

**Duo-Aire<sup>®</sup>**

**Duo-Aire Technical Guide**

## Rooftop Packages

Packages offer simplicity and flexibility in selection of equipment, economy, and energy efficiency for low cost operations with heating & cooling options.

### Standard Features:

- Pre-engineered rooftop package
- Curb, exhaust fan with adapter
- Air handler with tempering options, as required
- Prewired, pre-piped with single point power connections
- ETL designed certified units

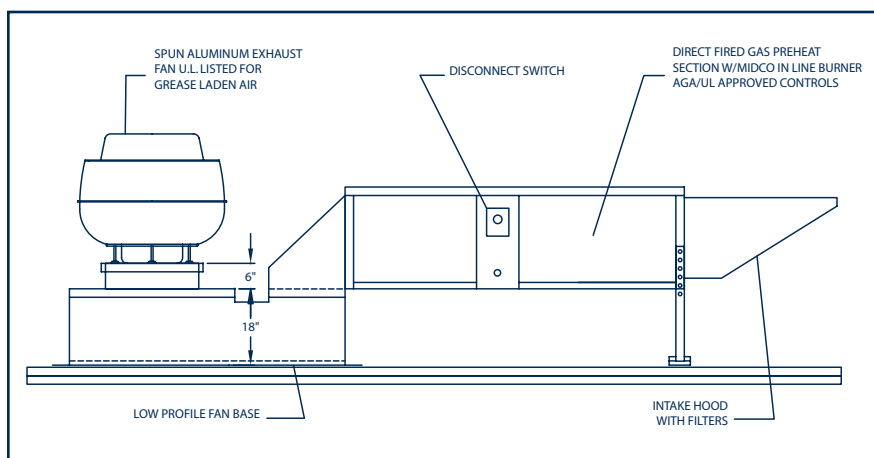
### Duo-Aire Offers:

- Rooftop Packages
- UL Listed Concentric Duct
- Single Source Supplier for Ventilation and Air Handling Requirements
- Pre-engineered Systems

## Package Systems:

CAAD RCLP, CAA Indirect, RTCC, CAA RCCC, CAA DX, CAA Evap/HW/Steam Coil (CAA E/Elec)

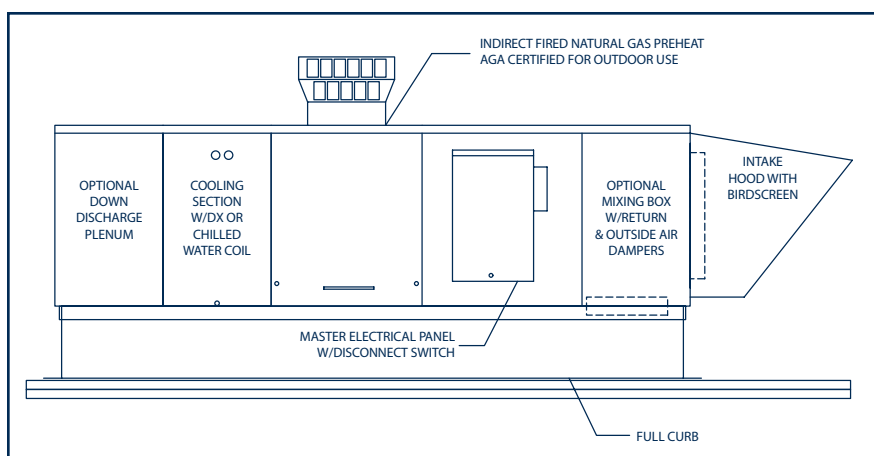
### Model CAAD RCLP



### Standard Features:

- Tempered supply air-direct gas fired to 1100 MBH (hood packages)
- Complete gas train and controls provided
- Single source electrical connection to master electrical panel
- Low profile fan base for **UL listed concentric duct**
- Available untempered
- UL 762 exhaust fan
- ETL design certified units

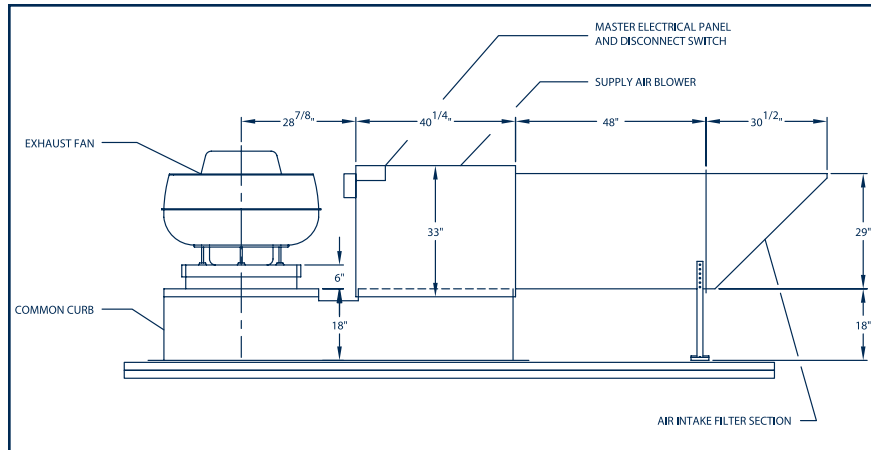
### Model CAA Indirect



### Standard Features:

- Indirect furnace (single or double) to 800 MBH input (80% efficiency)
- Stainless steel heat exchanger with blow through fan
- Prewired, pre-piped
- Gravity vent standard
- Units to 12,000 CFM supply air
- Unitized fabrication

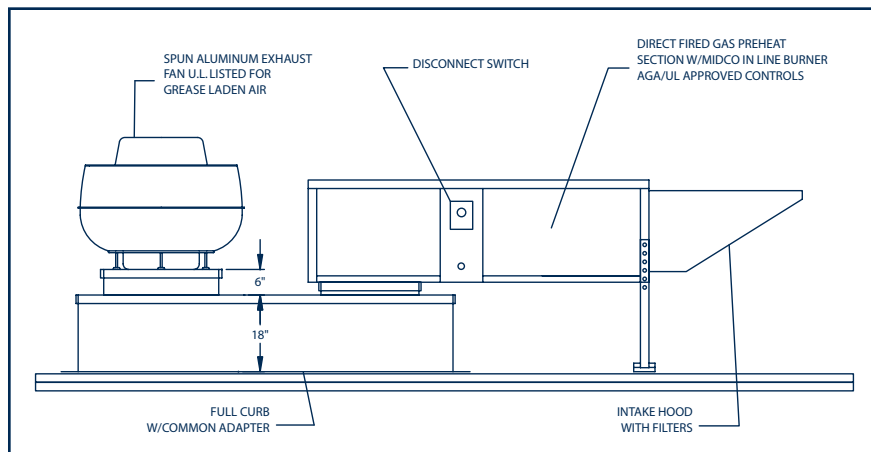
## Model RTCC



### Standard Features:

- Untempered supply air packages up to 8,000 CFM
- Common curb
- Filtered intake
- Prewired master electrical panel optional
- UL 762 exhaust fan with curb adapter optional

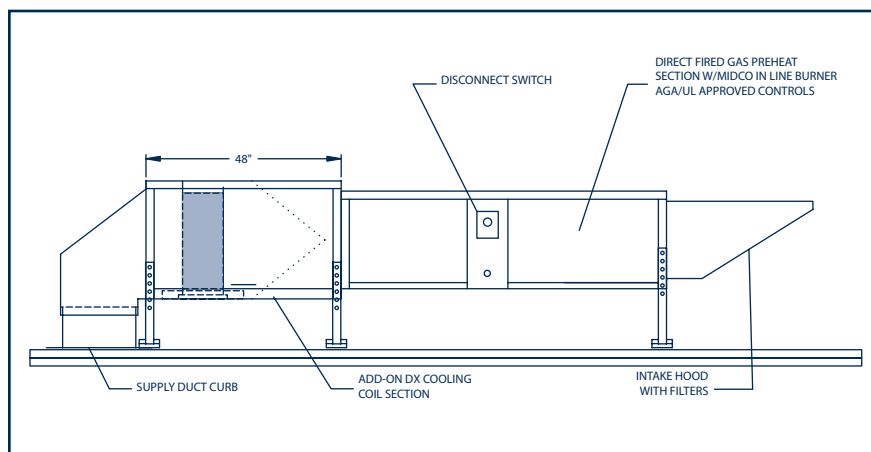
## Model CAA RCCC



### Standard Features:

- Units to 12,000 CFM supply air
- Standard housing - 28", 40" or 52" wide
- Blower, motor, drives, filtered intake
- Master electrical panel
- Heated or non-heated options
- Common curb for parallel or concentric duct
- ETL certified

## Model CAA DX

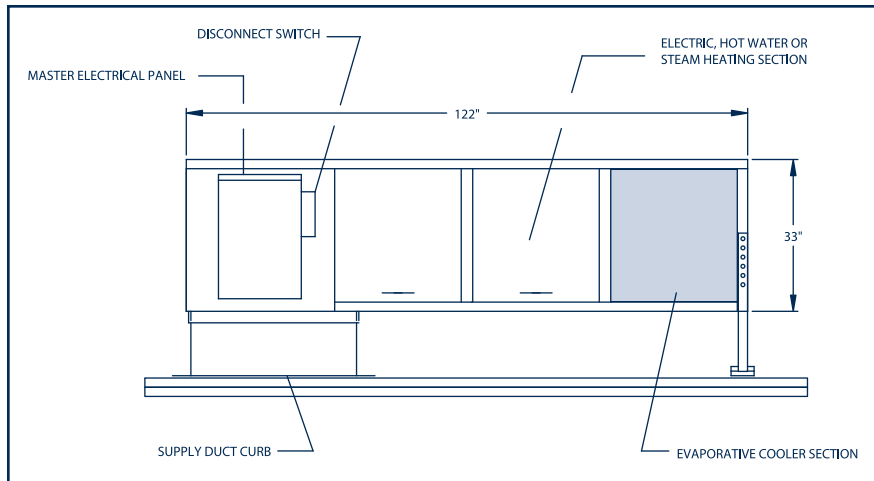


### Standard Features:

- Combination heating/cooling package
- Tempered supply air-direct gas fired to 1100 MBH
- Indirect gas fired to 800 MBH
- Direct expansion coil added downstream of blower fan (blow through design)
- Standard housing 52" wide, complete package systems, prewired, pre-plumbed
- Condenser & controls provided by others
- Available with electric coil heat

## Rooftop Packages Continued

### Model CAA Evap/HW/Steam Coil, CAA E/Elec



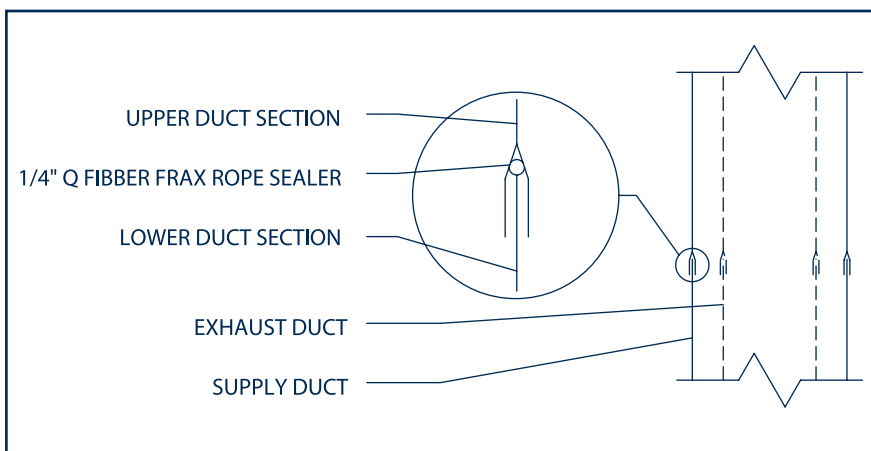
#### Standard Features:

- Tempered supply air via hot water, steam, or electric coil
- Optional evaporative cooling section includes media pads, circulation pump, water pan, auto drain & fill valves available for all models. Also available with direct gas fired unit
- Units to 12,000 CFM supply-housing sized per application with draw through design
- Complete prewired, pre-plumbed
- External controls by others

## Concentric Supply/Exhaust Ductwork

Duo-Aire's UL Listed Duct provides customers with cost and space savings when requiring duct for grease applications. This listed concentric grease duct can be installed to within one inch of combustible material, providing the customer with flexibility and savings.

### Vertical Duct With Slip Joint Connection

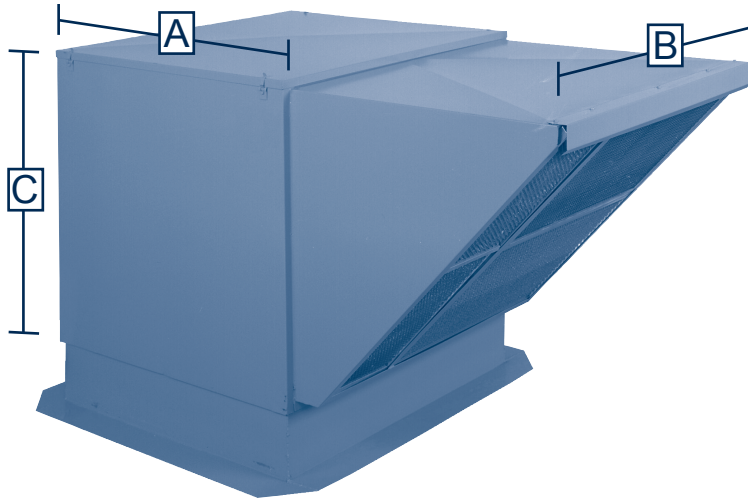


#### Standard Features:

- Listed for installation to within one inch of combustible material
- 18 gauge continuously welded stainless steel exhaust duct
- 18 gauge aluminized steel supply duct
- Flexibility offers many configurations - straight, offsets, elbows, tee's
- Compliance with NFPA 96-2001

# Supply Fans

Model	HP	A (L-R dimensions)	B (body dimensions)	C (height, no curb)	Max. Air Flow (at .75 TSP)	Unit Weight
RT-9	1/2	29	20	31	1300	165
RT-10	1/2	29	20	31	1500	170
RT-12	1/2	34	37	31	1950	260
	3/4	34	37	31	2500	270
	1	34	37	31	3000	280
	1 1/2	34	37	31	3700	290
RT-15	1 1/2	38	37	33	4250	370
	2	38	37	33	5000	375
	3	38	37	33	6000	400
RT-18	2	44	37	33	6250	435
	3	44	37	33	7000	465
	5	44	37	33	8000	500

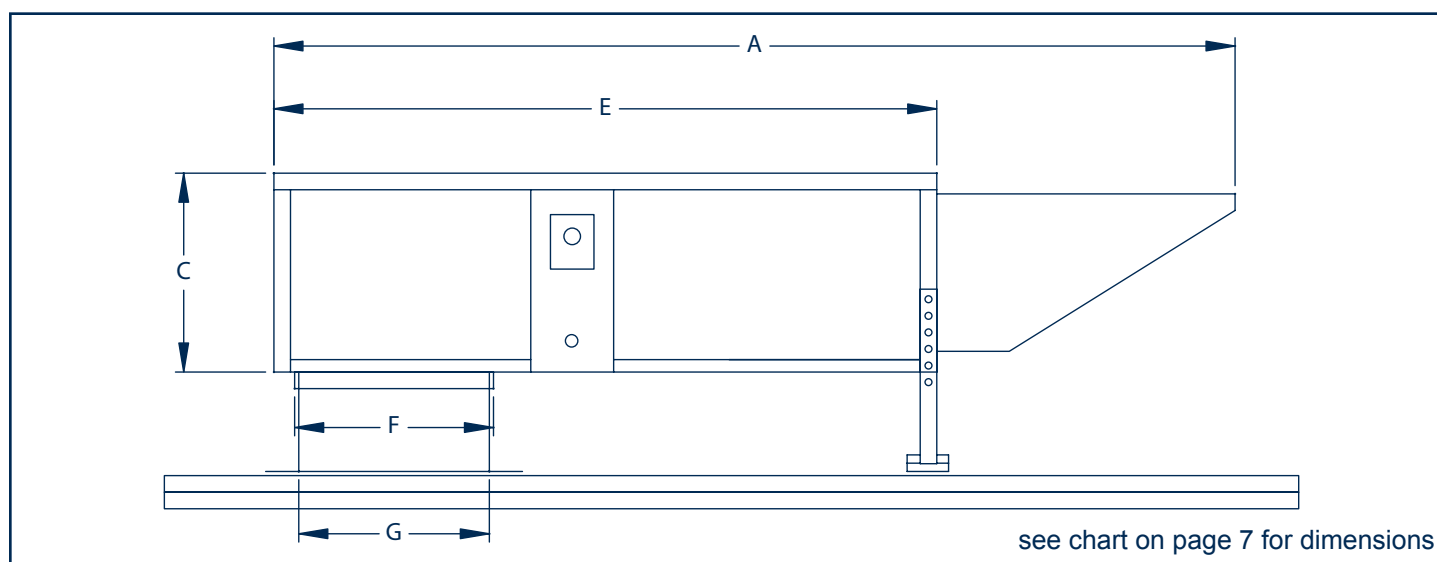


### Standard Features:

- Aluminum steel housing, welded construction with industrial finish over primer base
- DWDI centrifugal blower with motors, drives and pulleys
- Factory prewired with disconnect switch
- Optional master electrical panel with motor starters
- Filtered supply air intake
- In-line designs available
- Limited cooling and heating options available
- ETL listed

## Gas Fired Make-Up Air Units

Duo-Aire's Make-Up Air Units provide many configurations to fit job specific applications with a wide range of supply air up to 12,000 CFM. A variety of heating/cooling options include; direct fired gas, indirect, electric coils, steam/hot water coils, DX coils and evaporative cooling.



### Quality Assurance:

- 100% testing of units to confirm proper design performance

### Housing Standard Features:

- 18 MSG Galvanized steel casing
- One piece welded casing, includes blower, drives, burner, gas train and controls
- Gasketed doors with easy access latch providing access to blower assembly, motor, drives, gas train and electrical controls
- Weatherized housing for outdoor or indoor mounting with 4.0 mill industrial enamel finish
- Intake hood with filter section

### Blowers/Drives Standard Features:

- Double width, double inlet forward curved centrifugal blower
- Pre-lubricated sealed ball bearings (pillow block on certain models)
- Adjustable sheaves on motors (to 10 HP STD)
- High efficiency, 1800 RPM, open drip-proof, T-frame motor on adjustable base
- Motor tri-voltage rated
- Drives sized to handle 150% of motor nameplate horsepower

### Burner Standard Features:

- Wide range, direct gas fired burner, rigidly supported in adjustable profile opening
- Stainless steel burner and cast iron manifold
- Burner capable of 30:1 turndown rated at 550 MBH per linear foot
- Intermittent pilot assembly-AGA certified

### Gas Train Standard Features:

- Standard gas train includes: main pressure regulator, pilot pressure regulator, safety shutoff valves, gas modulating valve, flame safeguard control, ignition transformer

### Electrical Control Standard Features:

- Factory-wired master electric panel and safety disconnect in NEMA 3R enclosure
- Unit motor starters
- 120 volt control circuitry transformer
- High limit switch
- Air pressure differential switch
- Mechanical or electronic modulation (optional)
- Flame safeguard relay
- Units ETL Listed

Total Static Pressure (in W.C.) Blower Velocity and HP								
Air Volume -CFM	1"	1.25"	1.5"	1.75"	2"	2.25"	2.5"	2.75"
1000	G9 1529 1/2	G9 1529 1/2	G9-7 1529 1/2	G9-7 1529 3/4	G9-7 1529 3/4	G9-7 1529 3/4		
2000	G12-9 1750 3/4	G12-9 1750 3/4	G12-9 1750 1	G12-9 1750 1	G12-9 1750 1 1/2	G12-9 1750 1 1/2	G12-9 1750 1 1/2	
3000	G12 2054 1 1/2	G12 2054 1 1/2	G12 2054 1 1/2	G12 2054 2	G12 2054 2	G15-10 1853 2	G15-10 1853 3	G15-10 1853 3
4000	G15 1923 2	G15 1923 2	G15 1923 2	G15-10 2469 3	G15-10 2469 3	G15-10 2469 3	G15-10 2469 3	G15-10 2469 3
5000	G15 2403 3	G15 2403 3	G15 2403 3	G18 1744 3	G18 1744 5	G18 1744 5	G18 1744 5	G18 1744 5
6000	G18 2093 3	G18 2093 3	G18 2093 3	G18 2093 3	G18 2093 5	G18 2093 5	G18 2093 5	G18 2093 7 1/2
7000	G18 2413 3	G18 2413 3	G18 2413 5	G18 2413 5	G18 2413 5	G18 2413 5	G18 2413 5	G18 2413 7 1/2
8000	G18 2758 5	G18 2758 5	G18 2758 5	G18 2758 5	G18 2758 7 1/2	G18 2758 7 1/2	G18 2758 7 1/2	G18 2758 7 1/2
9000	G18 3103 5	G18 3103 5	G18 3103 7 1/2	G18 3103 7 1/2	G18 3103 7 1/2	G18 3103 7 1/2	G18 3103 7 1/2	G18 3103 10
10000	G18 3488 7 1/2	G18 3488 7 1/2	G18 3488 7 1/2	G18 3488 7 1/2	G18 3488 10	G18 3488 10	G18 3488 10	G18 3488 10
11000	G18 3836 7 1/2	G18 3836 10	G18 3836 10	G18 3836 10	G18 3836 10	G18 3836 10	G18 3836 15	G18 3836 15
12000	G18 4185 10	G18 4185 10	G18 4185 10	G18 4185 15	G18 4185 15	G18 4185 15	G18 4185 15	G18 4185 15

Heavy Duty Blower With Pillow Block, Bearings Required

Typical Internal Static Pressure Losses (in W.C.)												
Cubic Feet/Minute	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
Entry Loss	N/A	.01"	.03"	.05"	.08"	.12"	.16"	.10"	.12"	.15"	.18"	.21"
Wasahble Filters	.01"	.03"	.04"	.06"	.09"	.09"	.13"	.10"	.14"	.17"	.12"	.14"
Burner	.61"	.61"	.61"	.61"	.61"	.61"	.61"	.61"	.61"	.61"	.61"	.61"
Cabinet Loss	.05"	.05"	.05"	.15"	.20"	.25"	.31"	.15"	.17"	.20"	.27"	.31"
Inlet Damper	N/A	N/A	.02"	.03"	.04"	.05"	.06"	.04"	.05"	.08"	.09"	.13"
Discharge Damper	.01"	.05"	.10"	.12"	.18"	.13"	.18"	.11"	.14"	.18"	.22"	.25"
Discharge Diffuser	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"
External Static Pressure												
Miscellaneous												
Total Static Pressure												

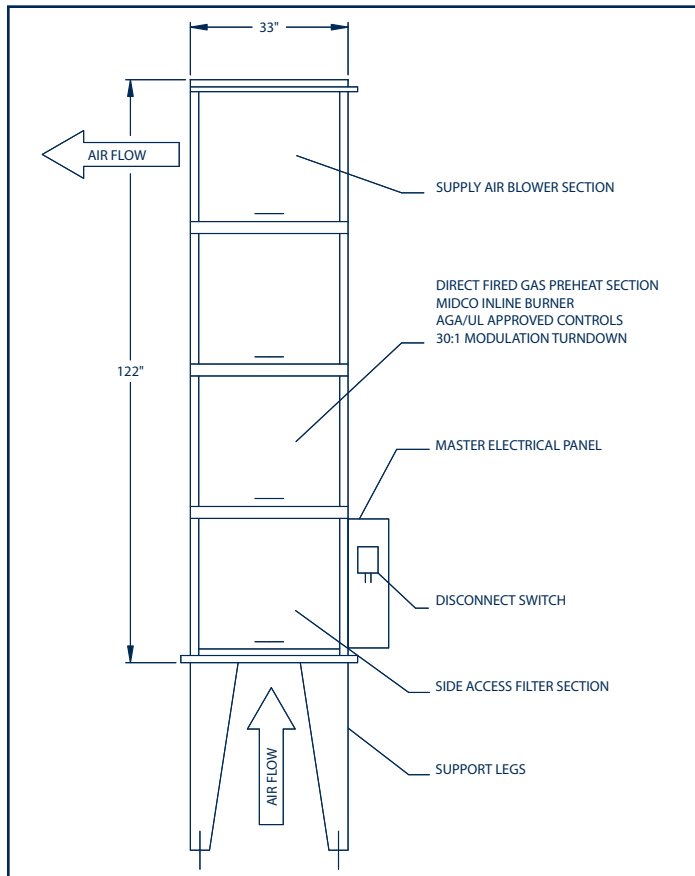
figures shown are typical static losses to be used in unit selection, losses are approximate, please consult factory for actual losses at design CFM.

## Indoor Suspended and Upright Units

Model	Cfm (Up To)	Max. Btu Input	Min. Gas Pressure	Max. Gas Pressure	Gas Inlet (Npt)	*Unit Weight	A	B	C	D	E	F	G	H	I
CAA-1D-9-7	800	275,000	6.5" w.c.	14" w.c.	3/4"	600	116"	28"	24"	104"	80"	24"	23"	10 1/4"	9 3/16"
CAA-1D-9	1,000	275,000	6.5" w.c.	14" w.c.	3/4"	600	116"	28"	24"	104"	80"	24"	23"	10 1/4"	11 13/16"
CAA-1D-10	1,200	275,000	6.5" w.c.	14" w.c.	3/4"	600	116"	28"	24"	104"	80"	24"	23"	11 3/8"	13 1/8"
CAA-1D-12-9	2,500	275,000	6.5" w.c.	14" w.c.	3/4"	600	116"	28"	24"	104"	80"	24"	23"	13 7/16"	12 1/4"
CAA-1D-12	3,200	275,000	6.5" w.c.	14" w.c.	3/4"	600	116"	28"	24"	104"	80"	24"	23"	13 7/16"	15 5/8"
CAA-1D-15-10	4,000	275,000	6.5" w.c.	14" w.c.	3/4"	650	122"	40"	30"	116"	86"	37"	36"	15 7/8"	14 11/16"
CAA-1D-15	4,500	275,000	6.5" w.c.	14" w.c.	3/4"	650	122"	40"	30"	116"	86"	37"	36"	15 7/8"	18 5/8"
CAA-2D-15	5,000	550,000	7.5" w.c.	14" w.c.	3/4"	700	122"	40"	30"	116"	86"	37"	36"	15 7/8"	18 5/8"
CAA-2D-18	8,000	550,000	7.5" w.c.	14" w.c.	3/4"	750	130"	40"	36"	116"	86"	37"	36"	18 7/8"	21 7/8"
CAA-3D-18	8,000	825,000	7.5" w.c.	14" w.c.	1"	850	130"	40"	36"	116"	86"	37"	36"	18 7/8"	21 7/8"
CAA-3D-18HD	12,000	825,000	7.5" w.c.	14" w.c.	1"	900	138"	52"	36"	124"	94"	49"	48"	18 7/8"	21 7/8"
CAA-4D-18HD	12,000	1,100,000	8" w.c.	14" w.c.	1"	950	138"	52"	36"	124"	94"	49"	48"	18 7/8"	21 7/8"

\* Add 50 lbs for upright and four section units

### Model CAA Upright Units



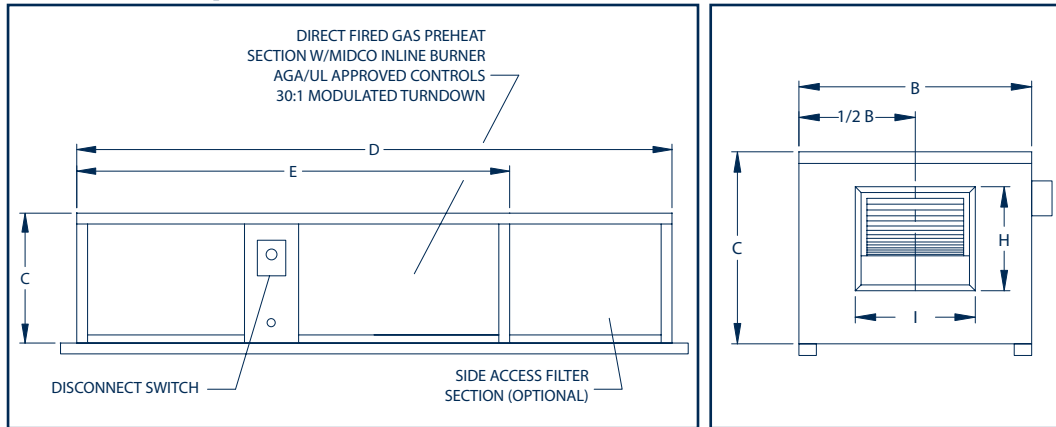
#### Standard Features:

- Vertical units with horizontal discharge
- Indoor or outdoor mounting
- Provides heated supply air for space heating applications
- All gas and electrical controls provided
- Unit 18 gauge aluminum steel casing with painted exterior
- 12 gauge black iron legs provided -36" standard (up to 72" available)
- 80/20 recirculation option available
- ETL listed



## Indoor Suspended and Upright Units Continued

### Indoor Suspended Units



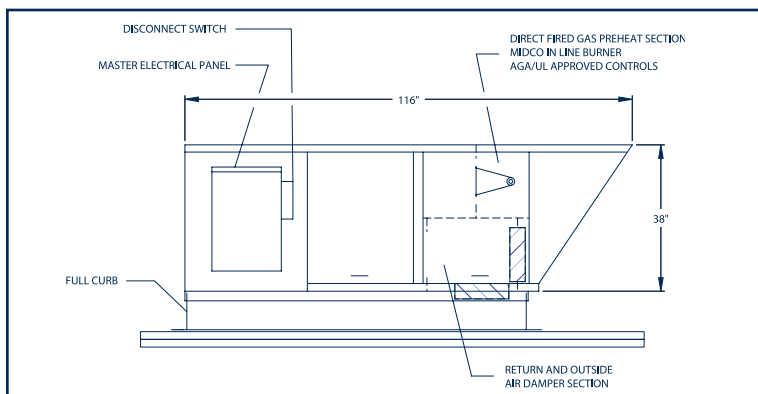
#### Standard Features:

- Available for all models of make-up air
- Tempered or untempered units
- Side access filter section
- Mounting arrangement 3" x 2" c-channel
- Hanger rods by others
- Vibration isolators optional
- ETL listed

## Air Handling Recirculation Option

Duo-Aire offers efficient alternatives to heating/cooling conditions by providing recirculation options to fit the customer requirements.

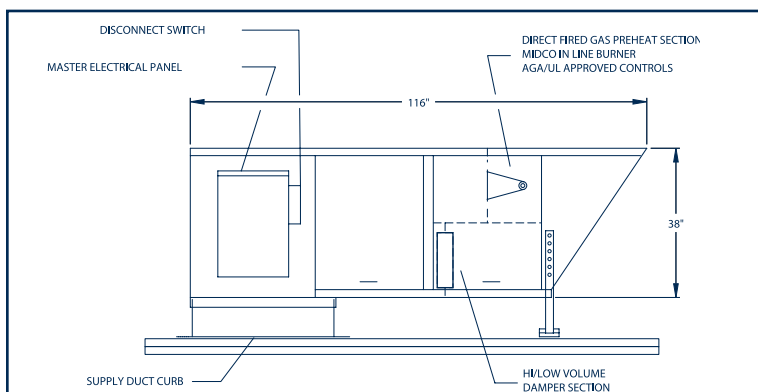
### Modulating Recirculation For Building Pressure Control



80/20 Recirculation

- Controls building pressure while providing supplemental heat or cooling
- Temperature sensing systems maintains pre-selected temperature
- Damper arrangements control building pressure
- Recirculation system provides up to 80% recirculation of tempered supply air
- Reduces infiltration into building

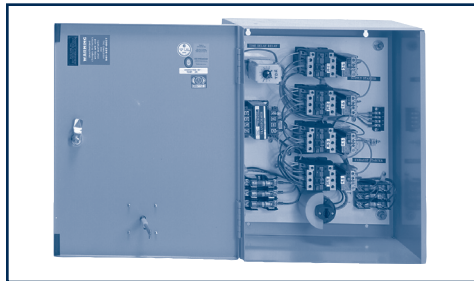
### High/Low Volume Control



- Provides dual air volumes to supplement varying building requirements
- Low setting reduces load on HVAC system-brings in fresh outside air to compensate for building air loss
- High setting provides additional volume of tempered outside supply air to replace air lost on intermittent basis
- Variable damper or two speed motor arrangement

## Electrical Control Panel

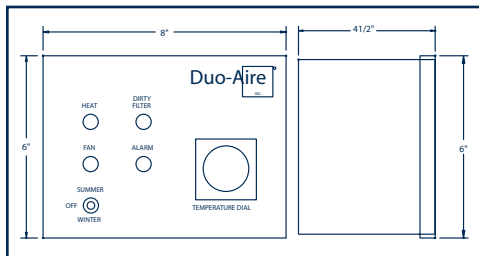
### Mechanical Motor Control Panel



#### Standard Features:

- ETL listed as master electric panel
- Interlock cooking equipment, fire suppression, and exhaust/supply fans
- Up to eight motor starters in NEMA rated panel

### Remote Control Panel For Heated Make-Up Air



#### Standard Features:

- Summer/winter switch
- Optional temperature dial, dirty filter indicator features available
- Custom panels available upon request

## Air Handling Guide Terms & Options

**DF-Dirty Filter Indicator:** A pressure sensing switch monitors filter resistance when filters are dirty or clogged and energizes indicator light mounted on the control panel.

**EFMS-Exhaust Fan Motor Starter:** Contactors and overload relay are mounted in the master control panel to protect fan motor from an overload condition.

**HDB-Heavy Duty Blower:** Blower provided for high air flow and/or static application with pillow block bearings and angle iron frame.

**HG-High Gas Pressure Regulator:** A full lockup type gas regulator capable of reducing line pressure to below one half P.S.I. outlet pressure with inlet pressures to ten P.S.I.

**INH-Insulated Housing:** One inch fiberglass insulation is secured inside the unit downstream of the burner to prevent condensation and for sound attenuation.

**MAX 14/21 Maxitrol Series 14/21:** Electronic discharge temperature control monitors temperature discharge at blower and modulates to maintain set temperature. Temperature may be adjusted remote from unit.

**MID-Motorized Inlet Damper:** Outside air damper mounted internal to unit, motorized to keep outside air from coming through unit when not in operation.

**MWS-Mild Weather Stat:** Outdoor air monitoring thermostat mounted at intake of supply air unit, de-energizes burner when outside air temperature exceeds a pre-set temperature.

**R 80/20-Recirculation:** Recirculation option for tempered supply air controls building pressure and provides supplemental tempered air by using a dual damper arrangement to control recirculated air. Minimum of 20% outside air required.

**RCP-Remote Control Panel:** Control panel mounted remote from unit with required controls. Standard panel includes summer/off/winter switch and indicator lights with optional temperature dial and dirty filter indicator. Other options available on Deluxe Panel.

**SAF-Side Access Filter:** A V-bank filter section with access from side of unit, one inch cleanable filters mounted on rigid slide rails.

**UV-Ultraviolet Flame Detection:** Burner flame operation is monitored through an ultraviolet flame sensor, as opposed to standard flame rod.

## Air Handling Guide Terms & Options Continued

**VII-Vibration Isolators-Internal:** Elastomer in shear isolator are provided, mounted on an angle iron frame to isolate the blower and motor.

**VV-Variable Volume:** System provides dual air volumes through unit to supplement building requirements by using either a high/low volume damper or a two speed motor arrangement.

## Belt-Drive Upblast Centrifugal Roof & Wall Ventilators

Designed for continuous operation to exhaust air, smoke, fumes, odors and grease-laden vapors. Designed for installation in industrial, institutional and commercial kitchen applications. UL listed and AMCA Certified. Direct drive, high static, non-grease fans also available.

### Standard Features:

- Spun aluminum construction with steel support braces
- Weather resistant aluminum windband motor enclosure and cover
- Backward inclined aluminum wheel
- Externally cooled motor compartment
- Inlet temperatures up to 300 degrees F
- Grease terminator
- Hinged sub-base
- NEMA 3 external disconnect
- Curb



## Rooftop Curbs & Supports

Duo-Aire provides many styles of roof curbs for exhaust and supply fans, as well as tempered make-up air units. Curbs have been designed for use with both parallel duct and concentric duct systems.

### Standard Features:

- 18 gauge welded aluminized steel (heavier gauges available)
- Four inch perimeter flange for roof flashings
- Insulated curbs on all tempered make-up air units
- Industrial finish coating

### Model RCEC/RCDC

- Curb for Exhaust Supply Fan

### Model RCLP

- Use with UL listed Concentric Duct
- Standard size 65" x 39" x 18"

### Model HESF

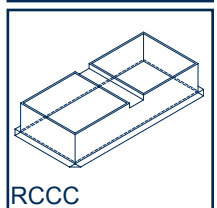
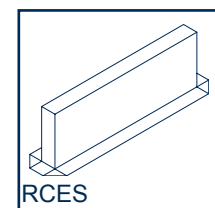
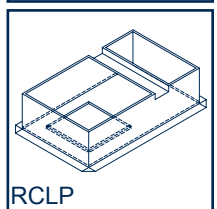
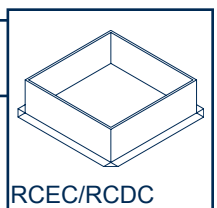
- Special Economizer Curb allows for side inlet for Exhaust or Supply Duct

### Model RCCC

- Use with Concentric Duct or Parallel Duct
- Standard size 88" x 39" x 18"

### Model RCES

- Equipment Support
- Size dependent upon application



**Duo-Aire**<sup>®</sup>

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