

REZNOR®

Model UDAP



Power Vented, Low Static Axial Fan Commercial/Industrial Unit Heaters

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Sizes 30-125 carry an additional approval
for use in residential garage/workshops
under CSA International Requirement
10.96 - U.S. and CR96-0005 - Canada



CSA 2.6b



ANSI Z83.8b



DESCRIPTION

Reznor® V3 Series Model UDAP gas-fired unit heaters are available in 14 sizes ranging from 30,000 to 400,000 BTUH gas input. All sizes are approved for commercial/industrial installations. Sizes 30-125 carry an additional approval for use in attached residential garage/workshop application. Model UDAP heaters are designed for 82-83% thermal efficiency and are approved for installation in the United States and Canada by the Canadian Standards Association (CSA).

Reznor V3 Series unit heaters have a refreshing new appearance with a glossy white cabinet finish and less visible hardware. Each size cabinet is easily suspended from either 2 or 4 suspension points. Or, an optional hanger kit for Sizes 30-125 allows for ceiling mounting. The low voltage terminal strip on the outside of the cabinet makes connecting control wiring easy with no panels to remove. The addition of a "G" terminal to the strip, along with the new design of the circuit board, allows for fan only operation (without adding relays). All units have a factory installed gas line nipple to the exterior of the cabinet for easy gas service connection.

The preeminent new internal feature is the T_{CORE}² heat exchanger and single burner combustion system. Other standard features include a single-stage gas valve, multi-try direct spark ignition with timed lockout, pressure switch to verify vent flow, resiliently isolated venter motor, venter wheel with improved housing, resiliently isolated axial fan and motor assembly, and a high temperature limit control. Sizes 30-125 also include a flame rollout safety switch. Operation is controlled through an integrated circuit board. The circuit board monitors heater operation and has LED diagnostic indicator lights to identify abnormalities in control functions.

The V3 Series unit heaters are designed to provide all the features you expect in a Reznor heater plus improved efficiency, easier installation, and a new look ~ **both inside and out**. Look for the unique white unit with no visible front and bottom hardware, deep red louvers, black side handle, and angled corner to know you have a genuine Reznor heater.

STANDARD FEATURES

- Sizes 30-400 certified for commercial/industrial heating application
- Sizes 30-125 carry an additional approval for use in residential garage/workshop heating applications
- 82-83% Thermal efficient ~ **TOP in its class!**
- 50-60°F Rise range
- T_{CORE}² titanium stabilized aluminized steel heat exchanger
- Patented ^A single burner combustion system including a one-piece burner assembly
- 115/1/60 Supply voltage
- 115 Volt open fan motor with internal overload protection
- Transformer for 24-volt controls
- Integrated circuit board with diagnostic indicator lights
- Multi-try direct spark ignition with timed lockout
- Fan relay (included on the circuit board)
- Single-stage natural gas valve (field adjustable for operation to 9,000 ft. elevation ^B)
- Vibration/noise isolated fan and venter motors ~ **designed for low noise operation**
- 2-pt **and** 4-pt Suspension ~ **standard on all sizes**
- External terminal strip for 24-volt wiring
- External gas connection
- Full fan guard ~ **engineered for safety**
- Improved cabinet design with less visible hardware

OPTIONAL FEATURES - FACTORY INSTALLED

- Single-stage, propane gas valve (field adjustable for operation to 9,000 ft. elevation ^B)
- Two-stage natural gas or propane gas valve - Sizes 60-400
- 409 or 316 Stainless steel heat exchangers
- Totally enclosed fan motor (Sizes 30-250, 115V only)
- Common venting with other gravity vented Category I appliance(s) (Sizes 30-100)

^A U.S. Patent No. 6,889,686.

^B Pressure switch change required for installations above 6,000 ft.

OPTIONAL FEATURES - FIELD INSTALLED

- Vent cap
- Thermostat
- Thermostat guard with locking cover
- Vertical louvers
- Downturn nozzle kits
- Gas conversion kits (natural and propane)
- Primary/secondary controls for zoning up to six units
- Ceiling suspension kit - Sizes 30-125
- Hanger kits for 1" pipe
- Stepdown transformer (for 208/115, 230/115 or 460/115 supply voltage)
- Manual shutoff valves

TECHNICAL DATA

Model UDAP

Size		30	45	60	75	100	125	150	175	200	225	250	300	350	400
Input Heating Capacity	BTUH	30,000	45,000	60,000	75,000	105,000	120,000	150,000	175,000	200,000	225,000	250,000	300,000	350,000	400,000
	kw/h	8.8	13.2	17.6	22.0	30.8	35.2	43.9	51.2	58.6	65.9	73.2	87.8	102.5	117.1
Thermal Efficiency (%)		82	83	83	83	83	83	83	83	83	83	83	83	83	83
Output Heating Capacity ^c	BTUH	24,600	37,350	49,800	62,250	87,150	99,600	124,500	145,250	166,000	186,750	207,500	249,000	290,500	332,000
	kw/h	7.2	11.0	14.6	18.3	25.6	29.2	36.4	42.5	48.6	54.7	60.8	72.9	85.1	97.2
Gas Connection (inches) ^d	Natural	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4
	Propane	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4
Vent Connection Size ^e (inches diameter)		4	4	4	4	4	4	5	5	5	5	5	6	6	6
Control Amps (24 volt)		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Full Load Amps (115 volt)		1.9	2.4	2.4	3.3	3.9	5.1	3.8	3.8	4.6	7.5	7.5	11.0	11.0	11.0
Maximum Over Current Protection (115V) ^f		15	15	15	15	15	15	15	15	15	15	15	20	20	20
Normal Power Consumption (watts)		109	155	155	217	276	354	392	392	491	747	747	1086	1086	1086
Discharge Air Temperature Rise (°F)		50	55	60	60	60	60	60	60	60	60	60	60	60	60
Air Volume	CFM	456	629	769	961	1345	1537	1921	2242	2562	2882	3202	3843	4483	5123
	M ³ /minute	12.9	17.8	21.8	27.5	36.7	45.9	54.4	63.5	72.5	81.6	90.7	108.8	126.9	145.1
Discharge Air Opening Area	ft ²	0.96	0.96	1.25	1.25	2.01	2.01	2.56	2.56	2.56	3.51	3.51	4.79	4.79	4.79
	M ²	0.09	0.09	0.12	0.12	0.19	0.19	0.24	0.24	0.24	0.33	0.33	0.45	0.45	0.45
Output Velocity	FPM	475	656	616	770	668	763	752	877	1003	820	911	802	936	1069
	M/minute	145	200	188	238	196	245	229	267	306	250	278	244	285	326
Fan Motor HP ^g	Open	0.02	0.03	0.03	0.06	1/30	1/20	1/6	1/6	1/6	1/4	1/4	1/2	1/2	1/2
	Enclosed	0.06	0.06	0.06	0.06	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/2	1/2	1/2
Fan Motor RPM		1550	1550	1550	1550	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050
Fan Diameter (inches)		10	10	12	12	16	16	18	18	18	20	20	24	24	24
Sound Level	dba @ 15 ft	40	40	40	49	54	55	51	52	53	56	56	59	61	62
Approximate Net Weight	lbs	54	59	67	72	96	101	172	187	187	203	215	269	294	306
	kg	24	27	30	33	44	46	78	85	85	92	98	122	133	139
Approximate Ship Weight	lbs	61	66	74	79	118	123	204	219	219	245	257	321	346	358
	kg	27	30	33	36	54	56	93	100	100	111	117	146	157	163

^c CSA rating for altitudes to 2000 ft.^d Size shown is for gas connection to a single stage gas valve, not supply line size.^e Smaller or larger vent pipe diameters may be allowed; refer to the Venting Installation Manual, Form I-V-PV. If vent diameter is different from vent connection, reducer/enlargers will be field-required.^f MOP = 2.25 x largest motor FLA + remaining load. Answer is rounded down to the next size of commercially available circuit breaker or fuse.^g All other information in this table is based on a heater equipped with a standard 115 volt open fan motor.

For installations where dirt, dust, and other air borne contamination is present in the indoor environment, it is recommended to use separated combustion units (Model UDAS). These models use air from outside the space for combustion. This will help reduce the build up of contaminants on the burner which would affect the combustion process. Refer to the installation manuals for recommended frequency of maintenance and cleaning.

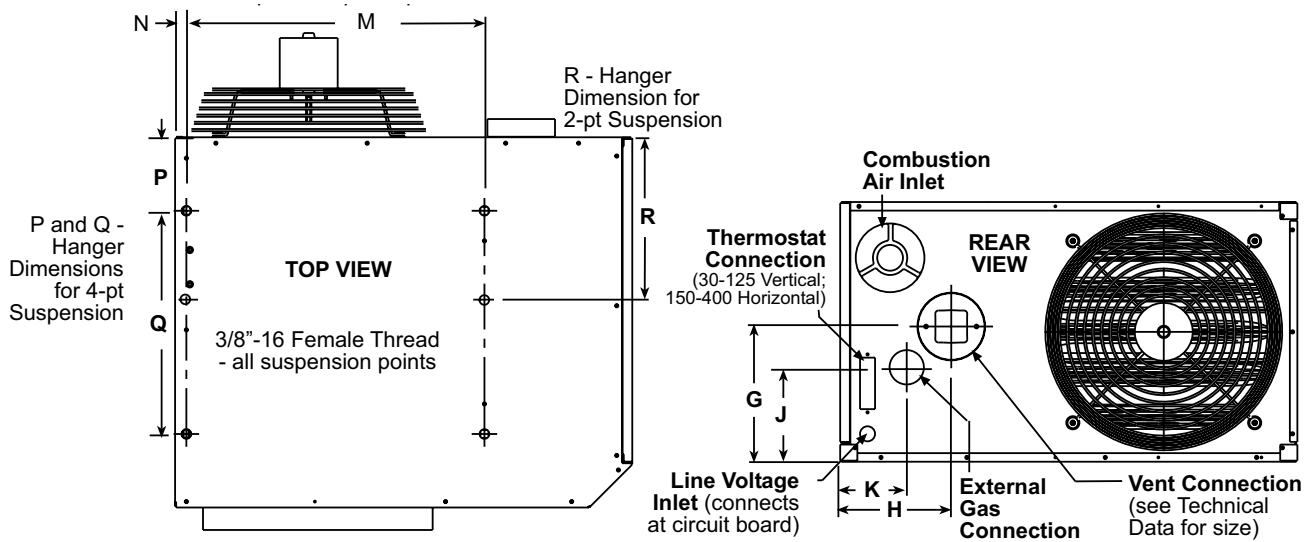
DIMENSIONS

Model UDAP

±1/16" (2mm)

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Size	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R
30, 45	12 1/8	25 5/8	10	13 13/16	26	21 9/16	5 3/16	6 1/2	2 11/16	3 7/8	17 3/8	11/16	4 5/16	13	9 9/16
60	15 1/8	25 5/8	13	13 13/16	27	21 9/16	7 7/8	6 1/2	5 1/2	3 7/8	17 3/8	11/16	4 5/16	13	10 1/2
75	15 1/8	25 5/8	13	13 13/16	27 5/8	21 9/16	7 7/8	6 1/2	5 1/2	3 7/8	17 3/8	11/16	4 5/16	13	10 1/2
100	23 1/8	25 5/8	21	13 13/16	28 5/8	21 9/16	14 1/2	6 1/2	8 3/4	3 7/8	17 3/8	11/16	4 5/16	13	10 1/2
125	23 1/8	25 5/8	21	13 13/16	29 3/8	21 9/16	14 1/2	6 1/2	8 3/4	3 7/8	17 3/8	11/16	4 5/16	13	10 1/2
150, 175, 200	20 1/8	38 3/16	16	23	42	35 3/8	8 1/2	8 1/4	5 7/16	6 1/2	25 11/16	1 3/8	8 3/16	22 3/16	16 3/8
225, 250	26 1/8	38 3/16	22	23	42	35 3/8	13 1/16	8 13/16	9	6 1/2	25 11/16	1 3/8	8 3/16	22 3/16	15 5/8
300, 350, 400	34 1/8	41	30	23	42	35 3/8	17 1/16	9	11 13/16	7 5/16	27 11/16	1 3/8	8 3/16	22 3/16	16 3/16
Size	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R
30, 45	(308)	(651)	(254)	(351)	(660)	(548)	(132)	(165)	(68)	(98)	(441)	(17)	(110)	(330)	(243)
60	(384)	(651)	(330)	(351)	(686)	(548)	(200)	(165)	(140)	(98)	(441)	(17)	(110)	(330)	(267)
75	(384)	(651)	(330)	(351)	(702)	(548)	(200)	(165)	(140)	(98)	(441)	(17)	(110)	(330)	(267)
100	(587)	(651)	(533)	(351)	(727)	(548)	(368)	(165)	(222)	(98)	(441)	(17)	(110)	(330)	(267)
125	(587)	(651)	(533)	(351)	(746)	(548)	(368)	(165)	(222)	(98)	(441)	(17)	(110)	(330)	(267)
150, 175, 200	(511)	(970)	(406)	(584)	(1,067)	(899)	(216)	(210)	(138)	(165)	(652)	(35)	(208)	(564)	(416)
225, 250	(664)	(970)	(559)	(584)	(1,067)	(899)	(332)	(224)	(229)	(165)	(652)	(35)	(208)	(564)	(397)
300, 350, 400	(867)	(1,041)	(762)	(584)	(1,067)	(899)	(433)	(229)	(300)	(186)	(703)	(35)	(208)	(564)	(411)



CLEARANCES FROM COMBUSTIBLES

Size	Top		Flue Connector		Access Panel ^J		Non-Access Side		Bottom ^K		Rear ^L	
	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
30-125	1	25	6	152	18	457	1	25	1	25	18	457
150-400	4	102	6	152	18	457	2	51	1	25	18	457

^J Access Panel clearance is required for service clearance to controls

^K Suspend the heater so that the bottom is a minimum of 5' (1.5M) above the floor.

^L Rear clearance is required for air movement. Rear clearance should be measured from the fan motor.

Sound (in dBA) for Models UDAP and UDAS at various distances.

Size	5 Feet	10 Feet	15 Feet
	1.5 meters	3.0 meters	4.6 meters
30	59	47	40
45	59	47	40
60	59	47	40
75	69	55	49
100	N/A	58	54
125	N/A	59	55
150	N/A	55	51
175	N/A	55	52
200	N/A	56	53
225	N/A	59	56
250	N/A	59	56
300	N/A	62	59
350	N/A	64	61
400	N/A	65	62

Sound (in dBA) for Models UDBP and UDBS at a distance of 15 feet (4.6 meters).

Blower Speed	Size					
	30	45	60	75	100	125
Low	57	50	59	60	59	59
Medium	58	53	62	63	63	63
High	60	57	64	64	66	66

Temperature Rise	Size							
	150	175	200	225	250	300	350	400 *
75°F (24°C)	51	56	58	61	63	64	65	67
60°F (16°C)	56	59	62	63	66	70	72	71
45°F (7°C)	62	69	71	71	75	76	78	79

* Note: The temperature rises of the Model 400 are 80°F (27°C), 70°F (21°C), and 50°F (10°C).

Sound for Model LDAP at various distances.

Size	DISTANCE (FT.)														
	20			25			30			35			40		
	db	Pa	μbar	db	Pa	μbar	db	Pa	μbar	db	Pa	μbar	db	Pa	μbar
400	69	0.058	0.580	65	0.037	0.371	62	0.026	0.258	60	0.019	0.189	57	0.015	0.145
800	72	0.080	0.800	68	0.051	0.512	65	0.036	0.356	62	0.026	0.261	60	0.020	0.200
1200	74	0.100	1.000	70	0.064	0.640	67	0.044	0.444	64	0.033	0.327	62	0.025	0.250

μbar = microbar

Pa = Pascal

WARNING: Gas-fired appliances are not designed for use in hazardous atmospheres containing flammable vapors or combustible dust, or atmospheres containing chlorinated or halogenated hydrocarbons.

Installations in public garages or airplane hangars are permitted when in accordance with ANSI Z223.1 and NFPA 54 codes or CAN1-B149 and enforcing authorities.

FOR YOUR SAFETY

What to do if you smell gas:

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, immediately call your fire department.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WARNING: Improper installation, adjustment, alteration, service, or maintenance can cause property damage, injury, or death. Read the installation, operation, and maintenance instructions thoroughly before installing or servicing this equipment.

Requirements for installation vary depending on the model of heater and the type of installation. Follow the manufacturer's instructions and comply with all applicable codes.

Some venting requirements that apply to specific gas-fired models are shown on the following pages.

Pilot, Gas Control, and Air Control Descriptions Gas-Fired Unit Heaters

PILOT IGNITION SYSTEMS

- Intermittent Spark Pilot: Automatic lighting of pilot with an electronic spark on a call for heat. Pilot gas flow is shutoff between heat cycles. Approved for use in the United States with the natural gas supply only on indoor and outdoor units.
- Intermittent Spark Pilot with Timed Lockout: Automatic lighting of pilot with an electronic spark on a call for heat. Pilot gas flow is shutoff between heating cycles. Locked device stops gas flow to the pilot if the pilot fails to light in 120 seconds. Reset of lockout requires manual interruption of the thermostat circuit. Approved for use in the United States and Canada with natural or propane gas on indoor and outdoor applications.
- Direct Spark Ignition with Timed Lockout: Automatic lighting of the burner with an electronic spark on a call for heat by the thermostat. There is no pilot. Trial for ignition is ten seconds after which, if flame is not sensed, the unit tries for ignition again. If ignition is not proven after three attempts the unit will lockout and then automatically retry after a one hour down period (**Models UDAP, UDAS, UDBP, UDBS, LDAP, & UEAS Only**).

NOTE: When installing gravity vented appliances (Model F & B) check local and state codes for requirements. Some states require the addition of spark pilot Option AH2 or AH3.

GAS CONTROL SYSTEMS

- Single Stage: Single-stage gas valve which cycles on at 100% fire on a call for heat.
- Two-Stage: Two stage gas valve which fires at 100% or 50% on Models F & B; 100% or 70% on Models UDAP, UDAS, UDBP & UDBS, as required by a remote two-stage thermostat. (Note: Two-Stage gas valve not available on Models F & B [sizes 25 & 50 MBH] or Models UDAP, UDAS, UDBP & UDBS [sizes 30 & 45 MBH])

AIR CONTROL SYSTEMS

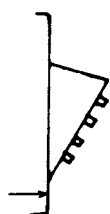
- Air Recirculation Kit (Single-stage units only): First stage control of thermostat energizes unit fan to recirculate warm stratified ceiling air. Second stage control of thermostat opens single-stage gas valve.
- Special Air Recirculation Kit (Single-stage units only): Same as the basic kit, with the addition of a manual summer switch on thermostat for summer fan operation.

OPTIONAL POWER VENTING OF GRAVITY VENTED UNITS, Increases Seasonal Efficiency - Models F and B

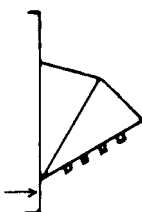
Use only the Reznor® power venter designed for the particular model and size of heater.

Understand the operation before installing. When a venter is used with a heater, the room thermostat turns the venter on and off, and the venter turns the gas controls on and off. When the space calls for heat, the room thermostat contacts close the circuit which starts the venter. When the venter starts, air from the venter blower closes an air switch that is built into the venter.

Closing of the air flow switch sends an electric current to the burner controls, opening the gas valve and sending gas to the burners. When the thermostat is satisfied, the thermostat turns off the venter and the gas controls. As the venter blower stops, the airflow switch resets to the open position.

Optional Downturn Nozzles - Apply to Models UDAP, UDAS, UDBP, UDBS, UEAS, F and B

Optional
Downturn
Nozzle with
25°-65° Range
of Air Deflec-
tion



Optional Down-
turn Nozzle
with 50°-90°
Range of Air
Deflection

* Shipped separately for field assembly and installation

IMPORTANT: On fan Models UDAP, UDAS, UEAS and F, do not use optional vertical louvers in combination with a nozzle with 50-90° range of air deflection.

Model OT Oil Tank - Apply to Models OH**DESCRIPTION**

The Model OT250 fuel tank is a 250 gallon, single-wall, indoor, UL-listed fuel oil tank. Oil tanks often eliminate needed work and storage space, but the Model OT-250 oil tank is designed with a work bench top that allows the tank itself to be used as a work area. The tank has a large (12-1/2 sq. ft.) work surface with 2" side and rear retainer lips and 3" legs for "toe space".

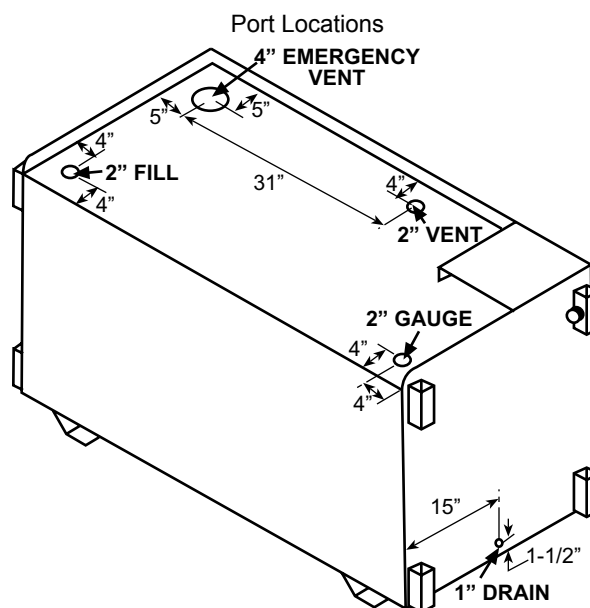
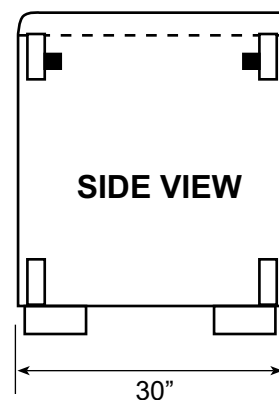
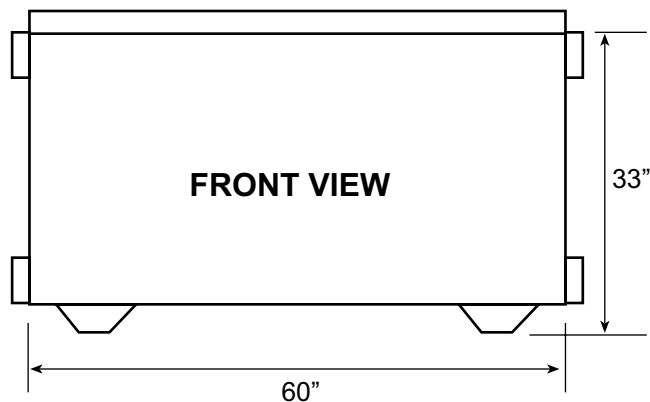
Tank construction is of 12 gauge carbon steel with all welded seams. The painted exterior coordinates with Reznor® oil-fired heaters.

The Reznor® OT-250 fuel tank is also engineered to facilitate installation. The support legs provide convenient space for forklift handling. Each tank has the following connection ports -- 2" supply; 2" gauge; 2" vent; 4" emergency vent; and 1" drain. Each port has heavy duty forged threads.

Model OT-250 tank is UL listed to UL142 Standard.

OPTIONS/ACCESSORIES - Field Installed

- Heater stand for Model OT tank used with Model OH heater only

DIMENSIONS - Model OT Fuel Tank

Model OH Oil
Heater

Heater Stand (Op-
tion ST1)

Model OT-250 Oil
Tank



Cabinet

The cabinet shall be low profile with a pre-coat or powdercoat RAL 1001 white paint finish. Finish shall be a minimum 80 gloss on G30 galvanized steel. The heat exchanger/control compartment cabinet shall be constructed so that screws are not visible from the bottom, front, or sides, except for service panel and accessories. Cabinet shall have a beveled front corner on the control side for additional cabinet rigidity.

The unit shall be designed for ceiling suspension featuring 3/8"-16 female threads (hanger kits for 1" pipe) at 4-point locations.

The cabinet shall be equipped with RAL 3005 burgundy painted, roll-formed horizontal louvers (duct flange). Louvers shall be spring held and adjustable for directing airflow. (Vertical louvers) (downturn nozzles) (downturn nozzles with vertical louvers) shall be available.

The unit shall be designed with a full opening service access panel complete with captive screw closure attachment and lifting handle for removal. Service panel shall be fully gasketed and equipped with a safety interlock switch. All components in the gas train, all standard electrical controls, and the power venter shall be within the sealed service compartment.

Minimum **top** clearance from combustibles shall be 6" (152mm) for Size 30,000-125,000 BTUH units and 14" (356mm) for Size 150,000-400,000 BTUH units. Minimum **bottom** clearance from combustibles shall be 1" (25mm) for all size units. Minimum clearance on **access side** shall be 18" (457mm) for all sizes. Minimum clearance on **non-access side** shall be 24" (610mm) for all sizes. Minimum **rear** clearance for all sizes is 18" (457mm).

Certifications

All sizes shall be design certified by the Canadian Standards Association to ANSI Z83.8 and CSA 2.6 for commercial/industrial installation.

Manufacturer must have a minimum of 50 years experience in the manufacture of gas fired unit heaters.

Sample Specifications

Model UDAP

GAS-FIRED, POWER VENTED UNIT HEATERS

Provide (82%, 83%) high-efficiency, power vented, gas-fired unit heaters manufactured as Reznor® brand units designed for use in building areas where higher reliability is required and venting is either vertical or horizontal.

Fuel

Each of the 14 sizes in the Model UDAP series shall be equipped for use with (natural) (propane) gas. Gas connection shall be external to the cabinet.

Heat Exchanger

The heater shall be equipped with a multi-cell, 4 pass serpentine style steel heat exchanger. Heat exchanger tubes shall be press fabricated of (titanium stabilized, corrosion resistant aluminized steel) (409 stainless steel) (316 stainless steel). All heat exchangers shall be fabricated with no welding or brazing, only tool pressed mechanical joints. All heat exchanger cells shall be designed with an aerodynamic cross section to provide maximum airflow.

Burner

The units shall incorporate a single, one piece burner assembly with a single orifice. The burner shall have a continuous wound close pressed stainless steel ribbon separating the flame from the burner interior. All units shall have a single venturi tube and orifice supplying fuel to a one-piece burner housing. Each heat exchanger cell shall use balanced draft induction to maintain optimum flame control.

Controls

Controls shall include a (single-stage) (two-stage) gas valve; direct spark multi-try ignition with electronic flame supervision with timed lockout integrally controlled via a printed circuit control board. The control board shall also incorporate diagnostic lights, DIP switches for fan overrun settings, and a relay for fan only operation. All units shall be equipped with a safety limit switch.

All controls shall be enclosed in the unit housing to protect them from accidental damage that could be caused by factors in the building that would adversely affect external controls.

Combustion Air and Venting

The unit shall have a factory-installed power venter device to draw combustion air through an inlet in the rear of the cabinet.

The combustion air/venting system shall include a vibration isolated power venter motor and wheel assembly and a combustion air pressure switch. Unit Sizes 30-100 shall include a flame rollout switch. (The unit shall be equipped with an approved common vent option to allow venting with another gravity vented Category I gas appliance).

(A vent cap shall be available.)

Electrical

Operation shall be controlled by an integrated circuit board that includes LED diagnostic indicator lights. Supply voltage connections are made at the circuit board. 24-volt control connections shall be made on an externally mounted terminal strip with connections (W1, W2, R, and G). All internal wiring, both line and control voltages, shall be terminated by insulated terminal connectors to minimize shock hazard during service.

Each unit shall be equipped for use with 115/1 volt power supply. (Stepdown transformers shall be available to be field installed for use with (208) (230) (460) volt power supply.)

Cabinet

The cabinet shall be low profile with a pre-coat or powdercoat RAL 1001 white paint finish. Finish shall be a minimum 80 gloss on G30 galvanized steel. The cabinet shall be constructed so that screws are not visible from the bottom, front, or sides, except for service panel and accessories. Unit construction shall incorporate a beveled front corner on control side for additional cabinet rigidity. All units shall be manufactured with a tooled drawn supply air orifice on the rear panel to reduce fan inlet noise.

The unit shall be designed for ceiling suspension featuring 3/8"-16 female threads (hanger kits for 1" pipe) at both 2-point and 4-point locations with no additional adapter kits. (Hanger kit for ceiling mounting shall be available for Sizes 30-125.)

The cabinet shall be equipped with RAL 3005 burgundy painted, roll-formed horizontal louvers. Louvers shall be spring held and adjustable for directing airflow. (Vertical louvers) (downturn nozzles) (downturn nozzles with vertical louvers) shall be available.

The cabinet shall be equipped with a full safety fan guard with no more than 1/2 inch grill spacing on Sizes 30-125 or no more than 1 inch on Sizes 150-400. The (open dripproof) (enclosed) motor and fan assembly shall be resiliently mounted to the cabinet to reduce vibration and noise.

The unit shall be designed with a full opening service access panel complete with screw closure attachment and lifting handle for removal. All components in the gas train, all standard electrical controls, and the power venter shall be within the service compartment.

Minimum top clearance from combustibles shall be 1" for Sizes 30-125 and 4" for Sizes 150-400. Minimum bottom clearance from combustibles shall be 1" for all sizes. Minimum clearance from combustibles on non-service side shall be 1" for Sizes 30-125 and 2" for Sizes 150-400.

Certifications

Unit(s) shall be design certified by the Canadian Standards Association to ANSI Z83.8b and CSA 2.6b for commercial/industrial installation.

(Model sizes 30, 45, 60, 75, 100 and 125 MBH shall be certified to CSA International Requirement 10-96 - U.S., CR96-0005 - Canada for use in attached residential garage.

Manufacturer must have a minimum of 50 years experience in the manufacture of gas fired unit heaters.

Sample Specifications
Model UDBP

**GAS-FIRED, POWER VENTED
UNIT HEATERS**

Provide (82%, 83%) high-efficiency, power vented, gas-fired unit heaters manufactured as Reznor® brand units designed for use in building areas where higher reliability is required and venting is either vertical or horizontal.

Fuel

Each of the 14 sizes in the Model UDBP series shall be equipped for use with (natural) (propane) gas. Gas connection shall be external to the cabinet.

Heat Exchanger

The heater shall be equipped with a multi-cell, 4 pass serpentine style steel heat exchanger. Heat exchanger tubes shall be press fabricated of (titanium stabilized, corrosion resistant aluminized steel) (409 stainless steel) (316 stainless steel). All heat exchangers shall be fabricated with no welding or brazing, only tool pressed mechanical joints. All heat exchanger cells shall be designed with an aerodynamic cross section to provide maximum airflow.

Burner

The units shall incorporate a single, one piece burner assembly with a single orifice. The burner shall have a continuous wound close pressed stainless steel ribbon separating the flame from the burner interior. All units shall have a single venturi tube and orifice supplying fuel to a one-piece burner housing. Each heat exchanger cell shall use balanced draft induction to maintain optimum flame control.

Controls

Controls shall include a (single-stage) (two-stage) gas valve; direct spark multi-try ignition with electronic flame supervision with timed lockout integrally controlled via a printed circuit control board. The control board shall also incorporate diagnostic lights, DIP switches for blower overrun settings, and a relay (definite purpose 3 pole contactor) for blower only operation. All open (TEFC) blower motors shall have automatic thermal overload protection or be equipped with a factory installed motor starter with adjustable thermal overloads. All units shall be equipped with a safety limit switch.

All controls shall be enclosed in the sealed control compartment to protect them from accidental damage, dust, and atmospheric corrosion.