized steel, however, flexible duct can be used and it is easier to install. If insulation with a high permeance rating is used, it should be covered with an unbroken vapor barrier.

BALANCING THE AIRFLOWS

After the installation is complete, the air distribution system should be balanced to a zero net pressure in the house.

- A. A positive net pressure could reduce natural air infiltration too much. This could cause moisture to collect and freeze in house cavities (causing building damage) or cause the unit itself to freeze. (In colder areas, a defrost control option would still be required for freeze protection of the unit.)
- B. A negative pressure could increase natural air infiltration too much, which would defeat the purpose of the E-Z-VENT unit.

To Balance the System:

1. The ideal situation for balancing would be at low wind conditions with indoor and outdoor temperatures relatively the same. If this is not practical at the time, the system should be balanced again when conditions are more ideal.
2. Close up house as tightly as possible by closing doors, windows, sealing fireplaces, turning off any vent fans, etc.
3. Turn on the E-Z-VENT at full speed.
4. Open one window approximately 1-inch. (As far away from the E-Z-VENT as possible.)
5. Use a smoke pencil to help judge air movement.
6. Using two people, one at the dampers and one at the window, adjust the main dampers in the supply and return ductwork (just opposite the warm side of the E-Z-VENT) so that no air or smoke can be detected entering or leaving the crack in the open window.
7. After the total system is balanced, regulate airflow at each grille and register.
8. E-Z-VENT II - Balancing can be easily accomplished by adjusting the two integral, variable speed controls.

GRILLE LOCATIONS

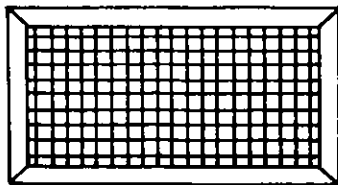
Basement, Closet or Heated Crawl Space Installation

If you install your E-Z-VENT in the basement, closet or heated crawl space, the best location for the supply and/or return air duct grilles or diffusers is high on the side wall, 6 to 12 inches from the ceiling. If preferred, the ductwork could be run to the ceiling, but additional ductwork and labor would be involved.

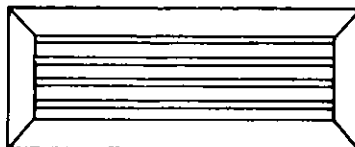
Attic Installation

If you install the E-Z-VENT in the attic, locate the supply and/or exhaust duct grilles in the ceiling. This is a good location and will also minimize ductwork and labor.

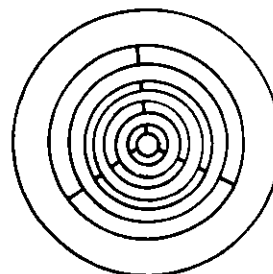
Supply Air Grille



Return Air Grille

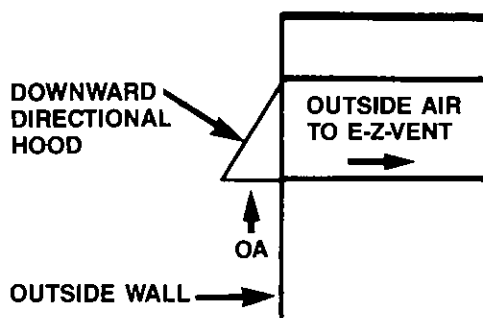


Ceiling Diffuser



OUTSIDE EXHAUST AND SUPPLY DUCT COVERS

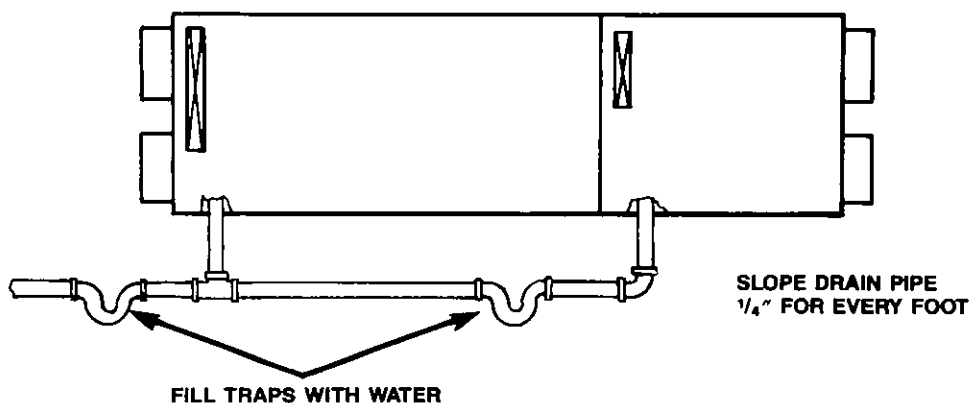
Both the outside exhaust and supply ducts should be covered with a downward directional hood with protective screen to prevent foreign matter and insects from entering the unit.



Note: Installation of Backdraft Dampers are recommended to prevent entry of cold, outside air when unit is not running.

PLUMBING E-Z-VENT SERIES 300

1. The E-Z-VENT is equipped with (2) $\frac{1}{2}$ -inch tube drains to accommodate condensate. The drains can be piped using $\frac{1}{2}$ -inch tubing or PVC piping (not included).
2. Design the piping with traps as per the illustration below, making sure there is no leakage of condensate.
3. Immediately after the exchanger and the piping is installed, the traps should be filled with water to permit proper drainage.
4. The E-Z-VENT must be installed level to allow proper drainage of condensate to the unit drain outlets.
5. Install the drain pipe so that it slopes away from the unit at a slope of $\frac{1}{4}$ -inch for every foot of pipe.
6. Drain condensate into a waste pipe, foundation or floor drain. Condensate can vary from negligible amounts up to 4 quarts per day.
7. Keep the pipe, especially the traps, from freezing. The simplest means of freeze protection is to locate the majority of the piping, as well as the drain traps, within the heated space.
8. Any piping that passes through an unheated area should be insulated to at least R-5.
9. If heat tape is needed to keep the pipes warm, a non-combustible insulation such as fiberglass should be used as pipe insulation. Copper pipe should also be used as plastic pipe could be damaged by the heat tape.
10. As an alternate, separate flex tubing for each drain can be installed on each condensate drain and run to a sink or other approved water drain.



PLUMBING E-Z-VENT II

E-Z-VENT II models have a simpler system for the drainage of condensate. Each unit contains one drain connection and the installer connects $\frac{5}{8}$ " clear plastic tubing or rubber hose to drain plug you previously installed on unit or the $\frac{1}{2}$ " copper drain and run tubing to a convenient disposal site such as a sink or floor drain. The plastic tubing should be "looped" into a circle approximately 6" in diameter and partially filled with water to form a trap so that air will not be drawn into the unit. Note: The rubber drain plug is shipped sealed at drain end. Carefully cut off end to allow condensate to flow through plug.

E-Z-VENT II INSTALLATION AND MOUNTING

BEFORE PROCEEDING WITH INSTALLATION, PLEASE READ THIS DOCUMENT FIRST!

CAUTION! On units with ICE-ZAPPER DEFROST, the temperature sensing capillary is inserted into the folds of the heat exchanger. INSURE THAT CAPILLARY IS REMOVED BEFORE REMOVING HEAT EXCHANGER CORE FROM CASING!

PREPARATION

DUCT COLLARS AND HANGER STRAPS, DRAIN PLUG

Four 6-inch duct collars and 4 hanger straps are packed inside your E-Z-VENT II. Remove the 4 duct collars and twist onto the four 6-inch holes on the unit. To hang your E-Z-VENT, attach the hanger straps to each upper corner of the unit and firmly attach to a convenient truss or beam, taking care to assure unit is mounted level. Also packed inside the unit is a rubber drain plug which is to be pushed into the condensate drain opening in the bottom of the unit. With access door open and the heat exchanger core removed, the drain hole is easily visible. Working from the inside of the unit, force drain plug through the hole so that it protrudes through the floor and "snaps" into place. To assure against water or air leakage, it's recommended that the drain plug and the duct collars be sealed with silicone.

INSTALLATION

ELECTRICAL

E-Z-VENT II requires 4 amps (6.7 with defrost). Remove cover plate on control panel carefully and locate power connection wires. Hand wire power connection to an adequately rated power source. See E-Z-VENT II electrical schematic.

If remote operation is desired, it is suggested that the 115 volt power source serving the E-Z-VENT be controlled by a simple on-off switch mounted in a convenient location.

DUCTING

For outside air inlet and exhaust air outlet, generally follow instructions for Series 300 in this manual, insuring that the inlet and outlet are at least 6 feet apart. For ducting to the house interior (supply and return), either follow manual for a dedicated duct system or when selecting the "E-Z-Install" method, note E-Z-Install instructions for connection to existing warm air ducts.

BALANCING AIRFLOWS

Follow procedure in manual or measure each airflow with an anemometer for precise control. The two airstreams can be easily adjusted by means of the separate variable speed controls mounted on the unit. The variable speed controls are used instead of dampers to achieve balancing.

E-Z INSTALL METHOD FOR HOMES WITH HOT AIR HEAT

Your E-Z-VENT can be installed utilizing the existing hot air duct system in those homes with hot air heat, thus saving hundreds of dollars in installation.

PREPARATION

Select an installation site in accordance with instructions in the installation and mounting section dealing with basements. You may select either the hot air furnace return or supply duct to connect to the E-Z-VENT supply, but airflow movement will allow for better air distribution if the supply duct plenum is chosen. With this method, the existing hot air outlet grilles distribute the fresh air to all areas of the home.

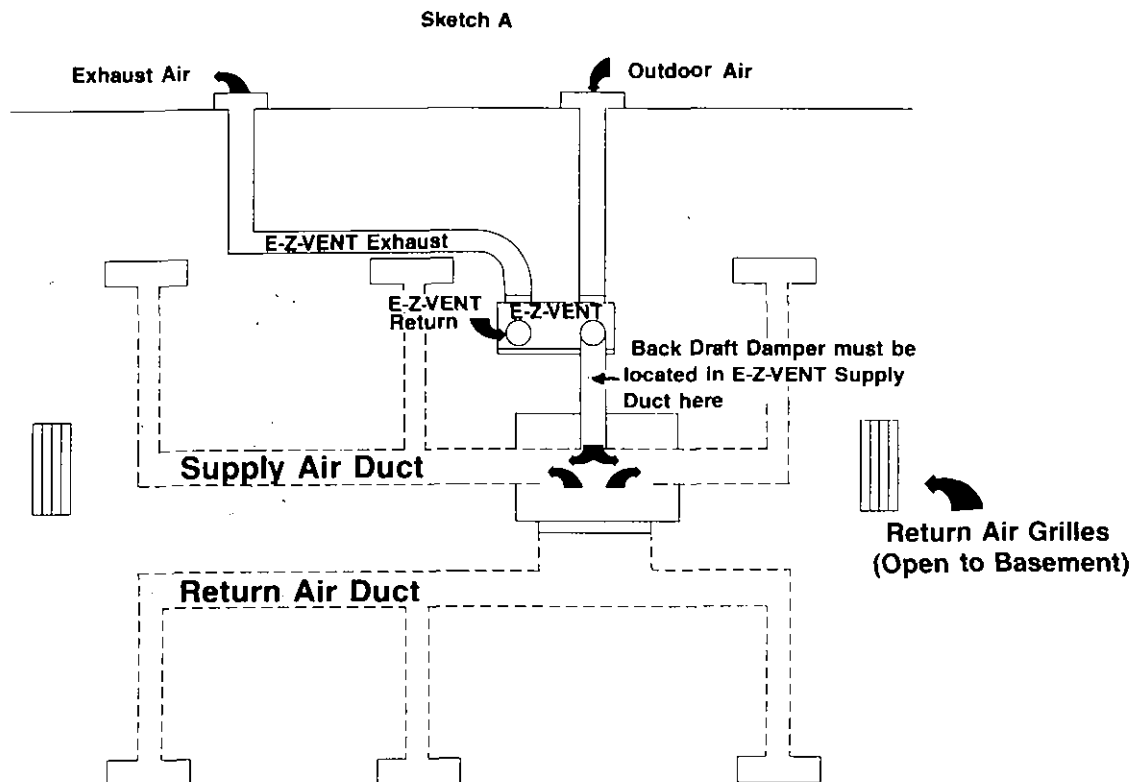
For exhausting stale air back to the E-Z-VENT, a simple method is to install floor registers between the first floor and the basement. By supplying air through the existing warm air ducts, a positive pressure is created in the home, thus forcing existing stale room air through the return grilles back to the basement where it is collected by the return air system of the E-Z-VENT. See Sketch A.

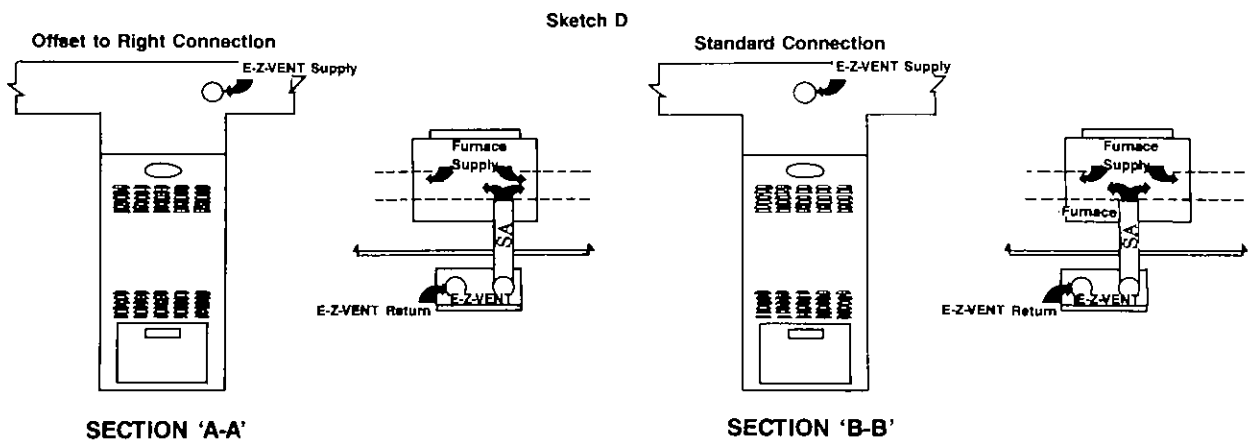
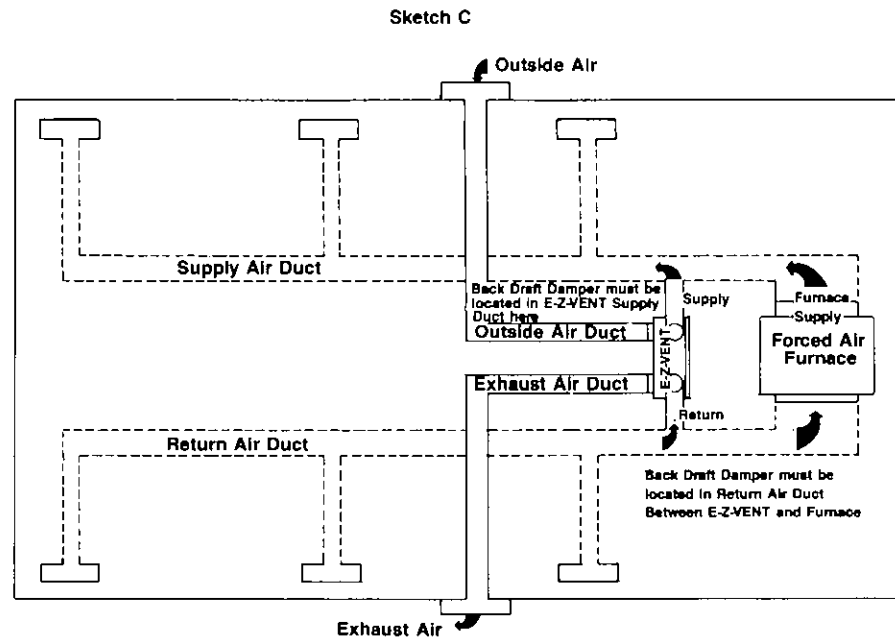
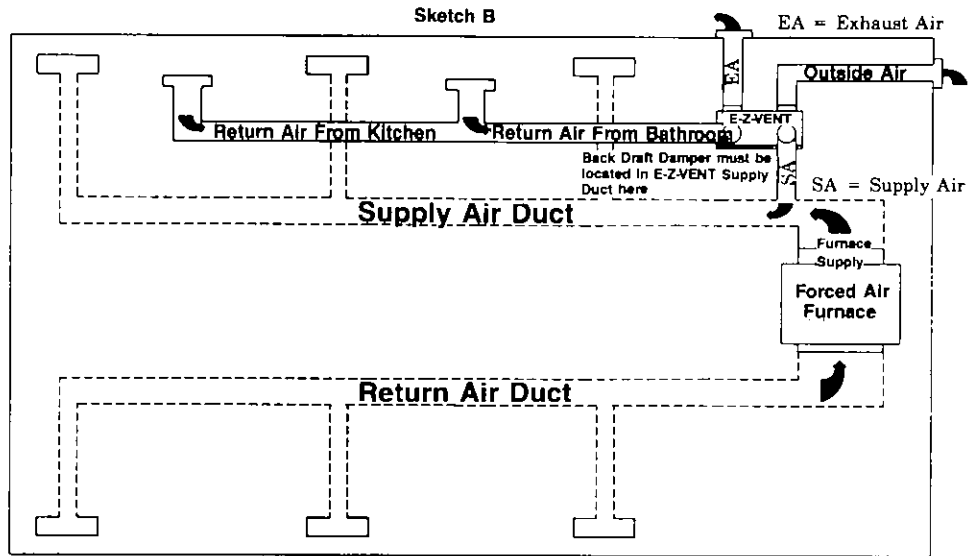
As an alternative to assure quicker removal of polluted room air, install return air outlets in the kitchen and bath areas and duct directly back to the return air connection on the E-Z-VENT. See Sketch B.

A third alternative for removal of stale air would be to duct off the furnace return air duct BEFORE (upstream) any supply air connections. With this method, your furnace return air inlets pick up the polluted air and this air is partially "bled off" from the air returning to the furnace. See Sketch C.

AS AN ADDED BENEFIT

By carefully selecting an "off center" supply air connection to the furnace plenum, the E-Z-VENT can help achieve a better air temperature mixture or even additional airflow to distant rooms. If the duct serving the right side of the home is not providing sufficient air in a dual-trunk, furnace supply system; then install the E-Z-VENT supply to the left of center in the furnace plenum. Conversely, if the left side needs more air, simply offset the supply connection to the right side of the plenum. See Sketch D which shows standard and offset supply air connections.





S1 CONTROL POWER
ON-OFF SWITCH

S2 INTAKE FAN
ON-OFF SWITCH
& SPEED CONTROL

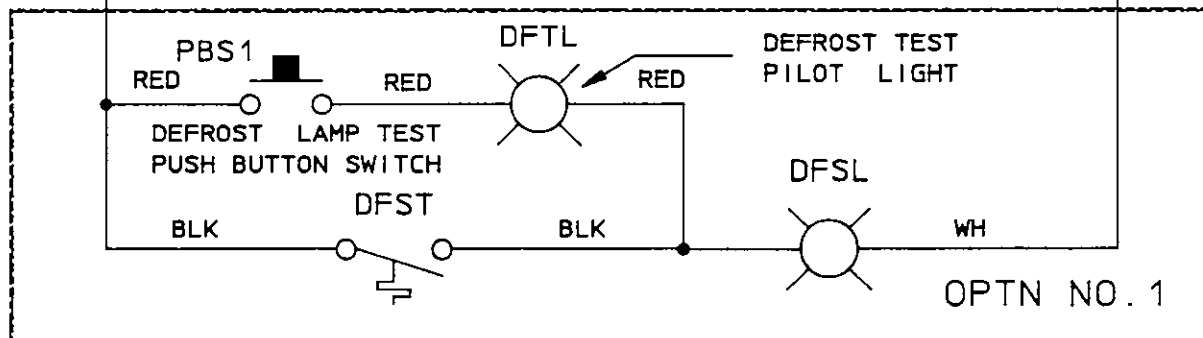
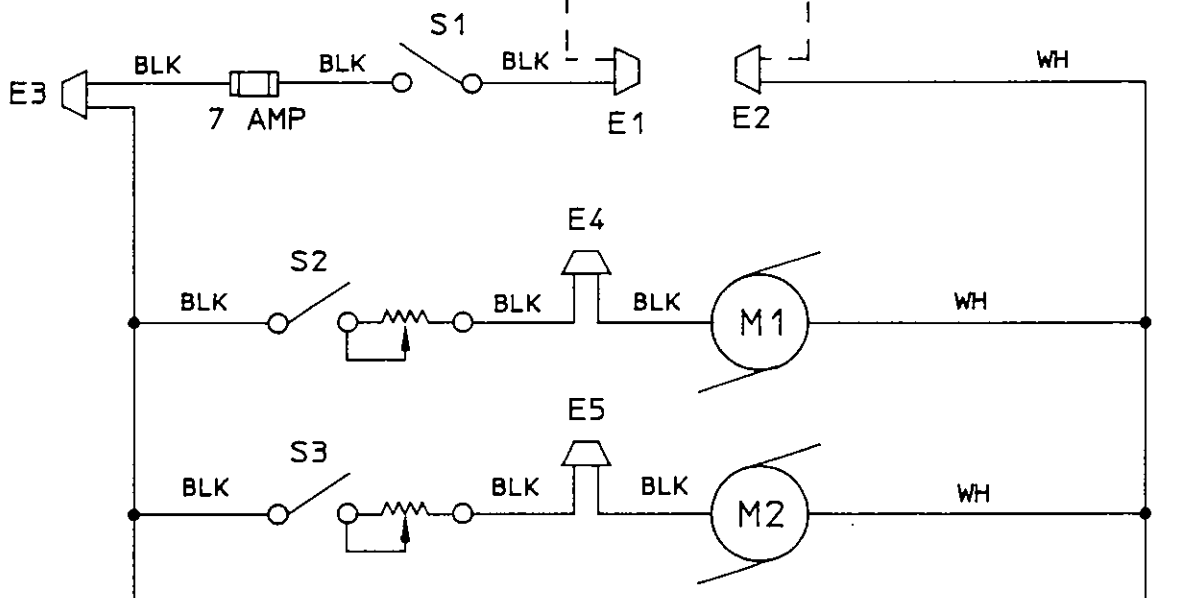
S3 EXHAUST FAN
ON-OFF SWITCH
& SPEED CONTROL

M1 INTAKE AIR
FAN MOTOR

M2 EXHAUST AIR
FAN MOTOR

WIRE NUT

115V-1 ϕ -60HZ
POWER FEED
BY CUSTOMER



☐ OPTION NO. 1
DEFROST CONTROL

DFST DEFROST THERMOSTAT
LOCATE BULB IN EXHAUST
AIR STREAM AFTER HEAT
EXCHANGER SET AT 35°F

DFSL DEFROST LAMP
LOCATE LAMP IN INTAKE
AIR BEFORE HEAT
EXCHANGER

		DES CHAMPS LABS, INC.		
		PO BOX 440 EAST HANOVER NEW JERSEY 07936		
		(201)884-1460		TLX#64-2030
JOB		EZV-II		115V-1 ϕ -60HZ
TITLE ELECTRIC SCHEMATIC				
DWN	RWS	DATE 1-17-89	APPD	DATE
SCALE	JOB NO	DWG NO A-990036	REV B	

ELECTRICAL

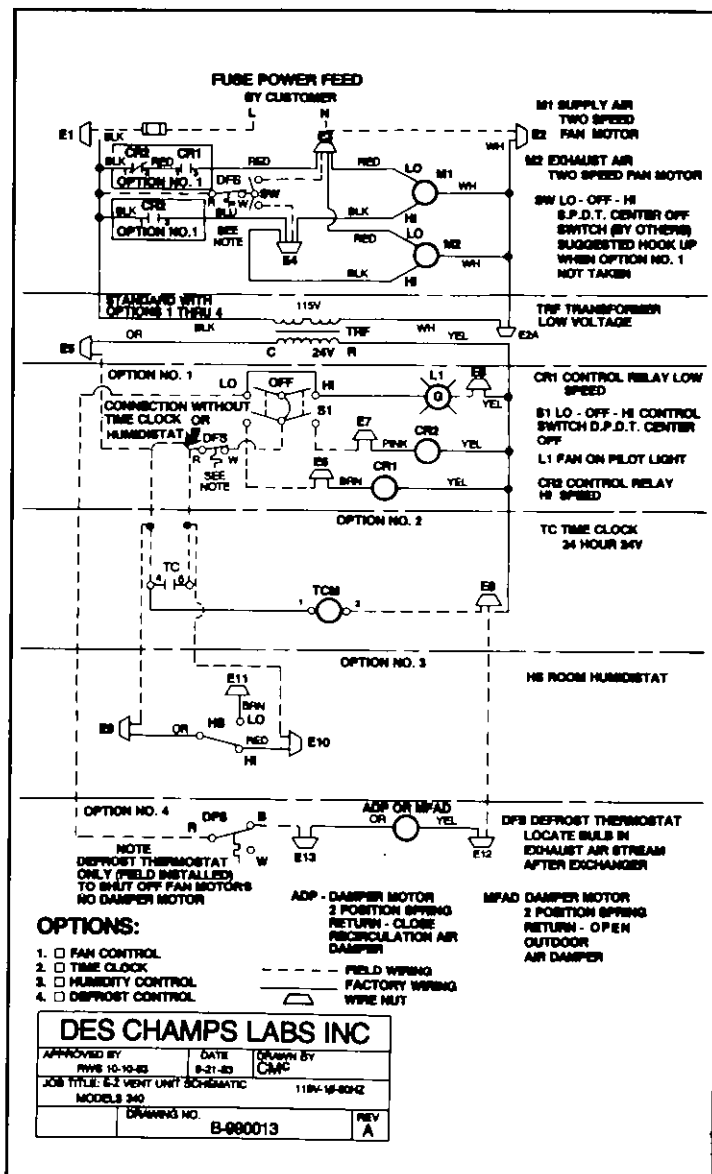
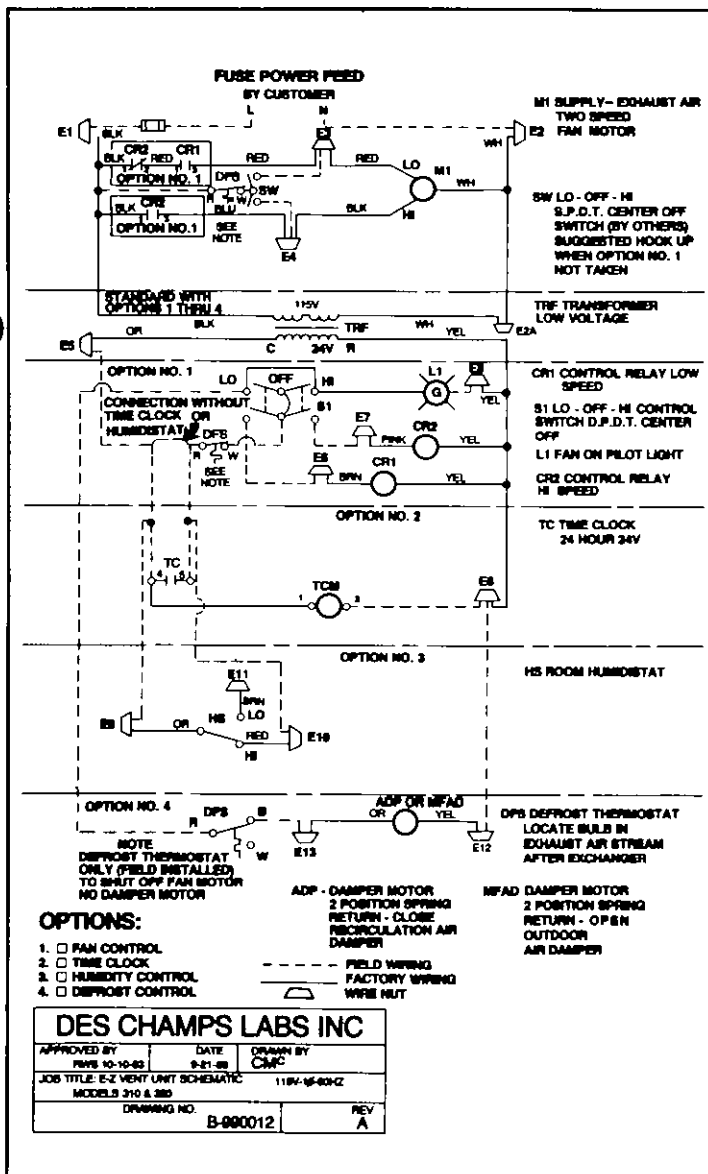
The E-Z-VENT is designed to operate, and rated accordingly, for 115 Volt AC. 60 HZ single phase current only. Any deviation could result in voiding your warranty. It is recommended that a safety switch be installed at the unit so that power may be shut off when any type of service or maintenance is performed.

The following wiring diagrams show most typical installations utilizing all combinations of factory options. (All options must be field installed). Any deviation from suggested diagrams should be checked with a qualified electrician.

*only
use High
Speed*

ELECTRICAL WIRING DIAGRAMS FOR E-Z-VENT SERIES 300

CHECK TITLE BLOCK FOR APPROPRIATE MODEL NUMBER



CONTROL OPTIONS E-Z-VENT SERIES 300

E-Z-VENT can be controlled automatically, manually or both. The exact means of turning the unit on and off will depend upon the particular house and the lifestyles of the occupants and the options they select.

The following is a list of options for the E-Z-VENT which are available from your dealer or directly through Des Champs Laboratories.

Option	Description
Remote Hi/Low/Off Switch (Part No. WSOO)	This option allows for the unit to be operated manually with an on/off-high/low speed control. It includes a three position switch, operation light, wall plate and a twenty-four volt transformer. The transformer is mounted in a separate box for easy installation.
Humidistat (Part No. WSHO)	Provides automatic fan control in order to maintain the humidity level below a pre-set point. It senses the relative humidity level within the house and activates the heat exchanger if the relative humidity rises to a pre-set level. The humidistat should be mounted in a central location out of the sun. It should be placed so as to reflect the average humidity level of the space.
Time Clock w/Manual Override (Part No. WSCO)	Allows the unit to be operated manually or by a twenty-four hour time clock. Timer may be set for automatic on/off cycling of the E-Z-VENT.
Humidistat/Time Clock (Part No. WSHC)	Allows the unit to be operated manually by a pre-set humidistat or by a twenty-four hour time clock.

The WSHO, WSCO and WSHC include an attractive wall-mounted control box. Also included with these options are a three position switch, operation light and a twenty-four volt transformer with all necessary relays. These options should be wired as outlined in the electrical section.

Manual controlling switches should be located in areas such as bathrooms, laundry and kitchens. When activities take place which create high moisture or pollution, the switch should be turned on.

DEFROST CONTROL OPTIONS E-Z-VENT SERIES 300

When using an air-to-air heat exchanger in any climate with more than 4000 degree days, it is possible to encounter some frosting of the heat exchanger core. Generally, it is dependent upon a combination of indoor and outdoor temperatures and indoor air relative humidity. To prevent frosting problems, Des Champs Laboratories offer three different options:

Thermostat Defrost Control (Part No. TDC)	This package utilizes a remote bulb thermostat which shuts the heat exchanger off when defrosting is necessary. The bulb of the thermostat is to be placed on the exhaust side of the heat exchanger. This is the location where frost first starts to form. The thermostat is set to shut the unit off when the temperature in this area reaches 29°F - 31°F. When the temperature rises to 33°F - 35°F, the E-Z-VENT will restart. This is the simplest and least expensive way to handle frosting problems. THIS METHOD WILL SHUT OFF BOTH FANS AND SHOULD BE USED ONLY WHEN THE E-Z-VENT IS INSTALLED IN A HEATED LOCATION.
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DEFROST CONTROL OPTIONS (Continued)

In the event that the E-Z-VENT is the only means of exhausting from a space (such as a bathroom), then we recommend the following defrosting packages:

● **Motorized Fresh Air Damper
(Part No. MFAD)**

These packages utilize the same thermostat as the TDC package but include a section of ductwork with a motorized damper which is placed on the fresh air side of the heat exchanger. When the thermostat bulb senses 29°F-31°F, the motor closes the damper. This action reduces the volume of cold outside air brought into the heat exchanger while maintaining the normal exhaust flow. This condition will raise the temperature within the heat exchanger and thus accomplish the defrost. When the thermostat bulb senses 33°F - 35°F, the damper is returned to the open position and the E-Z-VENT assumes normal operation.

**Automatic Defrost Package
(Part No. ADP)**

The thermostat controls a mechanically operated damper which momentarily modulates to recirculate the room air which prevents frost build-up in the heat exchanger.

VERTICAL MOUNTING BASE OPTION E-Z-VENT SERIES 300

**Vertical Mounting Base
(Part No. VMB)**

Permits the E-Z-VENT to be installed in a vertical position. This option increases Models 310 and 320 by 7½ inches and Model 340 by 9½ inches. The unit contains condensate drain connections and is pre-gasketed. Designed for easy installation.

OPTIONS – E-Z-VENT II

● **E-Z-Install Kit**

Provides virtually all accessories needed to install E-Z-VENT in E-Z-INSTALL method - Sketch A. Kit contains 10' polyethelene drain hose, 2 -6" wall vents with backdraft dampers, hose clamp, 2 -6"x12" floor grilles and register heads, 1 -6" spin collar, 7-adjustable elbows, 1 roll duct tape, 1 tube silicone, sheet metal and wood screws plus 6 panduit straps.

6" Diam. Flex Duct (50')

Not provided with above E-Z-INSTALL Kit. Flex duct to run supply and return ducts.

Replacement Filters

Box of 24-8"x16" disposable filters.

Electrostatic Outside Air Filter

Permits continual filtration of outside air. Removes many small particles not possible with standard filters.

#460 Air Meter

Measures air flows to aid in balancing.

DEFROST CONTROL OPTION E-Z-VENT II

Installation

The radiant heating ICE-ZAPPER defrost system is factory set and installed to prevent frost from forming in the heat exchanger core. No further adjustment is required.

● **Operation**

When the exhaust air temperature falls below the set point of the defrost thermostat, the heating element is activated, raising the temperature of the heat exchanger plates which prevents frost from developing. Ventilation is continued during this cycle.

MAINTENANCE

Filters:

The supply and exhaust air filters should be cleaned every three (3) months to ensure proper operation. Remove the filter frame with the filter and run water through or vacuum the media. With proper cleaning, the filters should last several years.

E-Z-VENT II - Comes with standard (8" x 16") disposable filters. Replace when necessary.

Fan Motor(s):

Require no regular maintenance.

Heat Exchanger Core:

The heat exchanger core is a continuous sheet of formed and folded aluminum and requires no maintenance. Because there is a filter on both the supply side (incoming air) and the exhaust side (outgoing air), there is no need to clean the core. Only filtered, fresh air flows through the core.

Defrost Controls:

Attention must be given, so as not to kink the capillary tube upon removal of the element from the heat exchanger core. This procedure may become necessary if the heat exchanger is removed from the E-Z-Vent II.

Also, periodically test the 150 watt bulb to assure it is operational. To do so, simply press the defrost button on control panel. If indicator light on panel lights, system is operational.

Optional Electrostatic Air Filter

This filter may be cleaned by vacuuming or by running water from the side facing the heat exchanger. See manufacturer's instructions packed with each unit.

NOTES

WARRANTY

LIMITED WARRANTIES WITHIN THE U.S.A. AND CANADA

If E-Z-VENT fails to function within one year after the date of its original purchase, due to a defect in material or workmanship of any part of the product, Des Champs will furnish a new or rebuilt part, F.O.B. factory, to replace the defective part. All delivery, installation, and labor costs being the owner's responsibility.

The above warranty does not cover failure to function caused by damage to the unit while in your possession (other than damage caused by defect or malfunction), or by its improper installation or by unreasonable use of the unit, including with limitation, failure to provide reasonable and necessary maintenance or to follow the written installation and use instruction on which this warranty appears.

THE REMEDIES PROVIDED FOR THE ABOVE EXPRESS WARRANTY ARE THE SOLE AND EXCLUSIVE REMEDIES. THEREFORE, NO OTHER EXPRESS WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE ORIGINAL DATE OF PURCHASE. IN NO EVENT SHALL DLI BE LIABLE FOR INCIDENTAL EXPENSES OR CONSEQUENTIAL DAMAGES. NO WARRANTIES, EXPRESS, OR IMPLIED, ARE MADE TO ANY BUYER FOR RESALE.

Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

No warranties are made for units sold outside of the above stated areas. Your distributor or final seller may provide a warranty on units sold outside of these areas.

This warranty is contingent upon the completion and return of the warranty registration card (packed with unit) and a proof of purchase.



DES CHAMPS LABORATORIES WHOLESALE DIVISION

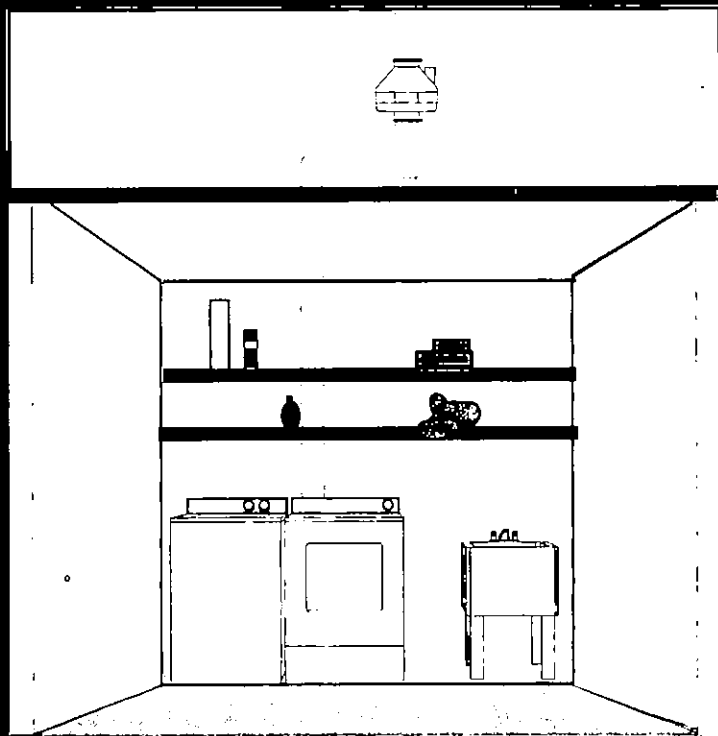
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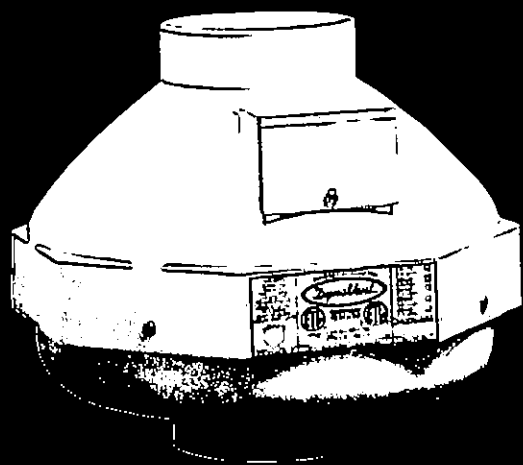


INLINE DRYER BOOST FAN

**INCREASES
PERFORMANCE
AND
EFFICIENCY OF
A CLOTHES
DRYER**



Dryer Boost Application



FEATURES:

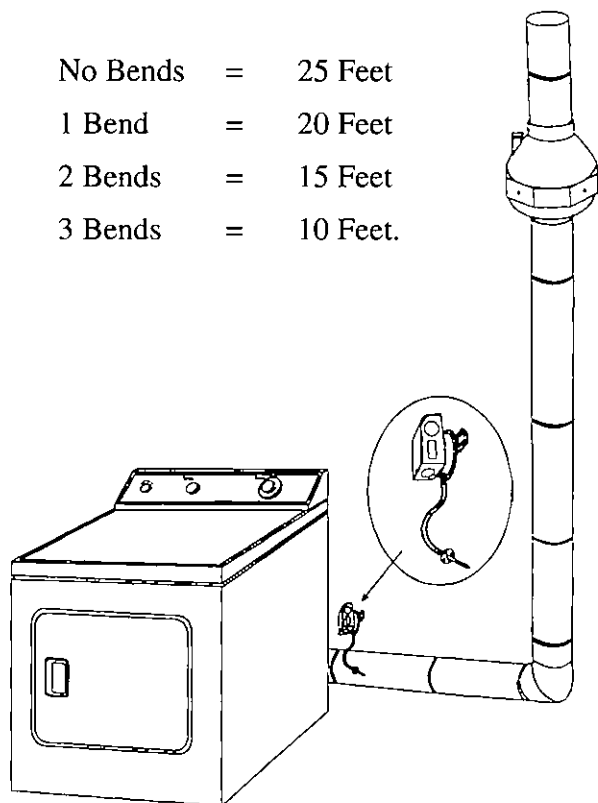
- Remote Mounting
- Ultra Quiet
- Air Flow up to 108 CFM
- Compact
- Lightweight
- Five Year Warranty

See Back For Fan Performance

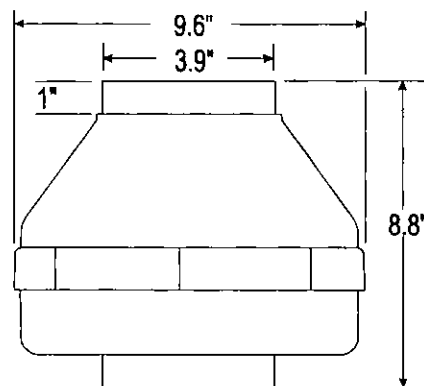
DRYER BOOST PRODUCT SPECIFICATIONS

Dryer Boosting involves adding an auxillary fan inline to a clothes drying system to increase the airflow and efficiency of the dryer in situations of long duct runs. Long duct runs result in longer drying times and excessive wear and tear on the dryer. Dryer Boosting is usually required when the total duct length exceeds the following:

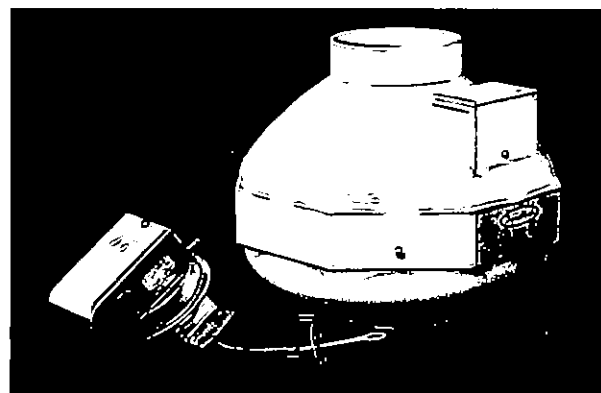
No Bends	=	25 Feet
1 Bend	=	20 Feet
2 Bends	=	15 Feet
3 Bends	=	10 Feet.



DB FAN DIMENSIONS



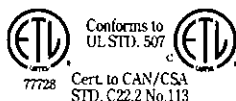
The Dryer Boost Fan is also available as a kit (see below) which includes (1) DB100 Fan with mounting bracket, (1) Pressure Switch, (1) Duct Probe and 3 ft. of Vinyl Tubing.



DB FAN PERFORMANCE

Model	Watts	Weight	Typical CFM vs. Static Pressure					
			0"	.1"	.25"	.5"	.75"	1.0"
DB100	40-46	6 lbs.	108	98	94	64	28	--

Specifications subject to change without notice.



Spruce
Environmental Technologies, Inc.

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Ward Hill, MA 01835
<http://www.spruce.com>

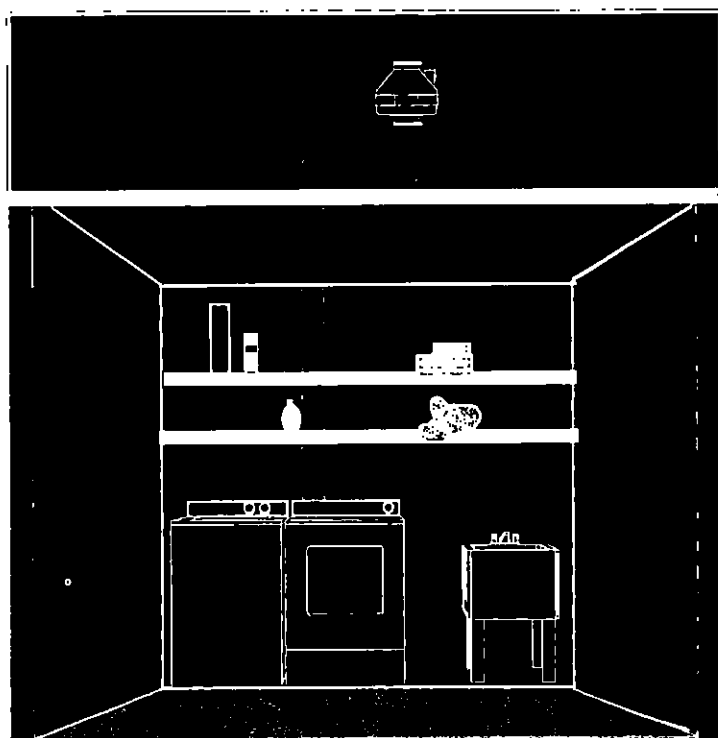
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Tel. (978)-521-0901
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email: sales@spruce.com

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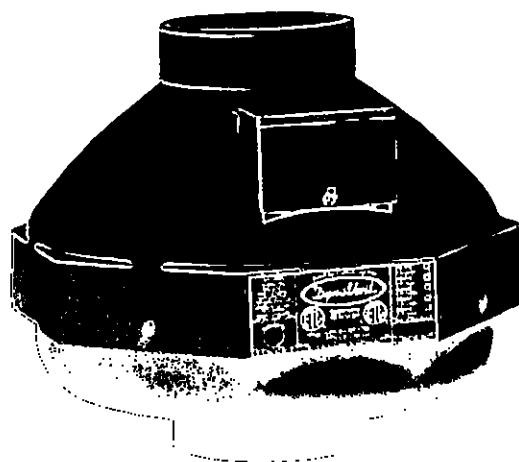


INLINE DRYER BOOST FAN

**INCREASES
PERFORMANCE
AND
EFFICIENCY OF
A CLOTHES
DRYER**



Dryer Boost Application



FEATURES:

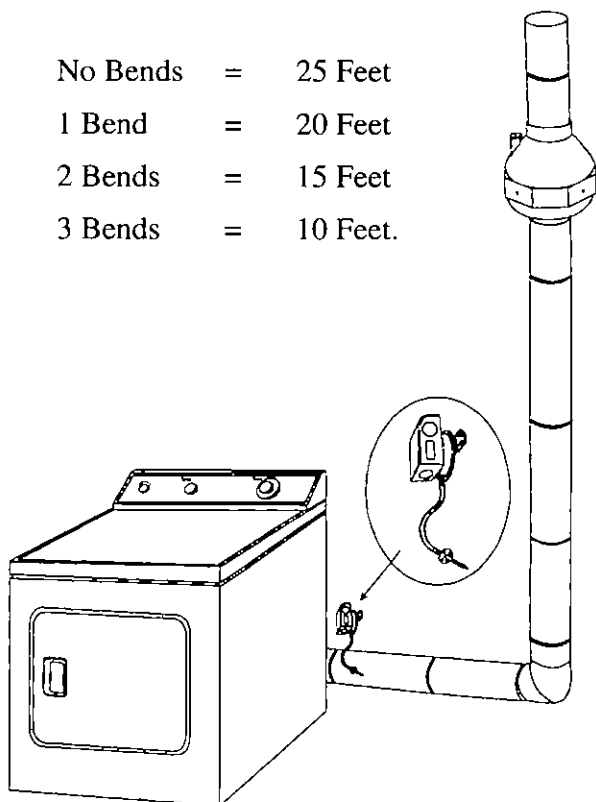
- Remote Mounting
- Ultra Quiet
- Air Flow up to 108 CFM
- Compact
- Lightweight
- Five Year Warranty

See Back For Fan Performance

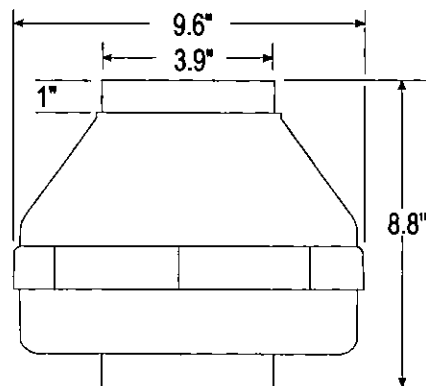
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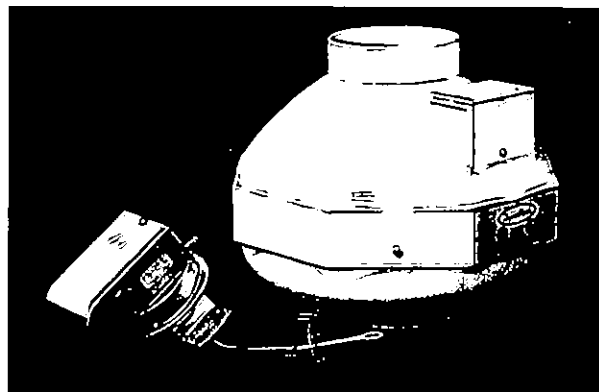
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3 Bends	=	10 Feet.



DB FAN DIMENSIONS



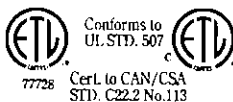
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DB FAN PERFORMANCE

Model	Watts	Weight	Typical CFM vs. Static Pressure					
			0"	.1"	.25"	.5"	.75"	1.0"
DB100	40-46	6 lbs.	108	98	94	64	28	--

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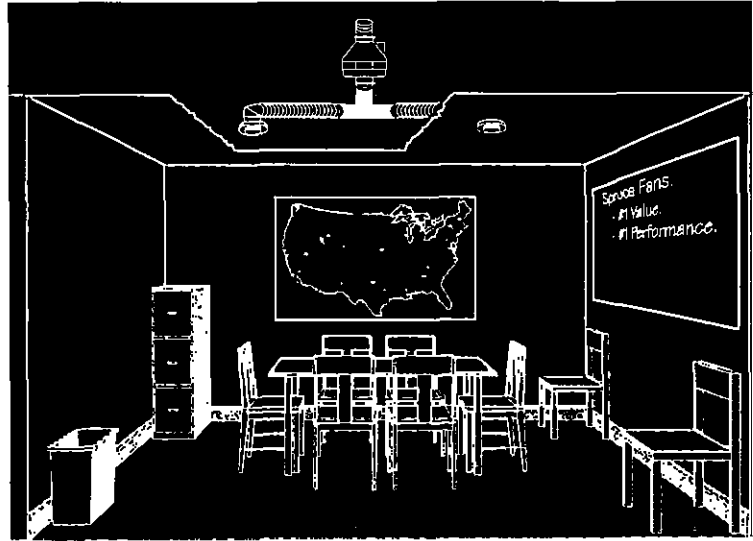


INLINE FANS

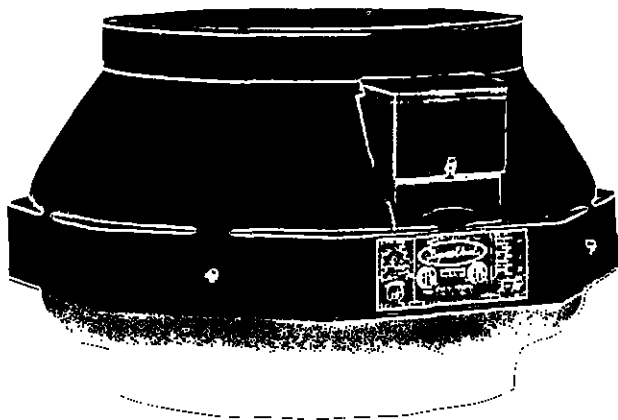
RB SERIES

APPLICATIONS:

- Bathroom Exhaust
- Meeting Room Venting
- Fresh Air Supply
- Building Pressurization
- Game Room Venting
- Duct Boosting
- Garage Venting
- Basement Fresh Air Supply



MEETING ROOM VENTILATION



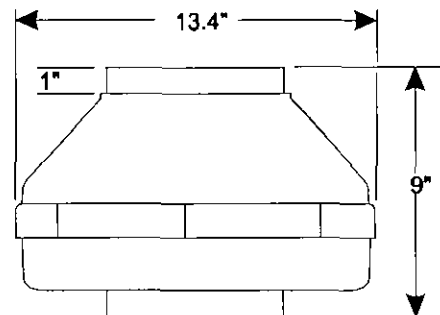
FEATURES:

- Remote Mounting
- Ultra Quiet
- Air Flow up to 510 CFM
- Rated for Continuous Operation
- Commercial or Residential
- Five Year Warranty

RB SERIES PRODUCT SPECIFICATIONS

RB FAN DIMENSIONS

Spruce RB Series Inline Fans are intended for applications requiring higher CFM. The RB Series are remotely mounted virtually eliminating room noise. They can be installed in new or existing construction and carry a five year hassle free warranty. Mounting bracket included.



RB FAN SELECTION GUIDELINES

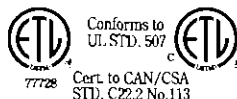
Model	CFM	Duct	Bathroom Exhaust Based on 8 ACH	Living or Office Areas		Building Pressurization
				Intermittent - 6 ACH	Continuous - 0.35 ACH	
RB300	310	6"	Up to 290 sq. ft.	Up to 385 sq. ft.	Up to 6650 sq. ft.	To 6000 sq. ft.
RB400	470	8"	Up to 440 sq. ft.	Up to 590 sq. ft.	Up to 10000 sq. ft.	To 9000 sq. ft.
RB500	510	10"	Up to 480 sq. ft.	Up to 640 sq. ft.	Up to 11000 sq. ft.	To 10000 sq. ft.

ACH = Air Changes per Hour

RB FAN PERFORMANCE

Model	Watts	Weight	Typical CFM vs. Static Pressure									
			0"	.1"	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
RB300	58-84	8 lbs.	310	297	278	240	209	163	111	77	23	--
RB400	89-130	8 lbs.	470	455	419	364	286	225	184	132	66	56
RB500	89-140	9 lbs.	510	490	455	390	292	227	184	132	66	56

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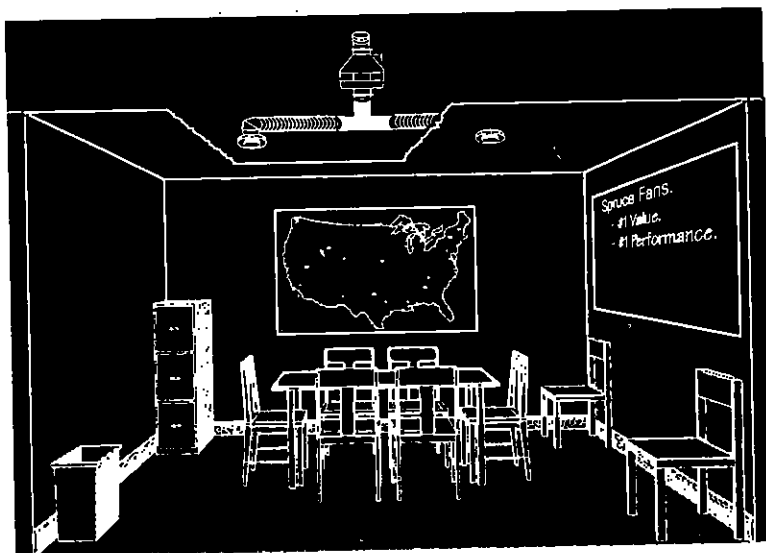


INLINE FANS

RB SERIES

APPLICATIONS:

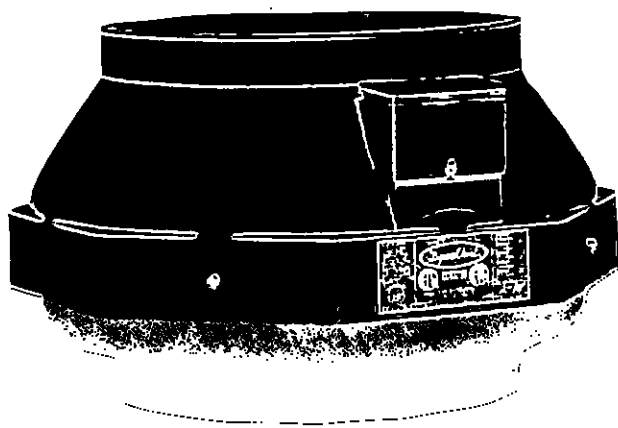
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- Game Room Venting
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- Garage Venting
- Basement Fresh Air Supply



MEETING ROOM VENTILATION

FEATURES:

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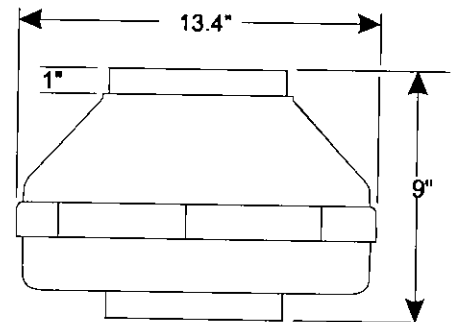


See Back For Fan Selection Guidelines

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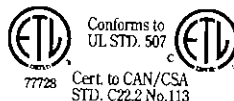
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RB400	89-130	8 lbs.	470	455	419	364	286	225	184	132	66	56
RB500	89-140	9 lbs.	510	490	455	390	292	227	184	132	66	56

Specifications subject to change without notice.



Environmental Technologies, Inc.

187 Neck Road
P.O. Box 8244
Ward Hill, MA 01835
<http://www.spruce.com>

Tel. (800)-355-0901
Tel. (978)-521-0901
Fax. (978)-521-3964
email: sales@spruce.com

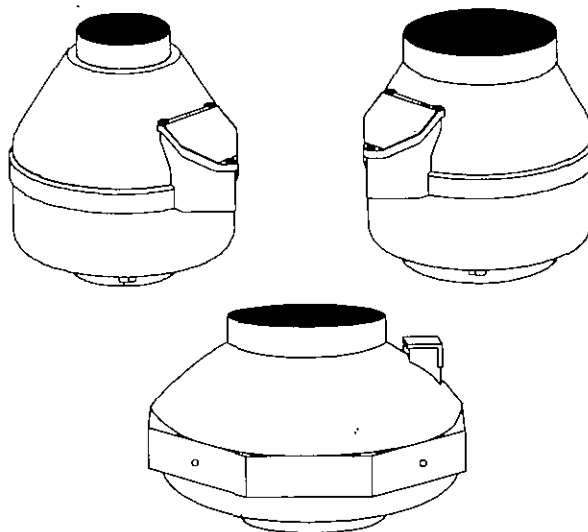
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Environmental Technologies, Inc.

General Purpose Inline Fan Application Notes

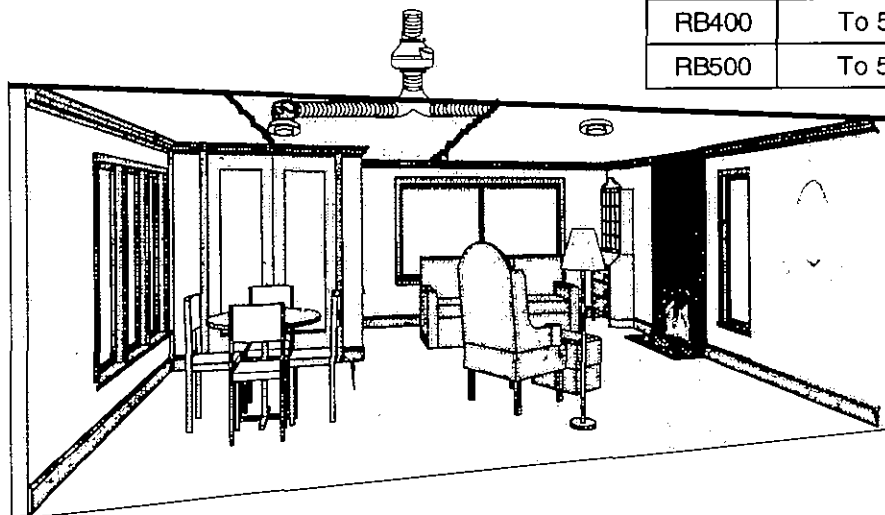
- *HVI Certified*
- *Ultra Quiet*
- *High Performance*
- *Rated for Continuous Duty*
- *Rated for Commercial and Residential Use*
- *Models to Fit Every Need*
- *Five Year Warranty*



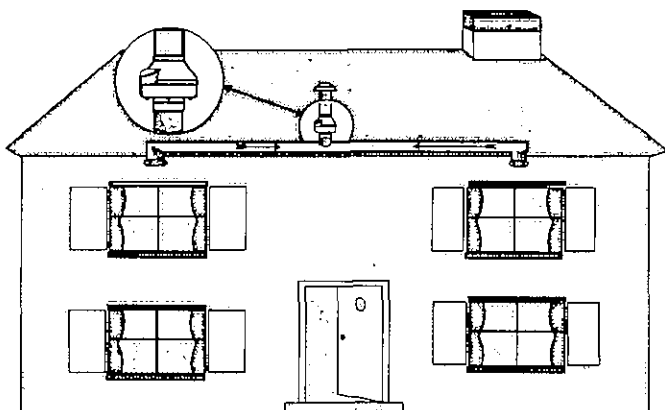
General Ventilation

- Intake or Exhaust
- Intermittent or Continuous
- Remotely mounted fan produces almost no noise in living area

Model	Living or Office Area	
	Intermittent - 6 ACH	Continuous - .35 ACH
RV100	To 125 sq ft	To 2150 sq ft
RV125	To 140 sq ft	To 2360 sq ft
RV150	To 175 sq ft	To 3000 sq ft
RV175	To 200 sq ft	To 3425 sq ft
RV200	To 215 sq ft	To 3650 sq ft
RV250	To 240 sq ft	To 4075 sq ft
RB300	To 365 sq ft	To 6200 sq ft
RB400	To 590 sq ft	To 10000 sq ft
RB500	To 575 sq ft	To 9850 sq ft



Continuous Ventilation

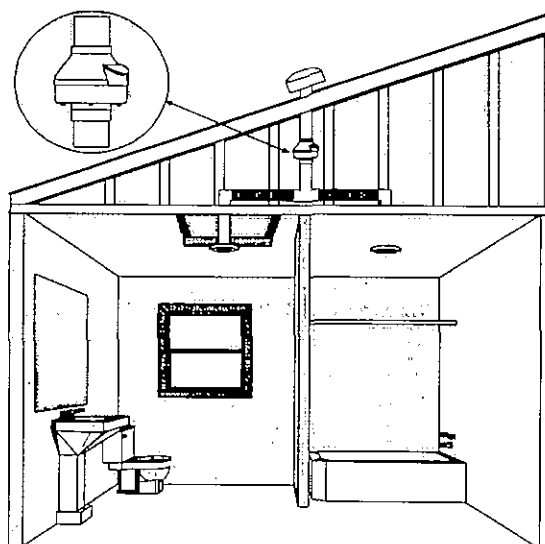


Model	Continuous@ .35 ACH
RV100	To 2150 sq ft
RV125	To 2360 sq ft
RV150	To 3000 sq ft
RV175	To 3425 sq ft
RV200	To 3650 sq ft
RV250	To 4075 sq ft
RB300	To 6200 sq ft
RB400	To 10000 sq ft
RB500	To 9850 sq ft

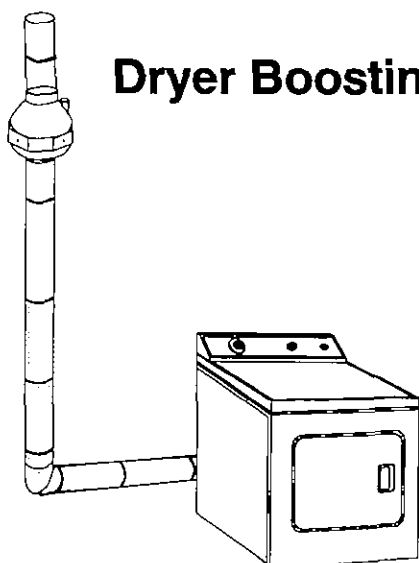
- Attic mounted fan produces almost no noise in bathroom
- Can use multiple inlets with single fan

Model	Bathroom Exhaust Based on 8 ACH
RV100	Up to 95 sq ft
RV125	Up to 105 sq ft
RV150	Up to 130 sq ft
RV175	Up to 150 sq ft
RV200	Up to 160 sq ft
RV250	Up to 180 sq ft
RB300	Up to 270 sq ft
RB400	Up to 440 sq ft
RB500	Up to 430 sq ft

Bathroom Exhausting

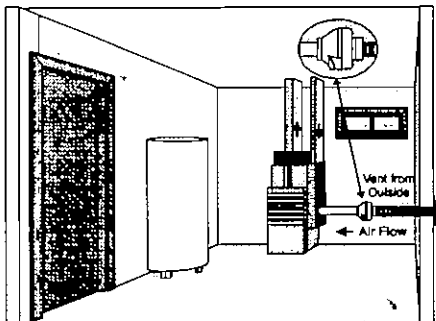


Dryer Boosting



- In many of today's homes, dryers are being installed along interior walls requiring long duct runs which compromise dryer efficiency.
- Use a DB100 Dryer Boost fan when the total duct length exceeds the manufacturer's recommendation
- Ideal for luxury homes, apartments, condominiums and multi-family dwellings.
- Operate using a timer, manual switch or automatic pressure-sensing switch.

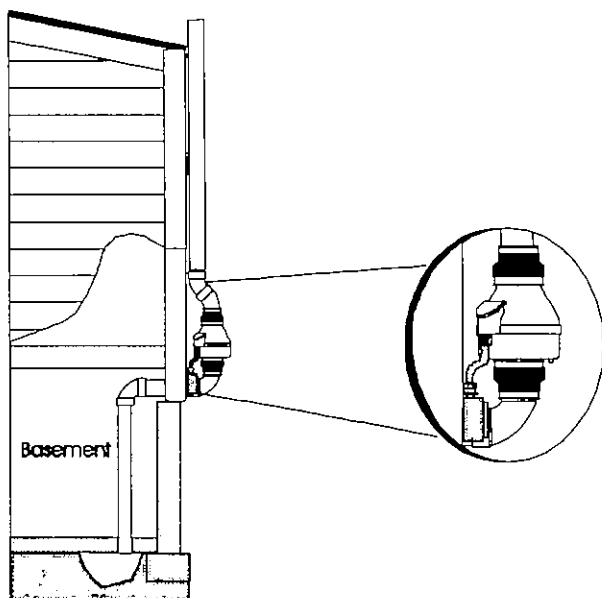
IAQ Fresh Air Injection & Building Pressurization



Model	Building Pressurization
RV100	To 2000 sq ft
RV125	To 2500 sq ft
RV150	To 3000 sq ft
RV175	To 3000 sq ft
RV200	To 4000 sq ft
RV250	To 5000 sq ft
RV300	To 6000 sq ft
RV400	To 9000 sq ft
RV500	To 9500 sq ft

Duct Boosting or Fan Retrofit

- Provide additional air handling capabilities for a new addition
- Replace a failed fan without doing a major ceiling job. Use the housing as an intake grille.
- Boost an existing bathroom fan for more effective exhausting



Radon Mitigation

The RV175 was specifically designed for radon mitigations.

The RV175 Radon Fan Kit includes:

- RV175 Radon Fan
- Two rubber couplings to connect the fan to 4" schedule 40 PVC pipe.
- Manometer
- System labels

Spruce Fan Specifications

Fan Selection

Fan selection is based on room size and required air changes per hour (ACH). The following table presents recommendations based on these two factors.

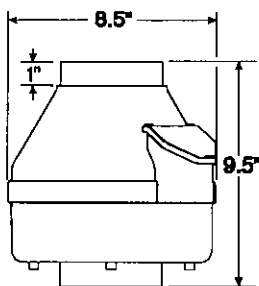
Model	CFM @ .2" WC	Duct	Bathroom Exhaust Based on 8 ACH	Living or Office Areas		Building Pressurization
				Intermittent - 6 ACH	Continuous - .35 ACH	
RV100	100	4"	Up to 95 sq ft	To 125 sq ft	To 2150 sq ft	To 2000 sq ft
RV125	110	4"	Up to 105 sq ft	To 140 sq ft	To 2360 sq ft	To 2500 sq ft
RV150	140	4"	Up to 130 sq ft	To 175 sq ft	To 3000 sq ft	To 3000 sq ft
RV175	160	5"	Up to 150 sq ft	To 200 sq ft	To 3425 sq ft	To 3000 sq ft
RV200	170	6"	Up to 160 sq ft	To 215 sq ft	To 3650 sq ft	To 4000 sq ft
RV250	190	6"	Up to 180 sq ft	To 240 sq ft	To 4075 sq ft	To 5000 sq ft
RB300	290	6"	Up to 270 sq ft	To 365 sq ft	To 6200 sq ft	To 6000 sq ft
RB400	470	8"	Up to 440 sq ft	To 590 sq ft	To 10000 sq ft	To 9000 sq ft
RB500	460	10"	Up to 430 sq ft	To 575 sq ft	To 9850 sq ft	To 9500 sq ft

Fan Performance

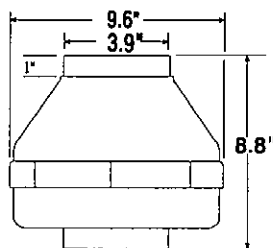
The following chart shows fan performance:

Model	Watts	Warranty	Typical CFM vs. Static Pressure WC"						
			0"	.2"	.5"	.75"	1.0"	1.25"	1.5"
DB100	36-44	5 Years	139	120	91	50	—	—	—
RV100	35-44	5 Years	113	100	72	48	19	—	—
RV125	48-68	5 Years	116	110	98	88	72	57	44
RV150	48-65	5 Years	152	140	120	100	77	53	26
RV175	50-65	5 Years	174	160	137	112	83	47	11
RV200	49-65	5 Years	184	170	145	123	92	48	1
RV250	68-116	5 Years	218	190	150	124	95	62	27
RB300	65-90	5 Years	307	290	253	220	182	142	97
RB400	103-156	5 Years	510	470	390	315	269	218	165
RB500	103-156	5 Years	498	460	385	319	254	197	136

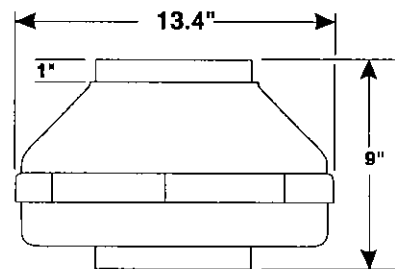
Fan Dimensions



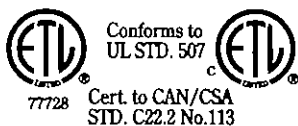
RV Series



DB100



RB Series



Per HVI's Certified Ratings Program, charted airflow performance has been derated by a factor based on actual test results and the certified rate at .2" WC.

Distributed By:



CASE HISTORY REPORT

DLI Product: E-Z-Vent

Application: Beauty Salon

Bulletin Number: EZV-CHR-110

Air Quality At Beauty Shop Is A "Shear Joy"

When Joyce Wilson set out to design a unique beauty salon on Route 541 in Burlington Township, New Jersey, she determined that her shop would not only provide an excellent product, it would also provide a pleasant and healthy environment.

Unlike ordinary shops, Shear Joy is unique in that offensive odors from chemicals used in this industry are non-existent. This is because Ms. Wilson opted for the "fresh air" provided by an E-Z-Vent Heat Recovery Ventilation System.

When given the design parameters for the heating and air conditioning, Ms. Wilson's contractor, Shamrock Heating and Air Conditioning of Vincentown, New Jersey did not hesitate to recommend the E-Z-Vent system

which expels polluted, chemical-laden air and replaces this with tempered fresh air from the outside. What makes this system unique and energy efficient is the E-Z-Vent's ability to "extract" or "recover" 85% of the heat energy from the air being exhausted and transferring this heat energy to the incoming cold, fresh air, thus saving considerable costly heat energy.

In determining that she would specify the E-Z-Vent system, Joyce Wilson was concerned not only with the offensive odors that permeate beauty and nail salons, she was also cognizant of the adverse

health effects caused by breathing in noxious chemicals, not only for her customers but also for her employees who are constantly subject to these fumes.

Now, customers who patronize Shear Joy not only look better, they also breathe better.



Photo courtesy of Richard Schick, Schick Energy Sales, Howell, NJ

For more information contact:

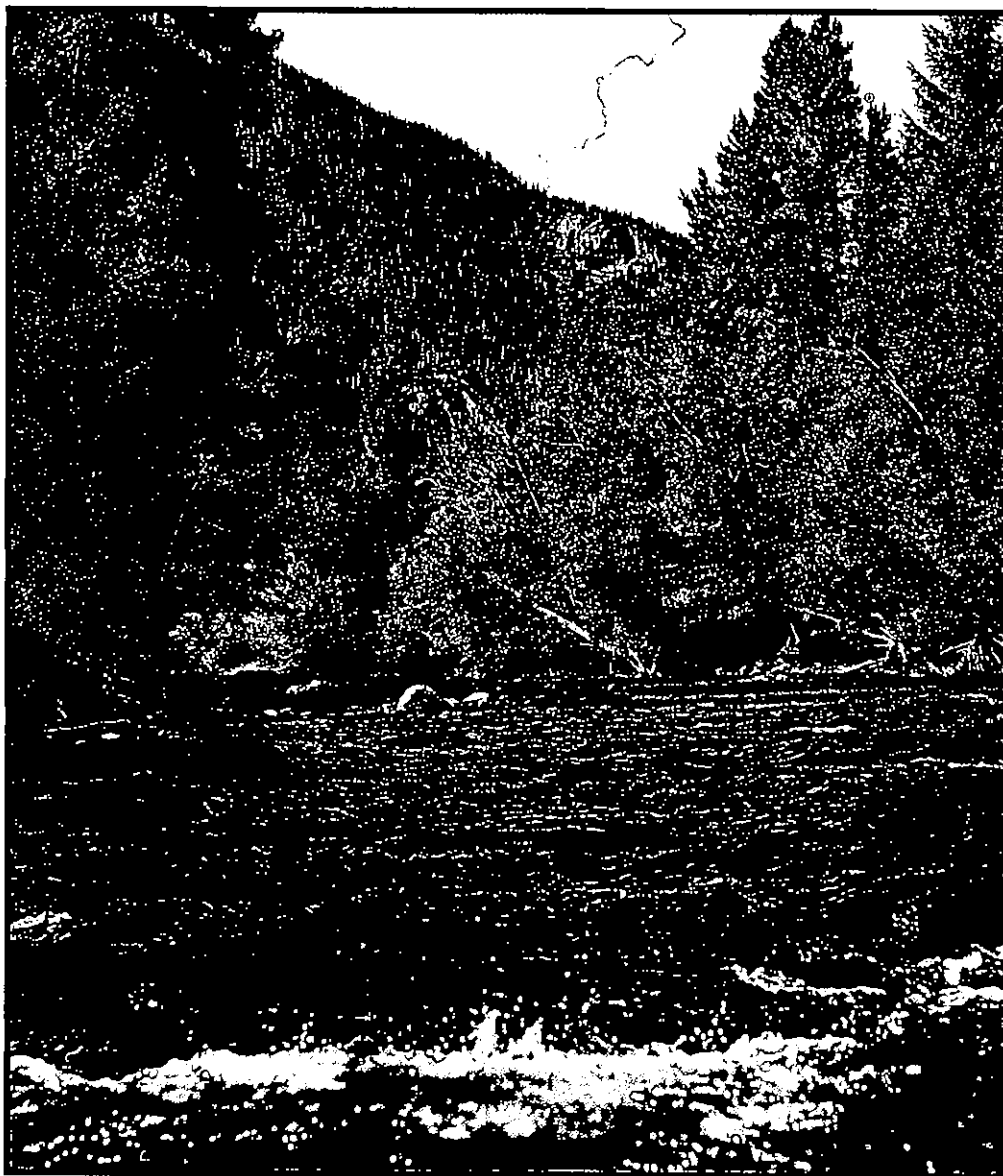
Des Champs Wholesale Division

66 Okner Parkway, Livingston, NJ 07039

Phone: 201 535-8300 Fax: 201 535-0537

• E-Z-Vent[®]

*the Solution to
home air pollution
and high humidity*



*'Bring the Fresh Air Indoors with An
E-Z-VENT. . . Energy-Efficient
Home Ventilation System'*



DES CHAMPS
LABORATORIES
INCORPORATED

Energy Conservation and Air Pollution Control

EXHAUST POLLUTED, HUMID AIR FROM YOUR HOME...BUT SAVE THE HEAT!

In an effort to conserve fuel and energy, today's home owners are turning to thicker insulation, energy-saving doors and windows and vapor barriers to make their homes 'tight'. This may accomplish the purpose of keeping the heat inside the home, but it also locks in undesirable air pollution and high humidity. These pollutants can be a serious health hazard. They have been known to cause illnesses such as allergies, headaches, dizziness and nausea as well as deteriorate building materials.

Causes of Indoor Air Pollution

When the air we breathe has higher than the maximum allowable amount of particular substances, it is considered contaminated. These substances that pollute the air come from many different sources and in varying degrees. Often, unless a dwelling has humidity problems that can be seen, many individuals may be completely unaware that they may have a serious air pollution problem in their home.

The following examples list a few of these contaminants and some of their sources:

- ▶ **Radon**
Stone, Soil, Water, Brick, Concrete, Ceramic Tiles, Gypsum Board
- ▶ **Formaldehyde**
Foam Insulation, Plywood, Particle Board, Paneling, Fabrics, Furnishings, Kitchen Counter Tops, Wallpaper, Protective Coatings for Wood Floors, Carpet Adhesives
- ▶ **Nitrogen Oxides and Carbon Monoxide**
Gas and Oil Stoves, Vehicles, Smoking, Cooking, Wood Stoves, Kerosene Heaters, Furnaces
- ▶ **Organic Compounds**
Aerosol Sprays, Smoking, Cleaning Agents, Carpets, Wall Coverings, Linoleum, Waxes, Adhesives, Fabrics, Rubber, Plastic, Paints
- ▶ **Particulate Pollutants**
Smoking, Cooking, Gas Stoves, Dust
- ▶ **Ozone**
Aerosols, Electronic Air Cleaners, Photocopying Machines, Direct Current Electric Motors
- ▶ **Benzopyrene**
Cigarette Smoke
- ▶ **Chlordane**
Pesticide used for pest control
- ▶ **High Humidity**
Ground Moisture, Cooking, Bathing, People, Plants, Animals

High humidity levels inside the home are a source of pollution that can also be very serious...not only to your health but to building materials as well. Mold and mildew can irritate allergies. Condensate can accumulate on walls, ceilings and windows. This excess moisture will damage your home and could depreciate the value of your home. Repairs to buildings damaged by moisture can be very costly.

IMPORTANT NOTICE

Although E-Z-Vent controls excessive humidity in winter, the introduction of humid outside air in summer may add moisture to indoor air.

Balanced Ventilation

When natural ventilation is reduced or eliminated from the home, indoor air pollution and moisture accumulate. Proper ventilation is required in order to rid our homes of these pollutants. One could simply open windows to get the required ventilation, but that would certainly defeat the purpose of an energy-efficient home.

With a balanced, ducted ventilation system, equal amounts of air are discharged from the home as are taken into the home. This allows the entire home to be evenly vented...avoiding drafts and uneven ventilation while bringing fresh, drier air into the home.

The greater the air exchange, the greater the chance to eliminate the contaminated air. A good air change through the home is approximately $\frac{3}{4}$ to 1 complete air change per hour.

E-Z-VENT Residential Heat Recovery Ventilator ...The Solution to Home Air Pollution and High Humidity...

E-Z-VENT is an air-to-air plate type heat exchanger (heat recovery ventilator). It is a controlled ventilation system that rids pollutants, odors and high humidity before they can accumulate. It permits the recovery of a large portion of the heat that would normally be lost by conventional ventilation or opening windows. E-Z-VENT transfers the heat of stale, polluted outgoing air to fresh air entering the home. This transfer of energy from exhaust to intake air results in substantial energy savings. In summer, the reverse is possible when homes are mechanically cooled, although dehumidification may not be possible during summer use.

E-Z-VENT thereby allows the best of both worlds...Clean, Drier Air with a Tightly Sealed Home.

Tested by Independent Laboratories

In addition to testing the E-Z-VENT units at our own Research & Development Center to verify specifications, our units are also tested by independent testing laboratories. Two of these laboratories are listed below.

ETL Listed

E-Z-VENT has been tested and certified by ETL Laboratories, Inc., a national and internationally recognized testing laboratory with the highest of standards.



Tested by Lawrence Berkeley Laboratories

Tests conducted by Lawrence Berkeley Laboratory, University of California, on 'Performance Measurements for Residential Air-to-Air Heat Exchangers' shows E-Z-VENT to be the most effective of the units tested.

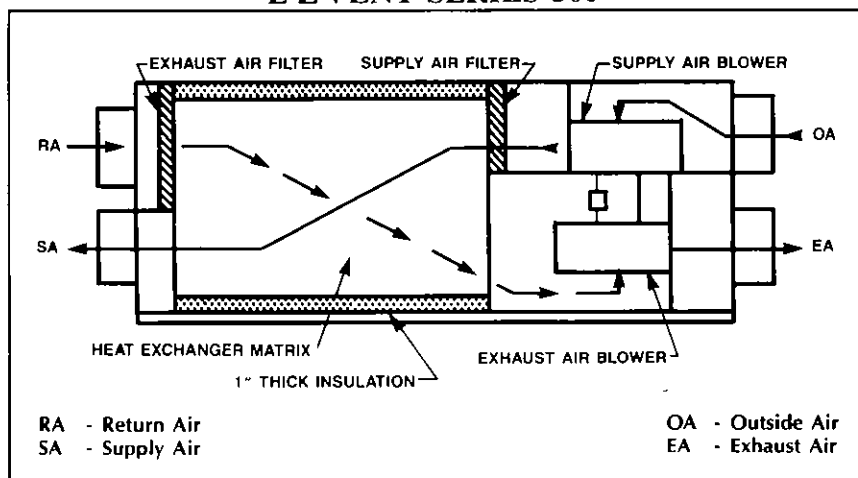
If you have an energy-efficient home, you probably have indoor air pollution and high humidity. If you have these problems, E-Z-VENT is the heat recovery ventilator for you.

E-Z-VENT SERIES 300

How E-Z-VENT Works

Counterflow airstreams are brought into close proximity, separated by one continuous, folded and dimpled, sheet of aluminum. This sheet of aluminum acts as a primary heat transfer surface. It is fitted within a matrix in such a way that it creates two completely separate and distinct air passages. The polluted air does not mix with the fresh air.

As both airstreams flow through the heat exchanger, in a counterflow direction, the heat (or energy) is transferred from the warmer, outgoing room air (exhaust air) to the cooler, incoming outside air (intake air). In summer, the reverse is possible for homes that are mechanically cooled.



Standard Features & Benefits - Series 300

- Variable PSC motors
- Two-speed blowers
- Two washable filters
- Aluminum counterflow heat exchanger
- 22-gauge galvanized steel housing
- Insulated heat exchanger
- High-efficiency split capacitor motor
- Two condensate drain connections
- Standard duct connections
- Total fan access
- Non-lube ball bearing motor(s)
- One year warranty
- ETL listed

Options

Remote
Hi/Low/Off
Switch

Humidistat

Time Control
w/Manual
Override

Defrost Control

Vertical
Mounting Base

Description

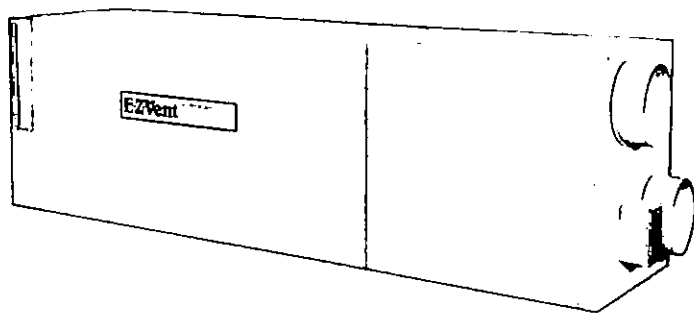
Provides for manual speed selection in a convenient location.

Provides automatic fan control in order to maintain the humidity level below a pre-set point.

24-hour timer. Timer may be set for automatic on/off cycling of E-Z-VENT.

Controls the mechanically operated damper which prevents frost build-up in the heat exchanger.

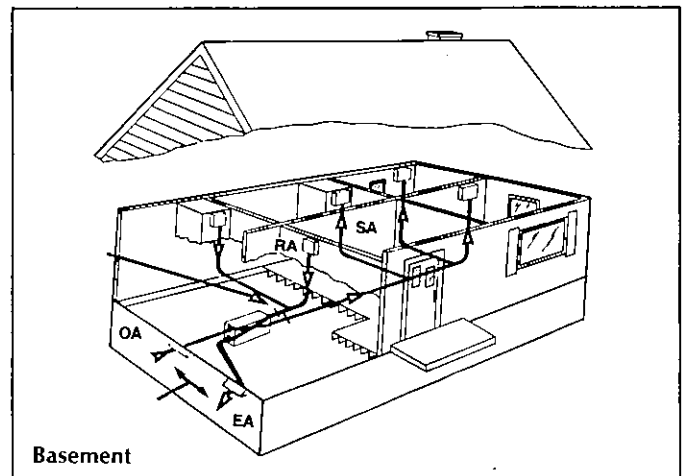
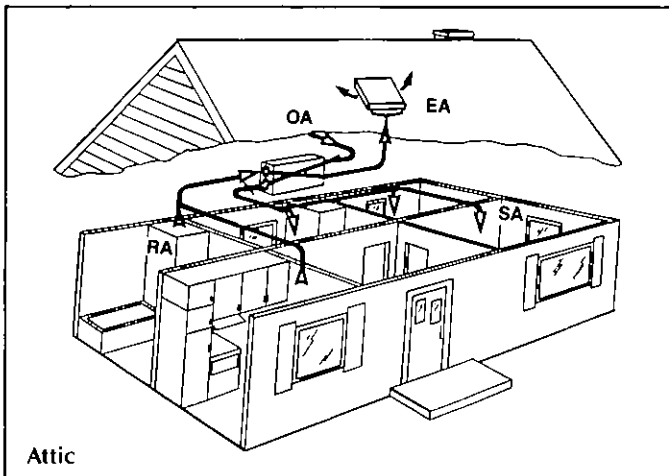
Permits the E-Z-Vent to be installed in a vertical position. This option increases model EZV-320 by 7½", and model EZV-340 by 9½".



MODEL	E-Z-VENT II	E-Z-VENT 320	E-Z-VENT 340	E-Z-AIRE
RATED AIRFLOW	240	110/220	310/415	700 - 4000
EFFECTIVENESS	70%	85%	83%	70%/85%
SIZE (L x W x H)	24" x 26" x 17"	58" x 18¾" x 14"	61" x 18¾" x 18"	Various
SHIPPING WEIGHT	78 lbs.	115 lbs.	150 lbs.	390 - 2200 lbs.
AMPS (Low/High)	4.0	1.2/1.5	2.6/3.0	45 Max.
OPERATING RANGE	-50 to 130°F			
MOTOR(S) TYPE	Shaded Pole	Class B Split Capacitor		

Typical Installations

- Homes
- Small Offices
- Classrooms
- Mobile/Modular Homes
- Anywhere ventilation is necessary



E-Z-VENT is easily installed in attics, basements or closets. The unit should have its own ductwork system, but the ductwork for your E-Z-VENT and hot air furnace can be combined if certain precautions are taken. Instructions for this are included in the Installation and Owners Manual shipped with the unit.

E-Z-VENT contains one supply fan, one exhaust fan and one aluminum plate-type air-to-air heat exchanger and washable filters. These are all contained in a corrosion-resistant galvanized metal housing. There are no external fans or motors outside the housing; no defacement of the building or beauty of your home. The complete unit and all ducting is hidden from view.

E-Z-VENT...for your convenience

There is no need to worry if you are not a 'handyman'. E-Z-VENT is distributed by a National Dealer/Distributor Network of HVAC specialists (Heating, Ventilating and Air-Conditioning). They are experts in HVAC to give you advice, sizing assistance and/or installation service...all with local convenience.

E-Z-VENT by Des Champs Laboratories (Day Shawmp)

E-Z-VENT is manufactured, with pride, in America by Des Champs Laboratories Incorporated (DLI), East Hanover, N.J. and Natural Bridge, Virginia. DLI is the recognized award-winning leader in the design and manufacture of industrial, commercial and residential air-to-air energy saving systems. Our vast knowledge of energy recovery and our modern manufacturing facilities and equipment gives us the capability to produce the best quality state-of-the art energy recovery equipment on the market today. *We manufacture heat exchangers...and only heat exchangers.*

E-Z-Vent® Better for a Reason!

- **Heat transfer surface is made of highly efficient aluminum...not paper or plastic.**
- **Reason:** Aluminum is more efficient; it will provide greater heat recovery. Also, paper or plastic might not meet certain local fire codes.
- **Heat transfer surface is fixed plate, not rotary wheel type.**
- **Reason:** Rotary wheels have a greater chance of mixing contaminated air and high humidity back into the fresh airstream. Also, there are no moving parts to break down or replace in a fixed plate.
- **E-Z-VENT has two filters.**
- **Reason:** One filter is on the supply airstream, the other is on the exhaust airstream...to keep the heat transfer surface free from particulate build-up.
- **6 different central residential models available.**
- **Reason:** Applications are different. One size heat exchanger cannot 'fit all'.
- **E-Z-VENT has a split capacitor motor.**
- **Reason:** For quiet, efficient operation and long life.
- **E-Z-VENT is manufactured by Des Champs Laboratories at our own facilities.**
- **Reason:** Our heat exchangers are manufactured at our own plant to assure quality control with the strictest standards.
- **E-Z-VENT has a counterflow heat exchanger design.**
- **Reason:** Independent tests clearly demonstrate that counterflow designs have a superior efficiency without freezing of the core than cross-flow units and are less rapidly affected by freezing.

NOTE: E-Z-Vent exchanges outdoor air with indoor air in an energy efficient manner, thus reducing the concentration of indoor pollutants when that pollutant has a higher indoor level.



DES CHAMPS LABORATORIES INCORPORATED

Box 220 • Douglas Way • Natural Bridge Station, VA 24579 • (703) 291-1111 • Fax: (703) 291-2222

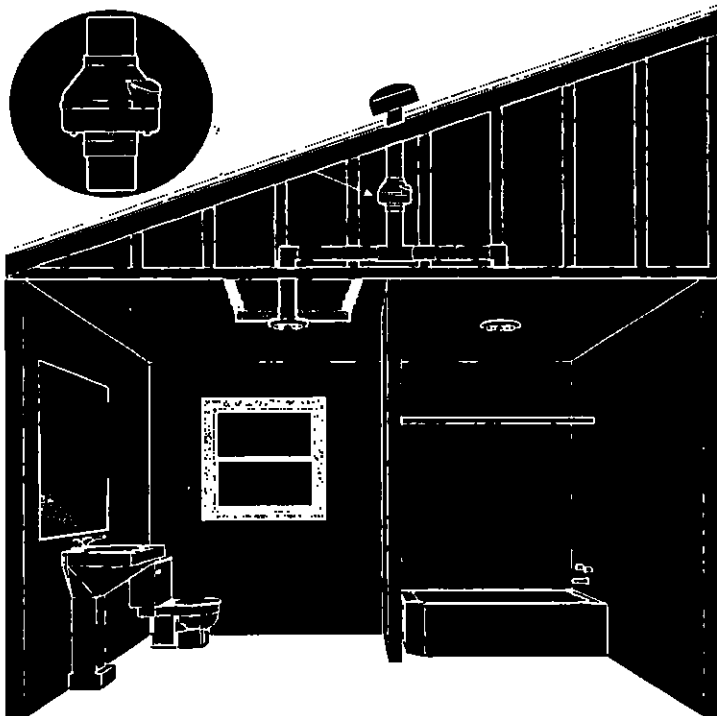


INLINE FANS

RV SERIES

APPLICATIONS:

- Bathroom Exhaust
- Meeting Room Venting
- Fresh Air Supply
- Building Pressurization
- Game Room Venting
- Duct Boosting
- Garage Venting
- Basement Fresh Air Supply



BATHROOM EXHAUST



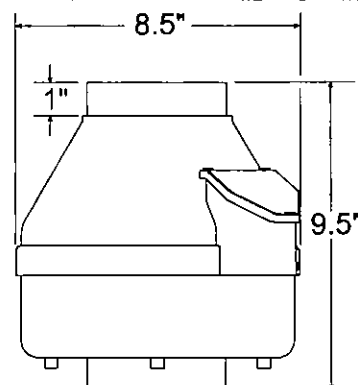
FEATURES:

- Remote Mounting
- Ultra Quiet
- HVI Certified
- Rated for Continuous Operation
- Commercial or Residential
- Five Year Warranty

RV SERIES PRODUCT SPECIFICATIONS

Spruce RV Series Inline Fans are remotely mounted virtually eliminating room noise. All RV Series Fans are rated for continuous operation, are suitable for venting wet environments and carry a five year hassle free warranty. Mounting bracket included.

FAN DIMENSIONS



FAN SELECTION GUIDELINES

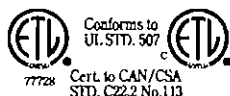
Model	CFM @ .2" WC	Duct	Bathroom Exhaust Based on 8 ACH	Living or Office Areas		Building Pressurization
				Intermittent - 6 ACH	Continuous - 0.35 ACH	
RV100	100	4"	Up to 95 sq. ft.	Up to 125 sq. ft.	Up to 2150 sq. ft.	To 2000 sq. ft.
RV125	110	4"	Up to 105 sq. ft.	Up to 140 sq. ft.	Up to 2360 sq. ft.	To 2500 sq. ft.
RV150	140	4"	Up to 130 sq. ft.	Up to 175 sq. ft.	Up to 3000 sq. ft.	To 3000 sq. ft.
RV175	160	5"	Up to 150 sq. ft.	Up to 200 sq. ft.	Up to 3425 sq. ft.	To 3000 sq. ft.
RV200	170	6"	Up to 160 sq. ft.	Up to 215 sq. ft.	Up to 3650 sq. ft.	To 4000 sq. ft.
RV250	190	6"	Up to 180 sq. ft.	Up to 240 sq. ft.	Up to 4075 sq. ft.	To 5000 sq. ft.

ACH = Air Changes per Hour

FAN PERFORMANCE

Model	Watts	Weight	Typical CFM vs. Static Pressure						
			0"	.2"	.5"	.75"	1.0"	1.25"	1.5"
RV100	35-44	6 lbs.	113	100	72	48	19	--	--
RV125	48-68	6 lbs.	116	110	98	88	72	57	44
RV150	48-65	6 lbs.	152	140	120	100	77	53	26
RV175	50-65	6 lbs.	174	160	137	112	83	47	11
RV200	49-65	6 lbs.	184	170	145	123	92	48	1
RV250	68-116	7 lbs.	218	190	150	124	95	62	27

Specifications subject to change without notice.



Per HVI's Certified Ratings Program, charted air flow performance has been derated by a factor based on actual test results and the certified rate at .2" WC.



Environmental Technologies, Inc.

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P.O. Box 8244

Ward Hill, MA 01835

<http://www.spruce.com>

Tel. (800)-355-0901

Tel. (978)-521-0901

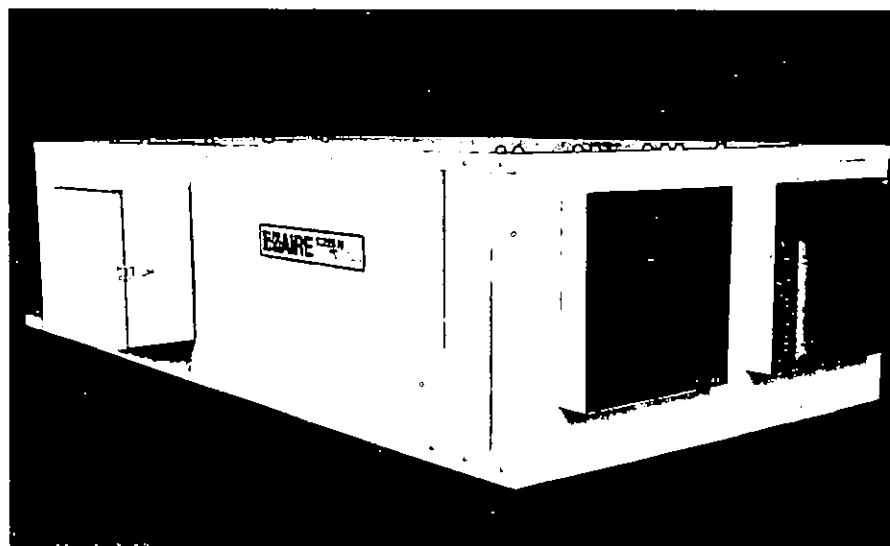
Fax. (978)-521-3964

email: sales@spruce.com

Distributed By:

**INCLUDES NEW MODEL
E-Z-AIRE 4000**

E-Z-AIRE®



**SUPER HIGH
EFFICIENCY
AIR-TO-AIR
ENERGY
RECOVERY
UNITS**

Description

The E-Z-AIRE Series 70 and 85 are self-contained, light-commercial, make-up air systems designed to meet the needs of this expanding market. They allow 100% outside air to be brought in with virtually no auxiliary heating or sensible cooling required.

E-Z-AIRE is an economical, packaged make-up air unit with a high efficiency heat exchanger that brings in fresh, outside air while exhausting a like amount of stale, polluted air. The air is exchanged while recovering significant heat energy from the exhaust airstream and transferring only the heat energy to the supply air, thus tempering the incoming air.

Benefits

- ☐ Saves up to 85% of the heat from exhaust airstream
- ☐ Removes pollutants before they accumulate
- ☐ Transfers heat energy in winter/cool energy in summer
- ☐ Low cost
- ☐ Capacities up to 4400 CFM

Applications

- | | |
|---|---|
| ☐ Schools | ☐ Swimming Pools |
| ☐ Locker Rooms | ☐ Airports |
| ☐ Conference Rooms | ☐ Floral Shops |
| ☐ Restrooms | ☐ Veterinary Hospitals |
| ☐ Barber Shops | ☐ Stores |
| ☐ Office Buildings | ☐ Large Homes |
| ☐ Bars & Grills | ☐ Restaurants |
| ☐ Classrooms | |

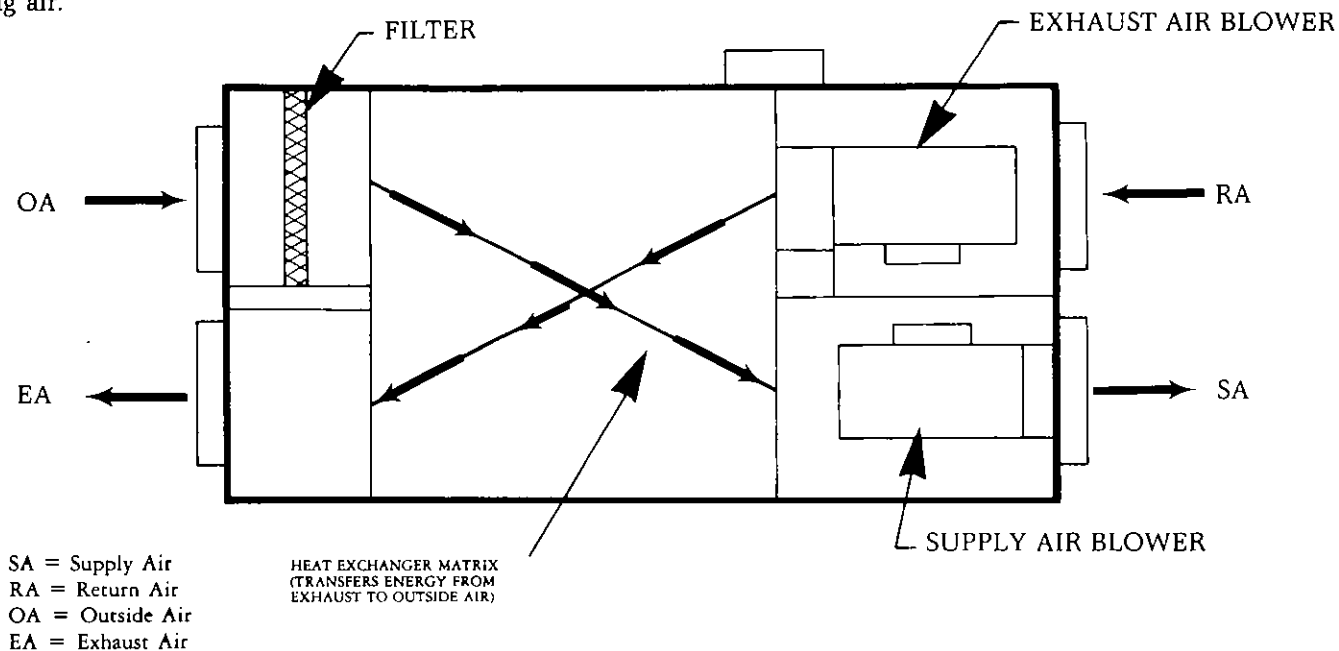


Exhaust Polluted, Humid Air...but Save the Heat!

DESCRIPTION

E-Z-AIRE is an economical packaged, make-up air unit with a high efficiency heat exchanger that brings in fresh, outside air while exhausting a like amount of stale, polluted air. The air is exchanged while recovering significant heat energy from the exhaust air stream and transferring only the heat energy to the supply air, thus tempering the incoming air.

The ten models illustrated enable you to provide coverage over a wide range of operating flows and efficiencies.



OPERATION

E-Z-AIRE is a unique and simple counterflow air-to-air plate type heat exchanger. Counterflow airstreams are brought into close proximity separated by one continuous, dimpled and folded sheet of aluminum, which acts as a primary heat transfer surface. This heat transfer surface is configured to form a matrix with two completely separate and distinct air passages. The ends of the matrix are sealed for maximum separation of airstreams.

The heat exchanger transfers the thermal energy from the exhaust airstream to the intake airstream thereby recovering a large portion of the energy that would normally be lost to atmosphere through mechanical exhaust systems.

STANDARD FEATURES

- Units are available for either indoor or outdoor installation
- All units are constructed of heavy gauge galvanized steel
- High efficiency motors ensure quiet, low-cost operation
- Folded aluminum heat exchanger for maximum heat transfer and low maintenance
- Units are available for either end or bottom supply and return
- Integral defrost system includes thermostat which automatically shuts off supply air blower when defrost is necessary
- Low voltage package reduces line voltage to 24 volts for controls
- 208/230 volt, single phase 60 cycle operation standard, 115/1/60 available upon request

E-Z-AIRE™ Series 70 and 85 Specifications

MODEL	EZA-970	EZA-985	EZA-1570	EZA-1585	EZA-2270	EZA-2285	EZA-3070	EZA-3085	EZA-4070	EZA-4085
CFM: Rated Air Flow										
Low Speed	700	615	1067	940	1565	1370	N/A	N/A	N/A	N/A
Medium Speed	800	690	1330	1145	1955	1680	N/A	N/A	N/A	N/A
High Speed	900	765	1500	1275	2200	1870	3100	2850	4000	4000
EFFECTIVENESS*	70%	85%	70%	85%	70%	85%	70%	85%	70%	85%
SHIPPING WT. (lbs)	390	510	500	700	605	800	1000	1300	1900	2200
ELECTRICAL**	208/230/1/60†									
F.L.A. Per Motor	1.2	1.2	1.5	1.5	3.5	3.5	6.6	6.6	15.4	15.4
Max Fuse Size	5	5	8	8	12	12	20	20	45	45
Filter Size	17.5 x 15"	17.5 x 15"	21 1/2 x 19"	21 1/2 x 19"	21 1/2 x 26"	21 1/2 x 26"	21 1/2 x 39"	21 1/2 x 39"	16 x 20 x 2 TAW	16 x 20 x 2 TAW
Operating Range	-50° to 130° F††									
Outer Casing	Galvanized Steel†									
Heat Exchange Matrix	Aluminum†									
Cone Surface Area	960 Sq. Ft.	1600 Sq. Ft.	1520 Sq. Ft.	2533 Sq. Ft.	2080 Sq. Ft.	3466 Sq. Ft.	3120 Sq. Ft.	5200 Sq. Ft.	3374 Sq. Ft.	4992 Sq. Ft.
Plate Spacing (Inches)	.25									
Motor Type	Permanent Split Capacitor									
Motor Size (Nominal)***	(2) .16 HP or (2) .25 HP		(2) .275 HP or (2) .50 HP		(2) .644 HP or (2) .75 HP		(2) 1.5 HP		(2) 3 HP	
Air Flow @ External Low, Med., High	L M H	L M H	L M H	L M H	L M H	L M H	L M H	High Only	High Only	High Only
0.10" WC Ext.	661 756 825	562 643 701	1003 1269 1446	853 1079 1229	1469 1866 2120	1249 1586 1802	3070	2740	4450	N/A
0.20" WC Ext.	605 648 720	520 557 619	958 1197 1309	820 1029 1126	1398 1760 1920	1202 1514 1651	2980	2650	4350	N/A
0.30" WC Ext.	555 588 628	483 512 546	854 1116 1182	743 971 1028	1252 1640 1735	1089 1427 1509	2870	2550	4240	N/A
0.40" WC Ext.	500 570 618	440 502 544	798 1015 1072	702 893 950	1171 1490 1565	1030 1311 1377	2770	2480	4125	N/A
0.50" WC Ext.	444 515 550	395 458 490	733 891 960	652 793 854	1075 1310 1409	957 1166 1254	2665	2390	4000	4000
0.60" WC Ext.	Not Applicable									
0.80" WC Ext.	Not Applicable									
1.00" WC Ext.	Not Applicable									
1.10" WC Ext.	Not Applicable									
Condensate Drains (2)	3/4 FPT†									

* The efficiency of the E-Z-AIRE commercial energy recovery unit is measured using a term commonly referred to as effectiveness. Effectiveness is defined as follows:

$$\text{EFFECTIVENESS} = \frac{\text{Actual Heat Transfer}}{\text{Maximum Possible Heat Transfer}} = \frac{Q_{ACT}}{Q_{MAX}}$$

** The actual effectiveness of a specific unit depends primarily on the actual air flow, humidity level, and the temperature of each airstream.

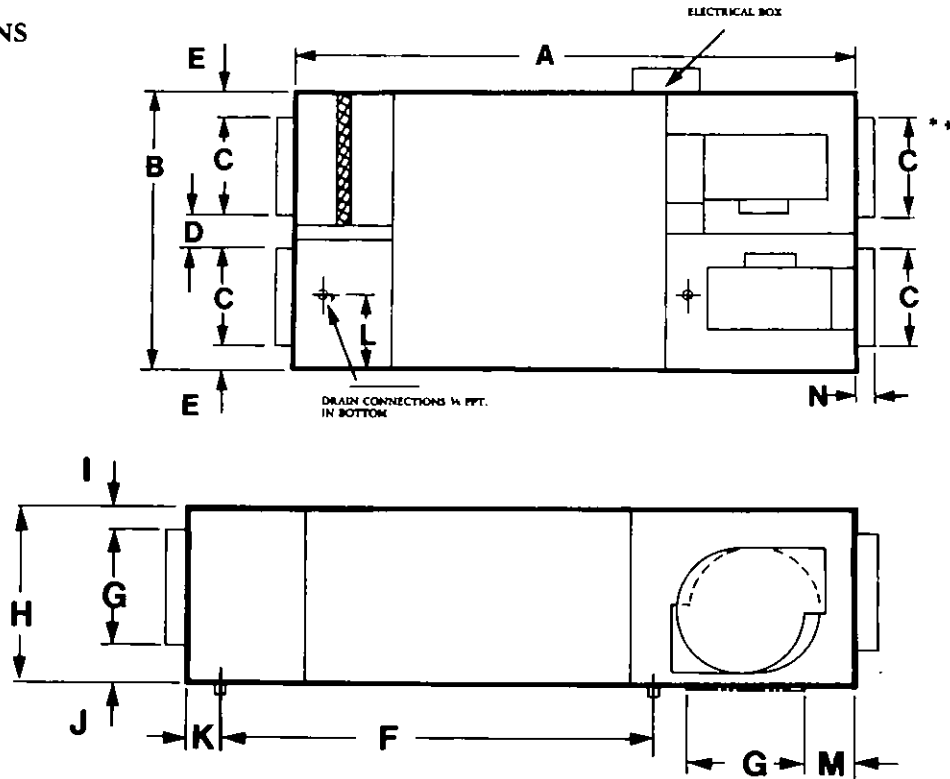
*** 115V units available as an option. Larger motor HP shown in brackets are for 115V only. 115V not available on 3070/3085, 4070/4085 models.

† May vary depending on voltage.

†† Applies to all models.

E-Z-AIRE[®]

DIMENSIONS

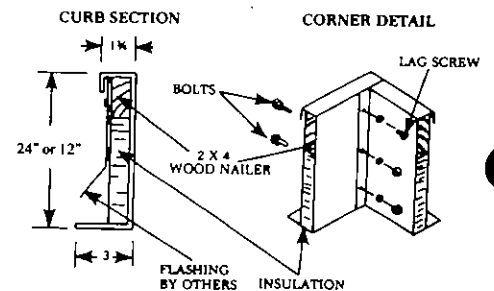
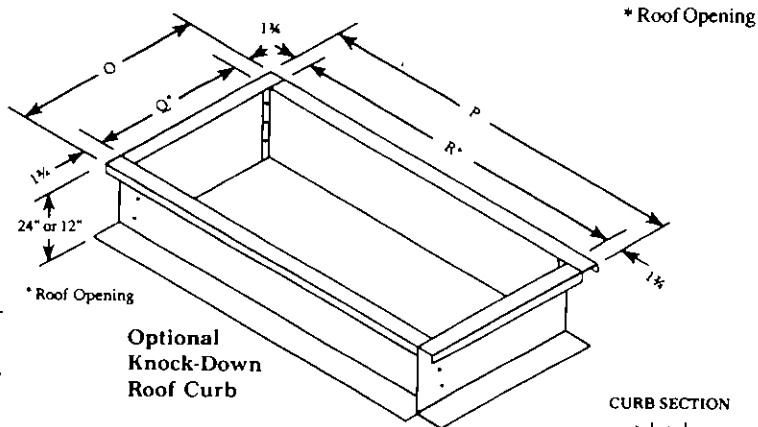
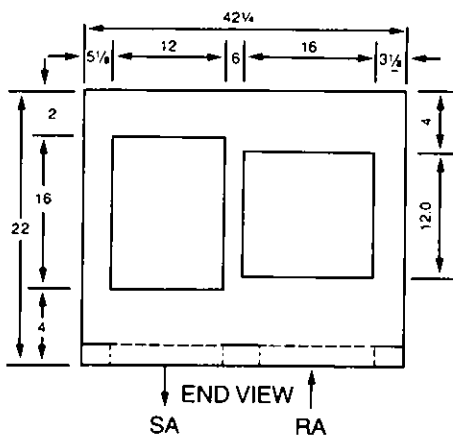


MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q*	R*
EZA-970	68	34 1/4	12	4	3 1/8	42 1/2	12	18	2	4	3 1/2	9	4 3/8	2	33	66	29 1/2	62 1/2
EZA-985	92	34 1/4	12	4	3 1/8	66 1/2	12	18	2	4	3 1/2	9	4 3/8	2	33	90	29 1/2	86 1/2
EZA-1570	68	42 1/4	12	8	5 1/8	42 1/2	16	22	2	4	3 1/2	9	4 3/8	2	41	66	37 1/2	62 1/2
EZA-1585	92	42 1/4	12	8	5 1/8	66 1/2	16	22	2	4	3 1/2	9	4 3/8	2	41	90	37 1/2	86 1/2
EZA-2270	72	42 1/4	16	4	3 1/8	42 1/2	16	29	5	8	3 1/2	11	4 3/8	2	41	70	37 1/2	66 1/2
EZA-2285	96	42 1/4	16	4	3 1/8	66 1/2	16	29	5	8	3 1/2	11	4 3/8	2	41	94	37 1/2	90 1/2
EZA-3070	80	42 1/4	16	4 1/4	3	42 1/2	24	42	8	10	3 1/2	11	4 3/4	2	41	78	37 1/2	74 1/2
EZA-3085	104	42 1/4	16	4 1/4	3	66 1/2	24	42	8	10	3 1/2	11	4 3/4	2	41	102	37 1/2	98 1/2
EZA-4070	108	66 5/8	24	9 1/3	4 5/8	51	30	47	7 1/4	9 1/4	6	16	6 3/8	2	63	104 1/2	59 1/2	101
EZA-4085	108	66 5/8	24	9 1/3	4 5/8	51	30	47	7 1/4	9 1/4	6	16	6 3/8	2	63	104 1/2	59 1/2	101

NOTE:
On Models 1570 and 1585 only, return air duct connection is rotated 90° from the supply air connection.

See figure 1.

Figure 1



DELIVERED AIR TEMPERATURE

The following charts give the customer an idea of the temperature of air delivery by the E-Z-AIRE under a variety of operating conditions. Use Charts A and B for the ultra high units, and Charts C and D for the high efficiency units.

Example 1 - Summer Operation

The ABC Flower Shop has purchased an E-Z-AIRE. They would like to know the delivery temperature of their unit. They are operating their unit during the summer months and require the following information: indoor temperature, outdoor temperature, and the relative humidity. They have measured the following conditions:

Indoor Temperature: 70°F
Outdoor Temperature: 85°F
Outdoor Relative Humidity: 60%

Using the Summer Chart A, they locate the outdoor temperature on the vertical axis, and the outdoor relative humidity on the horizontal axis. Moving across and down the chart until the row and column intersect, they find the following matrix which gives the delivered air temperature of the unit at four (4) different indoor air temperatures.

Delivered Air Temperature	
68	70
74*	78

The next matrix shows the four different indoor air temperatures:

Indoor Air Temperature	
60	65
70*	75

If the indoor air temperature is 60°F, use the upper left entry; at 65°F, use the upper right entry; at 70°F, use the lower left entry; at 75°F, use the lower right entry.

Since the indoor air temperature is 70°F, they select the corresponding lower left entry of the delivered air temperature matrix and find that the delivered air temperature is 74°F.

Example 2 - Winter Operation

The Close Cut Barber Shop of Detroit, MI has just purchased the same unit and would also like to know the delivery temperature of the air supplied by the E-Z-AIRE. They measured the following conditions:

Indoor Temperature: 85°F (near ceiling):
Outdoor Temperature: 0°F
Indoor Relative Humidity: 40%

Using the Winter Chart B, (using the same selection procedure as shown in the Summer Example, but using six (6) temperatures instead of four and using indoor relative humidity instead of outdoor) they find the following matrix which gives the delivered air temperature of the unit at six different indoor air temperatures:

Delivered Air Temperature		
48	53	58
63	68	73*

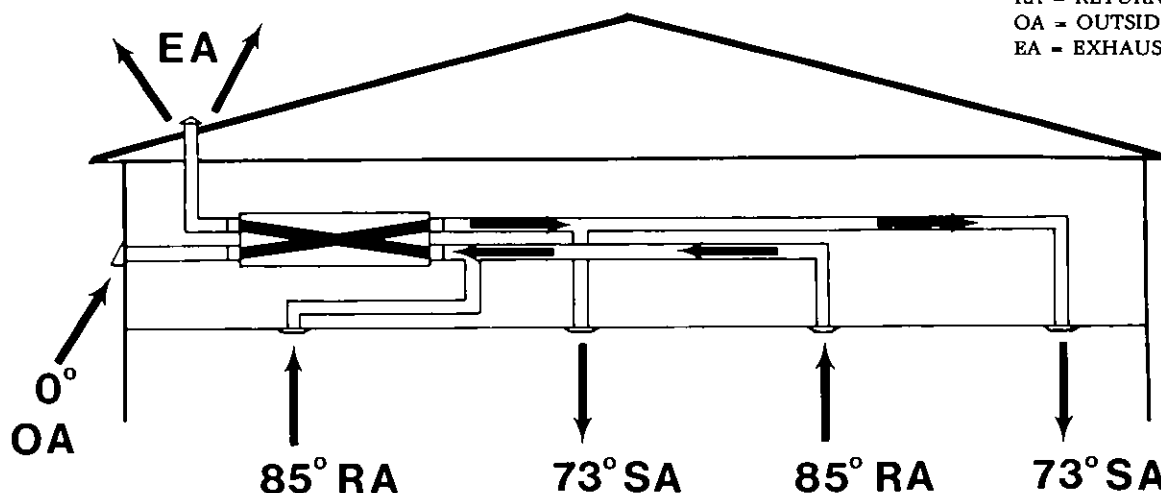
The next matrix shows the six different indoor air temperatures.

Indoor Air Temperature		
60	65	70
75	80	85*

Again, use the same selection procedure as shown in the Summer Example, but use six different indoor air temperatures.

Since the indoor air temperature is 85°F, they select the corresponding lower right entry of the delivered air temperature matrix and find that the delivered air temperature is 73°F.

SA = SUPPLY AIR
RA = RETURN AIR
OA = OUTSIDE AIR
EA = EXHAUST AIR



ULTRA HIGH EFFICIENCY SERIES 85

Summer
Indoor Air Temperature

60°	65°
70°	75°

Winter
Indoor Air Temperature

60°	65°	70°
75°	80°	85°

Outdoor Temperature (T1, °F)	50%		60%		70%		80%		90%		100%	
	75	64 : 71	68 : 75	64 : 71	68 : 74	64 : 71	68 : 75	67 : 71	68 : 75	69 : 72	70 : 75	72 : 74
80	65 : 73	69 : 76	65 : 73	69 : 76	68 : 73	69 : 76	71 : 73	72 : 76	73 : 77	74 : 77	76 : 78	77 : 79
85	67 : 74	70 : 78	68 : 74	70 : 78	72 : 74	73 : 78	75 : 77	76 : 78	77 : 80	78 : 81	80 : 82	81 : 83
90	69 : 75	72 : 79	72 : 75	74 : 79	76 : 78	77 : 79	79 : 81	80 : 82	82 : 84	83 : 85	85 : 87	86 : 88
95	72 : 77	73 : 80	76 : 78	77 : 80	80 : 82	81 : 83	83 : 85	84 : 86	86 : 88	87 : 89	89 : 91	90 : 92
100	76 : 78	77 : 82	80 : 82	81 : 83	84 : 86	85 : 87	88 : 90	89 : 91	91 : 93	92 : 94	94 : 96	95 : 97

WINTER SUPPLY TEMPERATURE (T2, °F)

Chart B

Indoor Relative Humidity (% RH3)

Outdoor Temperature (T1, °F)

	10%			20%			30%			40%			50%			60%		
-20	39	43	47	41	45	50	42	47	52	46	51	56	47	52	57	52	57	62
-15	40	44	48	42	46	51	44	49	54	46	51	56	47	52	57	50	55	60
-10	41	45	49	43	47	52	45	50	55	47	52	57	49	54	59	50	55	60
-5	43	46	50	43	48	52	45	50	55	47	52	57	49	54	59	51	56	61
0	44	48	51	44	48	53	46	51	56	48	53	58	50	55	60	51	56	61
5	45	49	53	46	50	54	47	52	57	49	54	59	50	55	60	52	57	62
10	47	50	54	47	50	54	48	52	57	49	58	59	51	56	61	52	57	62
15	48	52	55	48	52	55	48	52	57	50	54	59	51	56	61	53	58	63
20	49	53	57	49	53	57	49	53	58	50	55	60	52	57	62	53	57	62
25	51	54	58	51	54	58	51	54	58	51	55	60	52	57	62	53	58	62
30	52	56	59	52	56	59	52	56	59	52	56	61	53	58	63	54	58	63
35	53	57	61	53	57	61	53	57	61	53	57	61	53	58	63	55	60	65
40	55	58	62	53	55	62	58	56	62	55	58	62	55	58	63	55	59	64
45	56	60	63	56	60	63	56	60	63	56	60	63	56	60	63	56	60	65
50	57	61	65	57	61	65	57	61	65	57	61	65	57	61	65	57	61	65
55	59	62	66	59	62	66	59	62	66	59	62	66	59	62	66	59	62	66
60	60	64	67	60	64	67	60	64	67	60	64	67	60	64	67	60	64	67
65	X	65	69	X	65	69	X	65	69	X	65	69	X	65	69	X	65	69
70	X	X	70	X	X	70	X	X	70	X	X	70	X	X	70	X	X	70

HIGH EFFICIENCY SERIES 70

Summer
Indoor Air Temperature

60°	65°
70°	75°

Winter
Indoor Air Temperature

60°	65°	70°
75°	80°	85°

Outdoor Temperature (T1, °F)

	50%		60%		70%		80%		90%		100%	
75	65	69	65	69	65	69	67	69	69	71	72	73
	72	75	72	75	72	75	72	75	73	75	74	75
80	67	70	67	71	69	70	71	72	74	74	76	77
	74	77	75	78	74	77	74	77	76	77	78	79
85	69	72	71	73	73	74	75	76	78	79	81	82
	75	79	76	79	75	79	77	79	79	81	83	83
90	71	74	73	74	77	78	80	81	83	83	85	86
	77	80	77	80	79	80	81	82	84	86	87	88
95	73	76	77	78	81	82	84	85	87	88	90	90
	79	82	79	82	82	83	86	87	88	90	91	92
100	77	78	81	82	85	86	89	90	92	93	95	96
	81	84	83	84	87	87	90	91	93	95	96	97

WINTER SUPPLY TEMPERATURE (T2, °F)

Chart D

Indoor Relative Humidity (% RH3)

Outdoor Temperature (T1, °F)

	10%			20%			30%			40%			50%			60%		
-20	31	34	38	32	36	40	34	38	42	35	39	44	37	41	46	38	42	47
	41	44	48	43	48	52	46	51	55	49	54	58	51	56	61	53	58	63
-15	33	36	39	34	37	41	35	39	43	37	41	45	38	42	47	39	44	48
	43	46	49	45	49	53	47	52	57	50	55	59	52	57	62	53	59	64
-10	35	38	41	35	39	42	37	41	44	38	42	46	39	44	48	41	45	50
	44	48	51	46	50	54	48	53	58	51	56	60	53	58	63	55	60	65
-5	37	40	43	37	40	44	38	42	46	40	43	47	41	45	49	42	46	51
	46	49	53	47	52	55	50	54	59	52	57	61	54	59	64	56	61	66
0	38	42	45	38	42	45	40	43	47	41	45	49	42	46	50	43	47	52
	48	51	54	49	53	56	51	55	60	53	58	62	55	60	65	57	62	67
5	40	43	47	40	43	47	41	45	48	42	46	50	43	47	52	45	49	53
	50	53	56	50	54	57	53	56	61	54	59	63	56	61	66	58	63	68
10	42	45	48	42	45	48	42	46	50	43	47	51	45	49	53	46	50	54
	52	55	58	52	55	58	53	58	62	55	60	64	57	62	67	59	64	69
15	44	47	50	44	47	50	44	47	51	45	48	52	46	50	54	47	51	55
	53	57	60	53	57	60	54	59	63	56	61	65	58	63	68	60	65	69
20	46	49	52	46	49	52	46	49	52	46	50	54	47	51	55	48	52	56
	55	58	61	55	58	62	56	60	64	57	62	66	59	64	68	61	66	70
25	47	51	54	47	51	54	47	51	54	47	51	55	48	52	56	49	53	57
	57	60	62	57	60	63	57	60	65	59	63	67	60	65	69	62	67	71
30	49	52	56	49	52	56	49	52	56	49	52	56	49	53	57	50	54	59
	59	62	63	59	62	65	59	62	66	59	64	68	61	66	70	62	68	72
35	51	54	57	51	54	57	51	54	57	51	54	57	51	54	58	52	55	60
	61	64	65	61	64	67	61	64	67	61	65	68	62	66	71	64	69	73
40	53	56	59	53	56	59	53	56	59	53	56	59	53	56	59	53	56	61
	62	66	67	62	66	69	62	66	69	62	66	69	63	67	72	64	69	74
45	55	58	61	55	58	61	55	58	61	55	58	61	55	58	61	55	58	62
	64	67	69	64	67	71	64	67	71	64	67	71	64	68	72	65	70	74
50	56	60	63	56	60	63	56	60	63	56	60	63	56	60	63	56	60	63
	66	69	71	66	69	72	66	69	72	66	69	72	66	69	73	66	71	75
55	58	61	65	58	61	65	58	61	65	58	61	65	58	61	65	58	61	65
	68	71	72	68	71	74	68	71	74	68	71	74	68	71	74	68	72	76
60	60	63	66	60	63	66	60	63	66	60	63	66	60	63	66	60	63	66
	70	73	74	70	73	76	70	73	76	70	73	76	70	73	76	70	73	76
65	X	65	68	X	65	68	X	65	68	X	65	68	X	65	68	X	65	68
	71	75	76	71	75	78	71	75	78	71	75	78	71	75	78	71	75	78
70	X	X	70	X	X	70	X	X	70	X	X	70	X	X	70	X	X	70
	73	76	78	73	76	80	73	76	80	73	76	80	73	76	80	73	76	80

OPTIONS

COM-WEA	Weatherization Package Includes inlet and exhaust hoods, snorkel, bottom insulation and total weatherproofing to ensure correct operation when installed outside.
COM-RC	Roof Curb Available for all models and constructed of heavy gauge galvanized steel. The curbs are provided insulated and knocked-down for ease of handling.
COM-BSR	Bottom Supply and Return Allows for Return Air and Supply Air to be through the bottom of the unit. Normally used for rooftop applications in conjunction with a roof curb.
COM-BC	Fresh Air Bypass Damper Factory installed damper with two-position damper motor and thermostat with remote sensing element to allow outside air to bypass the heat exchanger during warm periods. (Note: Requires field-fabricated bypass duct by others.)
COM-FBD	Face and Bypass Damper Assembly Same as Fresh Air Bypass Damper except this option is a separate damper box containing both face and bypass dampers for positive shut-off. (Note: Requires field fabricated bypass duct by others.)
COM-EC	Exhaust Coating Epoxy coating for protection of aluminum heat exchanger against mildly corrosive environments. (Note: Available for Series 70 units ONLY.)
COM-WSOO	Remote Wall Switch Provides for manual speed selection. Includes a three-speed switch, defrost light and wall plate. (On-Off only on Models 3000 and 4000)
COM-WSCO	Remote Wall Switch/Time Clock The 24-hour timer may be set for automatic on/off cycling of the unit. This control operates on 24 volts and comes complete in a wall-mounted package which includes three-speed switch and defrost light. (On-Off only on Model 3000)
COM-WHSO	Remote Wall Switch/Humidistat Provides automatic fan control to maintain the humidity level below a preset level. Operates on 24 volts and comes in a wall-mounted package which includes three-speed switch and defrost light. (On-Off only on Model 3000)
COM-WSHC	Remote Wall Switch/Humidistat/Time Clock Includes both the humidistat and time clock in one wall-mounted package which also includes a three-speed switch and defrost light. (On-Off only on Model 3000)
COM-BDD	Backdraft Damper Factory installed counter-balanced backdraft damper to reduce leakage infiltration of conditioned/unconditioned air.
COM-ODP	Painted Exterior 100% Acrylic latex. Corrosion/weather-resistant primer.
COM-IFB	Internal Fresh Air Face & Bypass Allows fresh air to bypass heat exchanger in warm weather. Two-position damper motor, thermostat with remote sensing element included. (Only available on Model 4000)

GENERAL INSTALLATION CUSTOMER OPTIONS

The versatile E-Z-AIRE readily lends itself to customer-provided options which may further enhance the installation. Since the unit is designed for supply air and return air duct work, customers may elect to provide additional filtration on either the supply or return duct system or provide a form of preheat such as an electric preheat coil to be installed in the duct system.

INDOOR POOL APPLICATIONS

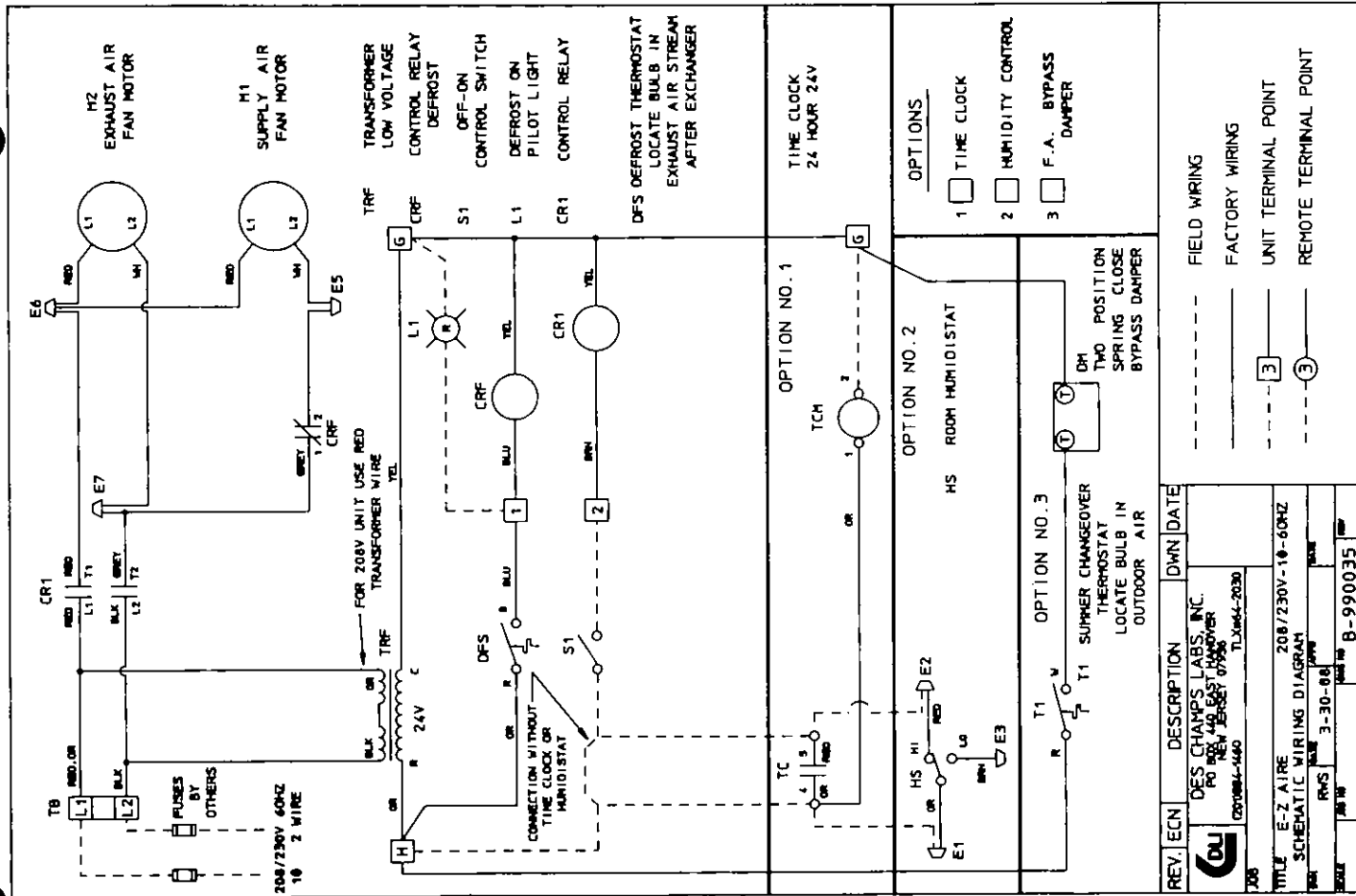
The E-Z-AIRE is an excellent choice for the control of humidity in indoor swimming pools and spas. In addition to moisture control, the E-Z-AIRE also has important health benefits since chemical-laden air is removed and replaced with fresh, outside air. For further information, request Technical Bulletin No. RES TECH 101.

For units installed outdoors, it is recommended that additional insulation be provided by the contractor to further conserve heat energy.

MODEL SELECTION

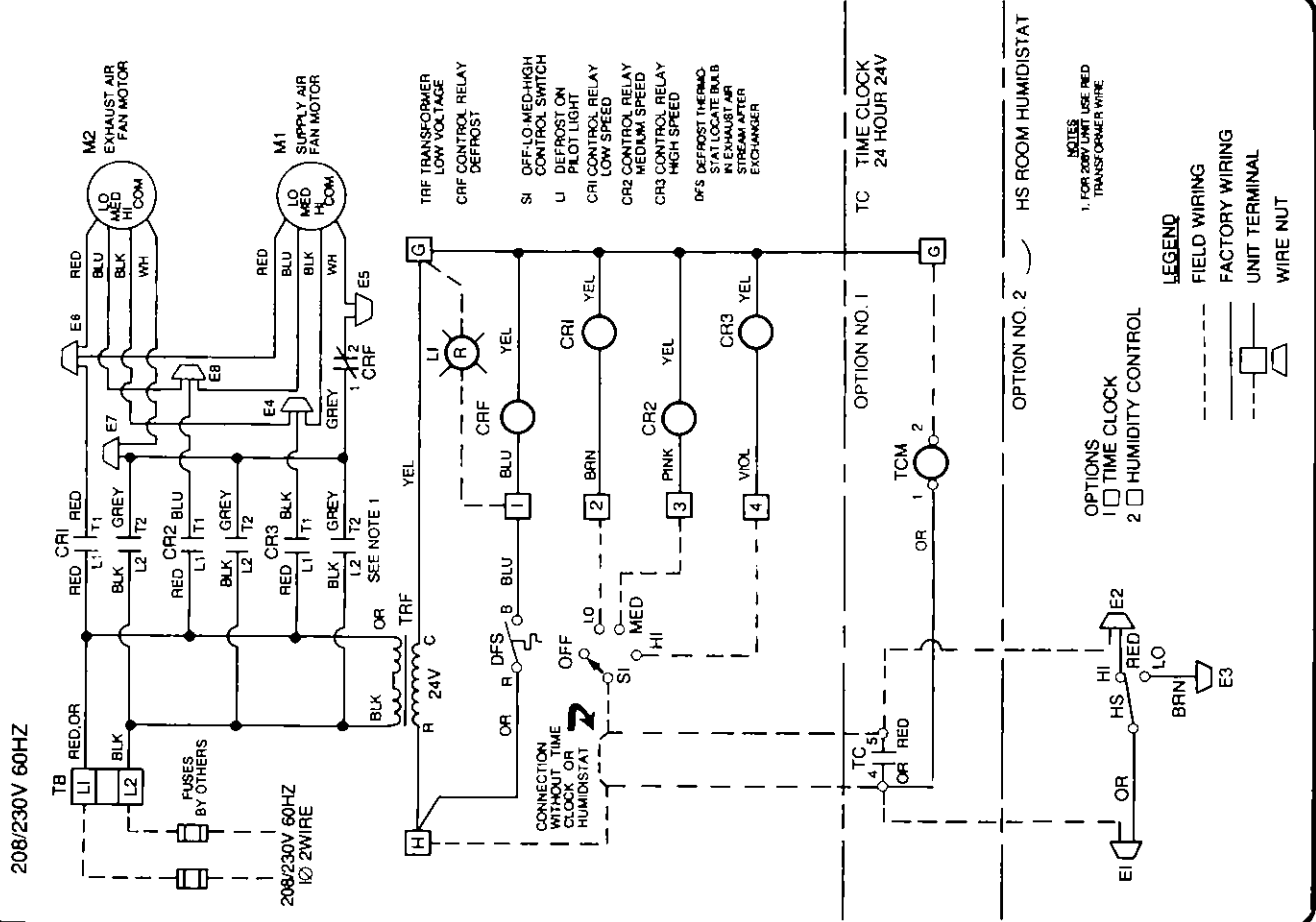
When selecting an E-Z-AIRE, determine the CFM capacity required by using the chart below. First determine the total cubic volume of the area to be ventilated. When calculated, enter chart from left-hand column labelled, "Cubic Feet of Area." Then read across to the column for the desired air changes per hour rate. The intersecting figure is the CFM required to provide the desired air change rate. For example, you have a 24,000 $\pm$ ft. area and desire 2 air changes per hour. Total CFM capacity required is 800. Then select an E-Z-AIRE model that provides this capacity.

CUBIC FEET OF AREA	AIR CHANGES PER HOUR		
	1	2	3
10,000	167	333	500
12,000	200	400	600
14,000	233	467	700
16,000	267	533	800
18,000	300	600	900
20,000	333	667	1,000
22,000	367	733	1,100
24,000	400	800	1,200
26,000	433	867	1,300
28,000	467	933	1,400
30,000	500	1,000	1,500
32,000	533	1,067	1,600
34,000	567	1,133	1,700
36,000	600	1,200	1,800
38,000	633	1,267	1,900
40,000	667	1,333	2,000
42,000	700	1,400	2,100
44,000	733	1,467	2,200
46,000	767	1,533	2,300
48,000	800	1,600	2,400
50,000	833	1,667	2,500
52,000	867	1,733	2,600
54,000	900	1,800	2,700
56,000	933	1,867	2,800
58,000	967	1,933	2,800
60,000	1,000	2,000	3,000

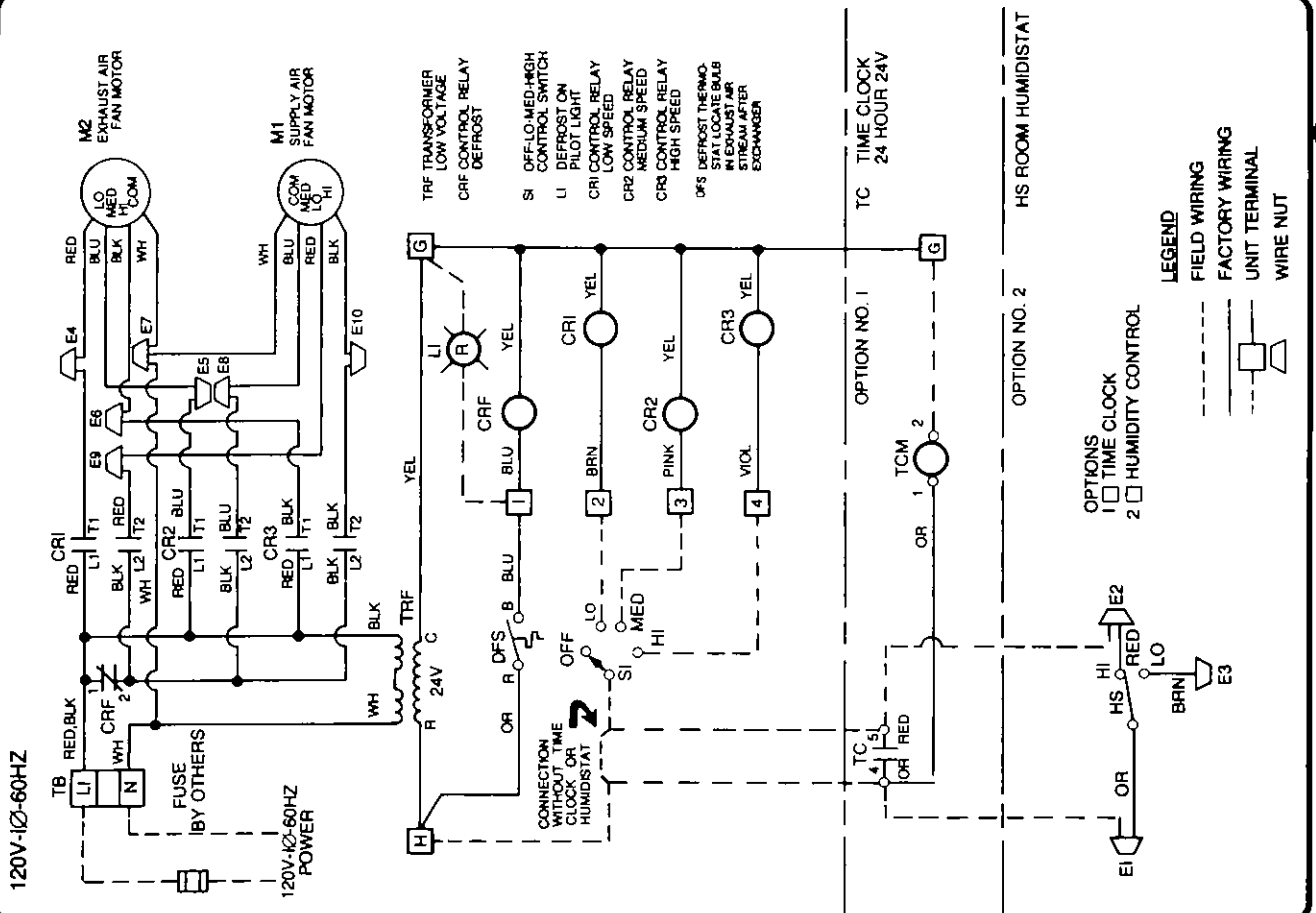


E-Z-AIRE 970, 985, 1570, 1585, 2270, 2285 SCHEMATIC WIRING DIAGRAMS

STANDARD



OPTIONAL



ENGINEER'S TYPICAL SPECIFICATIONS

The contractor shall furnish and install an E-Z-AIRE Series 70/85 high efficiency air-to-air energy recovery package. The entire unit shall be completely assembled and self-contained in one common housing. Housing shall be made of at least 22 gauge, zinc coated steel with floor and inside support structures of at least 18 gauge, zinc coated steel.

Cabinet shall be completely assembled and all controls and operating components shall be factory tested.

Unit shall be equipped with a built-in galvanized steel drain pan and shall have a minimum of (2) two condensate drains.

Filters shall be located in the outside airstream in front of the heat exchanger and must be completely accessible for cleaning or replacement.

Unit shall be equipped with access panels or doors in all areas where service or cleaning may be required.

The heat exchanger shall be a plate-type, folded, aluminum, counterflow type with no plastic or paper utilized and shall have cross contamination of less than 1/10 of 1%.

The unit shall be equipped with 24 volt relays and transformers for all optional controls.

A temperature actuated defrost package shall be factory installed, wired and tested.

Unit shall be equipped with a thermally protected split capacitor motor and direct drive centrifugal blowers, capacitor start/run motor and belt drive blowers.

Units shall be fully insulated on all sides including blower compartment and be suitable for outside installation with all electrical controls enclosed in water-tight outdoor approved compartments.

The unit shall supply air to the space at _____°F when the return air is _____°F @ _____%RH and the outside temperature is _____°F (winter conditions).

The unit shall be capable of moving _____SCFM at an external static pressure of _____inches W.C.

NOTE: Models EZA-4070 and EZA-4085 have hinged access doors and rubber-in-shear vibration isolators as standard features.

E-Z-AIRE LIMITED WARRANTIES WITHIN THE FIFTY STATES OF THE U.S.A. AND DISTRICT OF COLUMBIA

If your E-Z-AIRE fails to function within one year after the date of its original purchase, due to a defect in material or workmanship of any part of the product, DLI will furnish a new or rebuilt part, F.O.B. factory, to replace the defective part, all delivery, installation and labor costs being your responsibility.

The above warranty does not cover failure to function caused by damage to the unit while in your possession (other than damage caused by defect or malfunction) or by its improper installation or by unreasonable use of the unit, including with limitation, failure to provide reasonable and necessary maintenance or to follow the written installation and use instructions on which this warranty appears.

THE REMEDIES PROVIDED FOR THE ABOVE EXPRESSED WARRANTY ARE THE SOLE AND EXCLUSIVE REMEDIES, THEREFORE NO OTHER EXPRESSED WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURCHASE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL PURCHASE. IN NO EVENT SHALL DLI BE LIABLE FOR INCIDENTAL EXPENSES OR CONSEQUENTIAL DAMAGES. NO WARRANTIES, EXPRESSED, OR IMPLIED, ARE MADE TO ANY BUYER FOR RESALE.

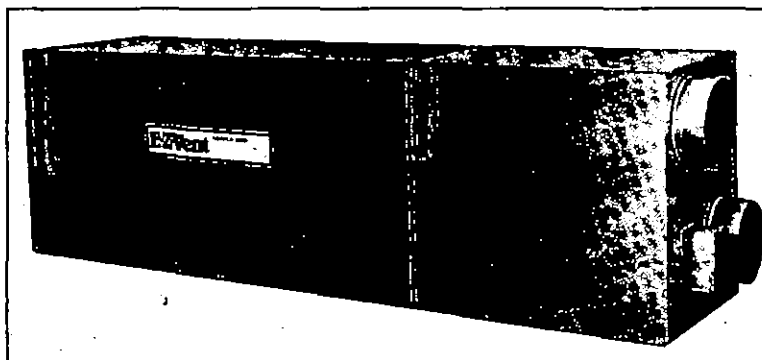
Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

No warranties are made for units sold outside of the above stated areas. Your distributor or final seller may provide a warranty on units sold outside of these areas.

This warranty is contingent upon the completion and return of the warranty registration card (packed with unit) and a proof of purchase.

In addition to E-Z-AIRE, Des Champs also manufactures E-Z-VENT residential air-to-air heat exchangers. E-Z-VENT removes indoor air pollution and high humidity* before they accumulate. For use in tightly sealed homes, small offices, mobile and modular homes. Request Bulletin EZV-790 or contact DLI for the name of your nearest distributor.

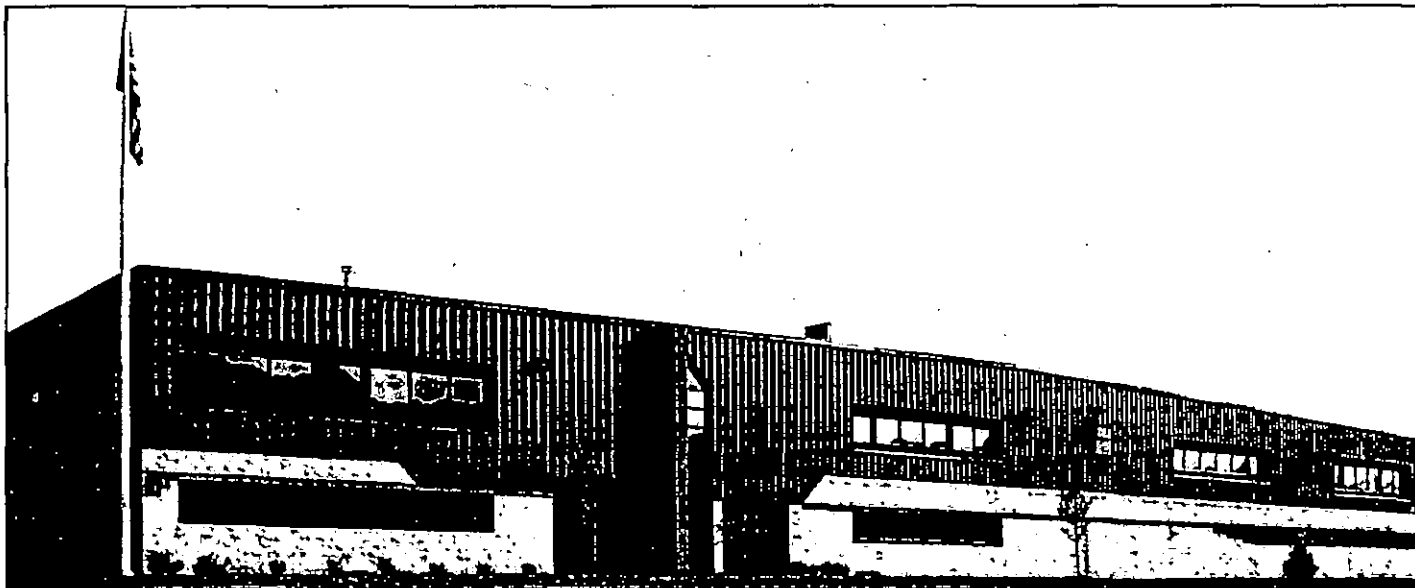
* Humidity control may not be possible during warm summer months.



E-Z-VENT Residential Air-to-Air
Heat Exchanger

Your local distributor is:

E-Z-AIRE® and E-Z-VENT® are manufactured, with pride, in America by Des Champs Laboratories Incorporated (DLI). DLI is a recognized award-winning leader in the design, engineering, and manufacture of high efficiency fresh air systems, packaged air handling units, and air-to-air heat exchangers.



Pictured is DLI's newest facility located near Lexington, Virginia. This 89,000 square foot plant has significantly increased our manufacturing capabilities.



DES CHAMPS LABORATORIES INCORPORATED

Box 220 • Douglas Way • Natural Bridge Station, VA 24579 • (540) 291-1111 • Fax: (540) 291-2222

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Printed in the United States

COUNTER FORM
PLEASE PRINT

PLUMBING

CONTRACTOR:

ADDRESS:

PHONE:

LIC. #:

LIC. EXPIRATION DATE:

FEDERAL EMPL. # (or S.S. #):

TECHNICAL SITE DATA (LIST ALL FIXTURES)

NO. FIXTURE/EQUIPMENT

Water Closet
Urinal / Bidet
Bath Tub
Lavatory
Shower
Floor Drain
Sink
Dishwasher
Drinking Fountain
Washing Machine
Hose Bibb
Gas Piping
Fuel Oil Piping
Water Heater
Steam Boiler
Hot Water Boiler
Sewer Pump
Interceptor / Separator
Backflow Preventer
Greasetrap
Water Cooled AC or Refrig. Unit
Sewer Connection
Septic (Disposal System) Closure
Water Service Connection
Gas Service Connection
Active Solar System
Vent Through Roof
Other

Estimated Cost of Plumbing Work: \$

Signature:

Owner ☐ Contractor ☐

SUBCODE APPROVAL:

PLANS: Required ☐ Approved ☐

Approved by:

Date:

CONTRACTOR AFFIX SEAL:

FIRE

CONTRACTOR:

ADDRESS:

PHONE:

LIC. #:

EXP. DATE:

FEDERAL EMPL. # (or S.S. #):

TECHNICAL DATA (DESCRIPTION OF WORK)

Heating Type: ☐ Gas ☐ Oil ☐ Electric ☐ Solar
Heating Sys: ☐ New ☐ Existing
Location of Furnace / Boiler

Water Supply Source

Method of Valve Supervision

Local Alarm Supervision

Central Supervision

Proprietary Supervision

Flammable Liquid Storage Tanks	Capacity:	Fuel:
Combustible Liquid Storage Tanks	Capacity:	Fuel:
L.G.P. Storage Tanks	Capacity:	Fuel:

DESCRIPTION NUMBER

Wet Sprinkler Heads

Dry Sprinkler Heads

Total

Smoke Detectors

Heat Detectors

Total

Stand Pipes

Kitchen Hood Exhaust Systems

Pre-Engineered Systems

Co2 Suppression

Halon Suppression

Foam Suppression

Dry Chemical

Wet Chemical

Gas or Oil Fired Appliance

Other

Other

Estimated Cost of Fire Protection Work: \$

Signature:

Owner ☐

Contractor ☐

SUBCODE APPROVAL:

PLANS: Required ☐ Approved ☐

Approved by:

Site Location: NAIL CONSTRUCTION Date Rec'd: _____
Block: 549 Lot: 5 Date Issued: _____
Owner/Id Fee: DEBBIE LASTALLA Control #: _____
Address: 250 Linn Plaza Permit #: _____
BRICK 8477
State: NY Zip: 08723 Phone: (201) 477-7195
SS #: _____ Provide only if Applicant is owner

TOWNSHIP OF BRICK
401 Chambers Bridge Road
Brick, New Jersey 08723

COUNTER FORM
PLEASE PRINT

BUILDING

CONTRACTOR: E. P. HARRIS SHIAFING & A/C
ADDRESS: 175 S. 5th Ave. Quakertown
PA 18851
PHONE: 717-233-7921
LIC. #: 11501
LIC. EXPIRATION DATE: 3-27
FEDERAL EMP. # (or S.S. #): 227157570

TECHNICAL SITE DATA

DESCRIPTION OF WORK:
120 VOLT Grounded-Air SEPARATION SYSTEM
TO REMOVE CHEMICAL FUMES
FROM NAIL PRODUCTS
AND REPLACE w/ FRESH AIR

TYPE OF WORK

☐ New Building
☐ Addition ☐ Fence: Height (6' or More)
☐ Alteration ☐ Sign: Sq. Ft.
☐ Roofing ☐ Pool (In Ground)
☐ Siding ☐ Pool (Above Ground)
☐ Other: ☐ Asbestos Abatement
☐ Other: ☐ Demolition

BUILDING CHARACTERISTICS

USE GROUP Present: _____ Proposed: _____
CONSTR. CLASS Present: _____ Proposed: _____
No. of Stories: _____
Height of Structure: _____
Area - Largest Floor: _____
New Building Area / All Floors: _____
Volume of Structure: _____ Total Land Disturbed: _____
Signature: [Signature]

Estimated Cost of Building Work: _____
New Building: (1): 5
Alteration: (2): 5
TOTAL (1+2): 10
SUBCODE APPROVAL: _____
PLANS: Required ☐ Approved ☐

Approved by: _____
Date: _____

ELECTRICAL

CONTRACTOR: EASTERN SHORE ELEC. CONT.
ADDRESS: 829 ROSS ST
TOMS RIVER NJ 08753
PHONE: 732 506-9421
LIC. #: 14501 EXP. DATE: _____
FEDERAL EMP. # (or S.S. #): _____

TECHNICAL DATA (LIST ALL FIXTURES)

DESCRIPTION	QTY	SIZE
Lighting Fixtures		
Receptacles		
Switches		
Detectors		
Light Poles		
Motors: Exact HP	<u>2 - 3/4</u>	<u>HP</u>
Emergency & Exit Lights		
Communications Points		
Alarm Devices/E.A.C. Panel		

TOTAL NUMBERS

Pool Permit w/UV Lights	
Storable Pool/Spa/Hot Tub	
KW Elec. Range / Receptacle	KV
KW Oven / Surface Unit	KV
KW Elec. Water Heater	KV
KW Elec. Dryer / Receptacle	KV
KW Dishwasher	KV
HP Garbage Disposal	HP
KW Central A/C Unit	KV
HP/KW Space Heater/Air Handler	HP/KV
KW Baseboard Heat	KV
HP Motors 1/+ HP	HP
KW Transformer/Generator	KV
AMP Service	AMP
AMP Subpanels	AMP
AMP Motor Control Center	AMP
AMP Elec. Sign/Outline Light	KV
Other	
Other	
Other	
Other	

Estimated Cost of Electrical Work: 5000.00
Signature (print name): [Signature]
Estimated Cost of Electrical Work: 5
Signature (print name): _____

Owner ☐ Contractor ☐
SUBCODE APPROVAL: _____
PLANS: Required ☐ Approved ☐
Approved by: _____
Date: _____

CONTRACTOR AFFIX SEAL: