



Weaver

CONSTRUCTION MANAGEMENT

3679 S Huron Street, Suite 404 Englewood, Colorado 80110
Phone: (303) 789-4111 FAX: (303) 789-4310

SUBMITTAL TRANSMITTAL

June 1, 2012

Submittal No: 15800-015

PROJECT: **Harold Thompson Regional WRF**
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

ENGINEER: **GMS, Inc.**
611 No. Weber St., #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan
Sewage Disposal District**
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

CONTRACTOR: **Kuck Mechanical Contractors, LLC.**
395 West 67th Street
Loveland, CO 80593
970-461-3553 Melanie Peterson

SUBJECT: Unit Heaters at P&D Building - UH-1 & UH-2 (Drwgs MPD-1 & MPD-2)

SPEC SECTION: 15800 - Heating & Ventilating

PREVIOUS SUBMISSION DATES:

DEVIATIONS FROM SPEC: ___ YES X NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver Construction Management and, unless indicated otherwise, has been found to be in conformance with the intent of the contract documents.

Contractor's Stamp:

Date: 6/1/12

Reviewed by: Leslie Brown

(x) Reviewed Without Comments

() Reviewed With Comments

Engineer's Stamp:

ENGINEER'S

COMMENTS:



395 West 67th Street
P.O. Box 388
Loveland, CO 80539-0388
Phone: (970) 461-3553
Fax: (970) 461-3443

DATE: 05/31/12

SENT TO: Weaver General Contractors

Attn: John Jacob

JOB: Harold D. Thompson WRF (#01135)
9001 Birdsall Rd.
Fountain, CO 80817

SUBMITTAL NO.: 00022

SUBMITTAL DUE:

PACKAGE: n/a

VENDOR NAME: Kuck

SPECIFICATION #: 15800

SUBJECT: P&D Bldg. - Unit Heaters

REVIEW DETAILS:

Review #: 1
Desc: P&D Bldg. - Unit Heaters
Reviewer: John Jacob
Weaver General Contractors

Received: 05/31/12
Sent: 05/31/12
Returned:
Forwarded:

Priority: Normal
Status: Open
Sepias: 0
Prints: 0

Sent for the following action(s):

- For Approval
- For Distribution
- For Your Use/Files
- As Req'd per

Action Needed:

Sincerely,
Melanie Peterson
Kuck Mechanical Contractors
PM Assistant
395 W. 67th Street
Loveland, CO 80538

Date: 2/13/2012

Job Name:	Kuck Mech Thompson
Location:	Fort Collins, CO
Unit Tag:	
UFAS-260 ultra high efficiency (91-93%) separated combustion prop fan unit base, (LP kit included, vent kit option req'd)	
CC2	Vertical Vent Terminal Kit
CD3	60 deg downflow nozzle
CL1	1 Stg 24v 45-95 H/C Snap Action Tstat

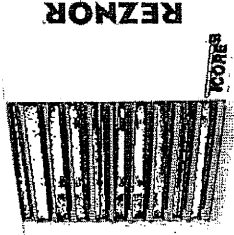
The bill of material above is all that is being submitted for acceptance. Supporting pages attached may have other options not included in the listing above. They are not being offered for this submittal.

**Ultra High Efficiency, 90 + % Efficient,
Prop Fan, Gas Fired Unit Heater for
Commercial/Industrial/Utility Use**



REZTOR

Model UEAS



Description:

Reznor® V3 Series Model UEAS gas-fired separated combustion unit heaters are available in 4 sizes ranging from 130,000 to 310,000 BTUH gas input. Heaters are designed for up to 93% thermal efficiency and are approved for installation in the United States and Canada by ETL.

Reznor® V3 Series unit heaters have a refreshing appearance with a glossy white cabinet finish and less visible hardware. Each size cabinet is easily suspended from 4 suspension points. 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 low voltage 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 secondary heat exchanger has a 1/2" PVC pipe for attaching a coupling for ease of installation and cleaning of the required condensate drain. A 4" PVC cleanout cap that is drilled and tapped for a 1/2" NPT fitting is furnished with the heater for attaching the vent condensate drain.

The preeminent new internal feature is the Tcore3® heat exchanger and single burner combustion system. Other standard features include a single-stage gas valve, multi-try direct spark ignition with 100% lockout, pressure switch to verify vent flow, venter motor, aluminum venter wheel with housing, resiliently isolated axial fan and motor assembly, a high temperature limit control, interlock door switch, and a built-in disconnect 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 1ST ever separated combustion system in the commercial/industrial heating industry was introduced on a Reznor heater in the 1960s, and that proven technology is continued in this new separated combustion product. Model UEAS separated combustion units require installation of a specially designed combustion air/ vent system including the unique concentric adaptor box that allows for only one building penetration for both the vent and combustion air.

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 unit by Thomas & Betts.

Features:

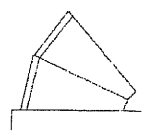
- Up to 93% Thermal efficient ~ Most efficient unit heater in the world!
- 50-60°F Rise range
- Arranged for use with natural gas (propane conversion kit included with unit)
- NEW Tcore3® steel Primary heat exchanger
- NEW patented A Tcore3® single burner combustion system including a one-piece burner assembly
- NEW extruded aluminum secondary heat exchanger (patent pending)
- 115/1/60 Supply voltage
- 115 Volt fan motor with internal overload protection
- Transformer for 24-volt controls
- Integrated circuit board with diagnostic indicator lights
- Multi-try direct ignition with 100% lockout
- Fan relay (included on the circuit board)
- Single-stage natural gas valve (field adjustable for operation to 10,000 ft. [3,000 meters] elevation)
- Vibration/noise isolated fan motor
- Sealed control compartment houses all electrical components
- 48 frame, ball bearing, PSC venter motor
- 4-point Suspension
- Built-in disconnect switch (20A @ 115V Rating)
- External terminal strip for 24-volt wiring
- Sealed junction box for supply wiring
- External gas connection
- Fully gasketed door panel with safety door switch
- Full fan guard ~ engineered for safety
- Improved cabinet design with less visible hardware and a NEW Reznor appearance

Options

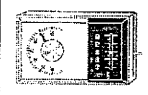
CC2: Vertical vent terminal assembly

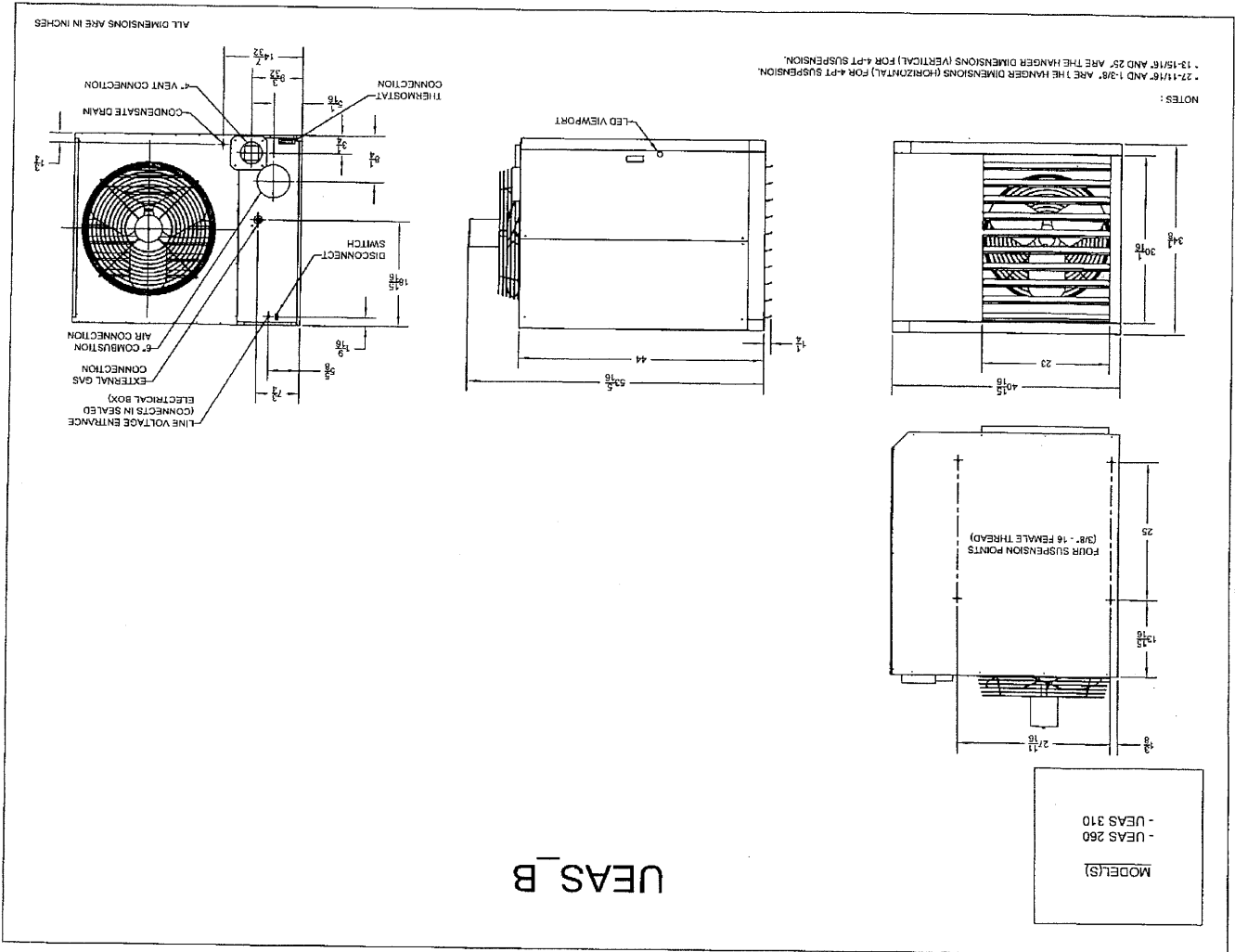


CD3: Downturn air nozzles 50°-90° variable air deflection range

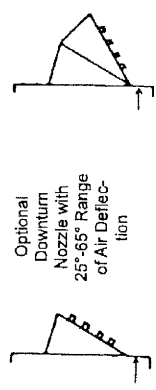


CL1: Single-stage thermostat (40°-80°F), 24 volt





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



Optional Downturn Nozzle with 50°-90° Range of Air Deflection

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.

* Shipped separately for field assembly and installation.

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 "ice space".

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

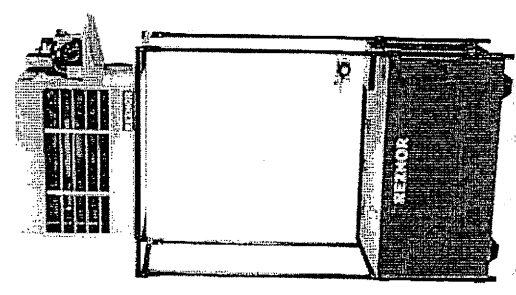
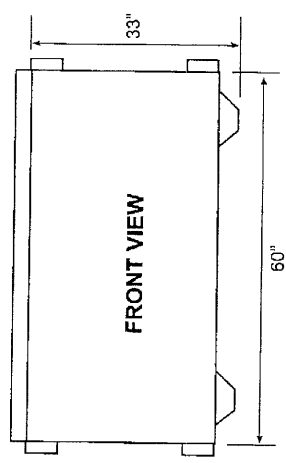
The Reznor® OT-250 fuel tank is also engineered to facilitate installation. The support legs provide convenient space for forklift handling. Each tank has the following connection ports -- 2" supply, 2" gauge, 2" vent, 4" emergency vent, and 1" drain. Each port has heavy duty forged threads.

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

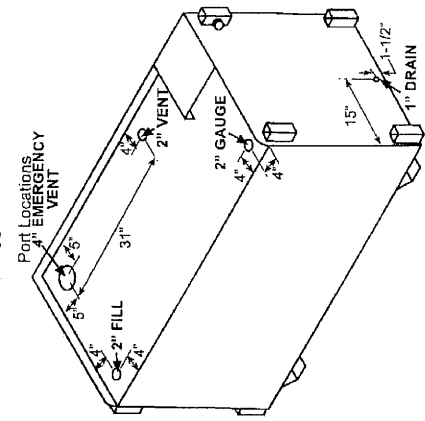
DIMENSIONS - Model OT Fuel Tank



Model OH Oil Heater

Heater Stand (Option ST1)

Model OT-250 Oil Tank



REZNOR

Sample Specifications Model UEAS

Page Number _____ of _____

GAS-FIRED, SEPARATED COMBUSTION UNIT HEATERS

Provide (90%+) high-efficiency, separated-combustion, power vented, condensing, gas-fired unit heaters manufactured as Reznor® brand units. The unit shall be designed for use in a building with negative pressures up to 0.15 " w.c. and for use in building where a non-explosive atmosphere exists that is dust laden and/or contains mildly corrosive fumes.

Fuel

Each of the 4 sizes in the Model UEAS series shall be equipped for use with natural gas with propane conversion kit shipped with each unit. Gas connection shall be external to the cabinet.

Heat Exchanger

The heater shall be equipped with a multi-cell, 4 pass serpentine style steel primary heat exchanger. Primary heat exchanger tubes shall be press fabricated of (titanium stabilized, corrosion resistant aluminumized steel) (409 stainless steel). The heater shall also be equipped with an extruded aluminum MacroChannels™ secondary heat exchanger. Secondary heat exchanger shall have a PVC condensate drain connection. 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 gas valve, direct spark multi-try ignition with electronic flame supervision with 100% 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 sealed control compartment to protect them from accidental damage, dust, and atmospheric corrosion.

Combustion Air and Venting

The unit shall have a factory-installed power venter device to draw combustion air from outside of the building. The outside air shall enter the unit through a factory-installed round inlet air terminal on the rear of the heater.

The control compartment shall be sealed and the access door shall be gasketed to prevent dirt, lint, dust, or other contaminants present in the heated space from entering the unit. The control compartment door shall be equipped with a safety interlock switch to prevent operation when the door is open.

The combustion air supply pipe and flue exhaust pipe shall be run in parallel from the heater to a factory supplied concentric adapter assembly, which allows for a single wall or roof penetration, to the (horizontal) (vertical) air inlet and vent terminal. A 4" PVC clean out cap drilled and tapped for attaching a vent condensate drain is included with the vent/combustion air kit.

The combustion air/venting system shall include a vibration isolated power venter motor and wheel assembly and a combustion air pressure switch.

Electrical

Operation shall be controlled by an integrated circuit board that includes LED diagnostic indicator lights. Supply voltage connections shall be made in a sealed junction box. 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.

All units will be equipped with a built-in disconnect switch.

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 toolled 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 4-point locations with no additional adapter kits.

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. 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. 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 4". Minimum bottom clearance from combustibles shall be 1". Minimum clearance from combustibles on non-service side shall be 2".

The unit shall be design ETL Listed for commercial/industrial installation.

Certifications

Units shall be manufactured in an ISO 9002 certified facility. Manufacturer must have a minimum of 50 years experience in the manufacture of gas fired unit heaters.

REZTOR

Reznor Separated Combustion Systems Applies to Separated Combustion Models UDAS, UDBS and UEAS

Page Number _____ of _____

The manufacturer of Reznor heating equipment, for years, has pioneered in separated combustion system technology, eliminating "open flame" combustion problems. This has resulted in a complete line of Reznor products using the separated combustion principle-

- air for combustion is mechanically induced from outside the building, preventing dirt, lint, dust or other contaminants in the indoor atmosphere from entering the burner and combustion zone of the furnace,
- the air flow is metered to provide optimum and efficient combustion that is unaffected by negative building pressure or wind,
- after combustion, the air is exhausted back to the outdoor atmosphere.



Reznor separated combustion products provide all of the benefits while requiring only one building penetration. See the venting illustrations below.

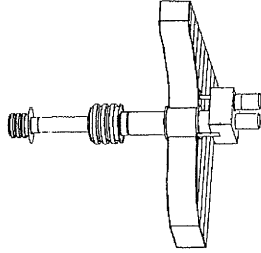
Use only approved vent terminals. No other venting arrangements are approved or certified for use with Models UDAS, UDBS or UEAS heaters. Either the horizontal vent/combustion air terminal kit (Option CC6 or Option CC14) or the vertical vent/combustion air terminal kit (Option CC2) is required.

Refer to Venting Installation Manual Form I-UD-V-ASC for Models UDAS and UDBS; Form I-UEAS for Model UEAS. Or contact your Reznor Representative at 800-695-1901 for more detailed information.

Vertical Venting of Separated Combustion Unit through Roof

- See the illustration to the right for a typical installation of one vertical vent terminal and concentric adapter. If vertical vent (Option CC2) is selected, a vertical vent terminal/combustion-air inlet assembly is provided.

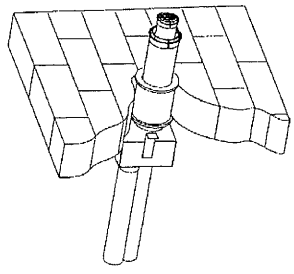
NOTE: Illustration for typical installation example only. Vent terminals may vary based on heater size and model.



Horizontal Venting of Separated Combustion Unit through Wall

- See the illustration to the right for a typical installation of a single horizontal vent terminal and concentric adapter. When Option CC6 is ordered, one horizontal vent terminal/combustion air inlet assembly is provided.

NOTE: Illustration for typical installation example only. Vent terminals may vary based on heater size and model.



Residential Garage - Horizontal Venting of Separated Combustion Unit through Wall

(Models UDAS and UDBS Only)

Option CC14, the Compact, Aesthetic, Concentric Vent/Combustion Air, Horizontal Vent Kit is for use with Model UDAS and UDBS in sizes 30, 45, 60, and 75.

The most common use for these vent kits is for Model UDAS for residential garage installations. This option allows a homeowner to vent out a side wall and avoid the unsightly 18" to 36" exhaust vent. This attractive vent kit preserves the home's exterior appearance.

For more information, contact your Reznor Representative at 800-695-1901, or see the instruction manual Form I-UDAS/UDBS-V-ASC.

NOTE: Siding trim is field-supplied by contractor to match home appearance.

