



Installation Instructions

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SAFETY CONSIDERATIONS

SAFETY NOTE

Air-handling equipment will provide safe and reliable service when operated within design specifications. The equipment should be operated and serviced only by authorized personnel who have a thorough knowledge of system operation, safety devices and emergency procedures.

Good judgement should be used in applying any manufacturer's instructions to avoid injury to personnel or damage to equipment and property.

GENERAL

Chilled beam systems are suitable for use in sensible cooling load applications or where individual temperature control is required.

Active (supply air) chilled beams operate with induction, where incoming primary air induces room air through the beam coil. The primary and induced room airflow is then discharged through the outlet slot of the beam into the room, resulting in a total airflow of 3 to 4 times greater than the primary airflow.

Systems with chilled beams are suitable for use in sensible cooling load applications and/or where there is a requirement for individual temperature control. In offices with normal room heights, the maximum cooling capacity is 25 to 29 Btuh per

sq ft of floor area. The limit is set by the maximum permissible velocity in the occupied zone, therefore high room heights can provide the opportunity for supplying a greater cooling effect.

Cooling load calculations must take in account the building's dynamic and thermal storage capacity. Simply adding the "gross loads" together gives an estimate of cooling load which can be approximately 50% too large.

The primary airflow is responsible for the air quality in the room while also providing basic cooling. The maximum recommended difference for the primary air is 18° F. In certain cases, the supply-air temperature can be increased by a few degrees with a falling outdoor temperature. The chilled beam covers the rest of the cooling load. The water flow is varied according to the load using a room sensor.

Compared with a system where the cooling duty is supplied entirely by air, a chilled beam system reduces the space required for air-handling plant and ducting.

Storage and Handling — Inspect for damage upon receipt. Shipping damage claims should be filed with shipper at time of delivery. Store in a clean, dry, and covered location. Do not stack cartons. When unpacking units, care should be taken that the inlet collars and water connections do not become damaged. Do not remove protective film from painted surfaces until installed.

Initial Inspection — Once items have been removed from the carton, check carefully for damage to duct connections, coils, or controls. File damage claim immediately with transportation agency and notify Carrier.

Installation Precaution — Check that construction debris does not enter unit or ductwork. Accumulated dust and construction debris distributed through the ductwork can adversely affect unit operation.

Codes — Install units in compliance with all applicable code requirements.

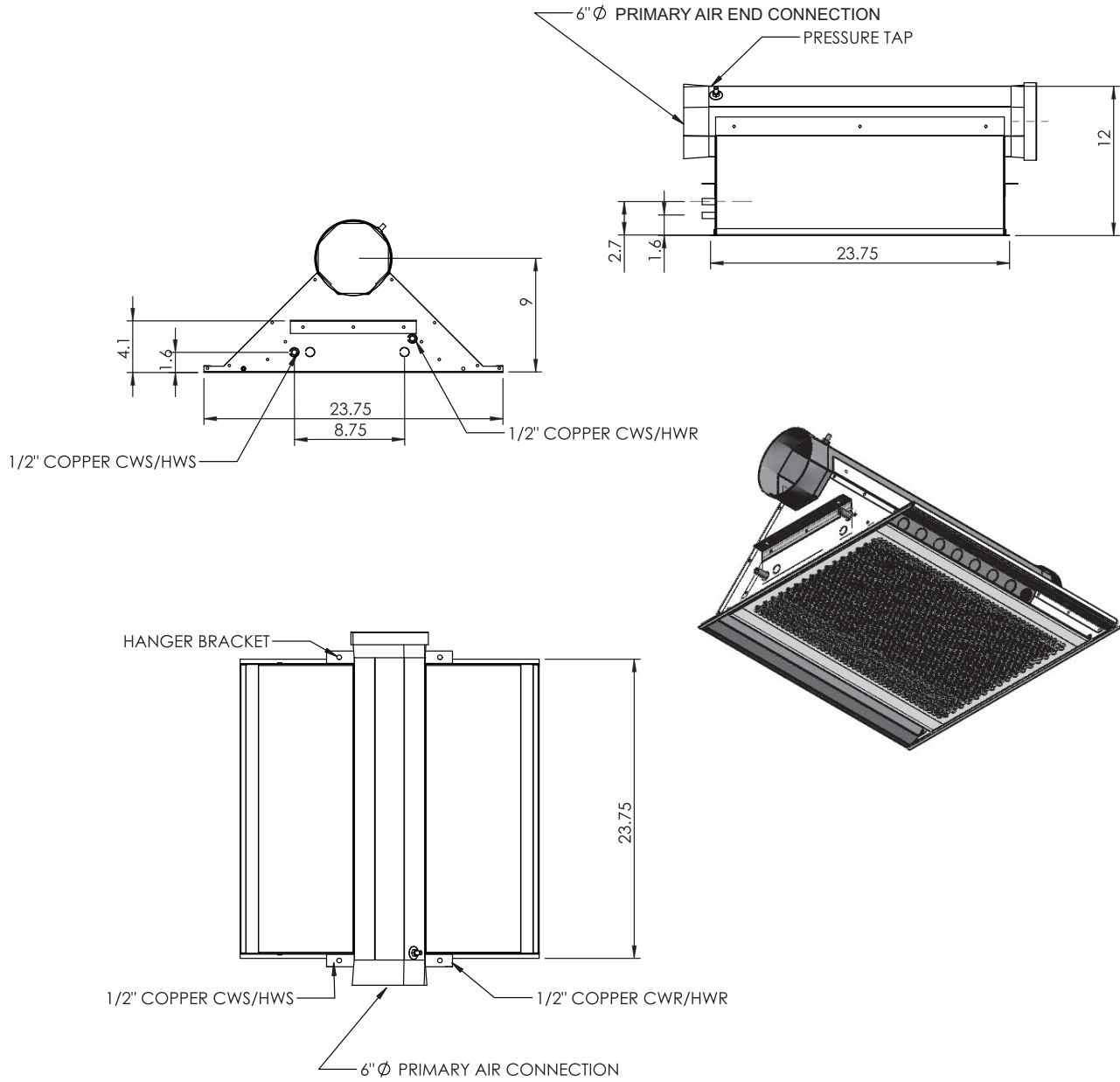
PREINSTALLATION

Prepare Jobsite for Unit Installation — To save time and to reduce the possibility of costly errors, set up a complete sample installation in a typical room at jobsite. Check all critical dimensions such as pipe, wire, and duct connection requirements. Refer to job drawings and product dimension drawings as required (see Fig. 1-12). Instruct all trades in their part of the installation.

Refer to Table 1 and Fig. 1-12 for unit data.

Table 1 — 36CBAL,J Unit Physical Data

36CBAL,J UNIT SIZE	02	04	06
Beam Length (ft)	2	4	6
Beam Width (ft)	2		
Coil Connection Size (in.)	1/2		
Dry Weight (lb)	40	58	76
Wet Weight (lb)	56	74	92

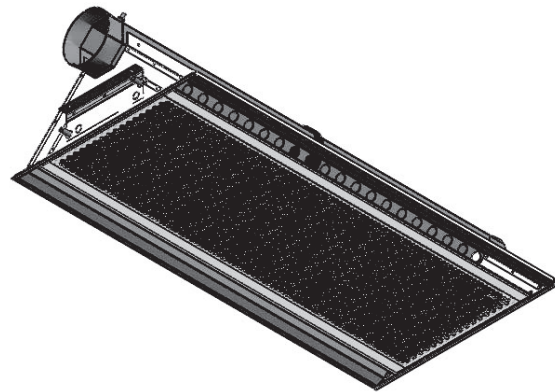
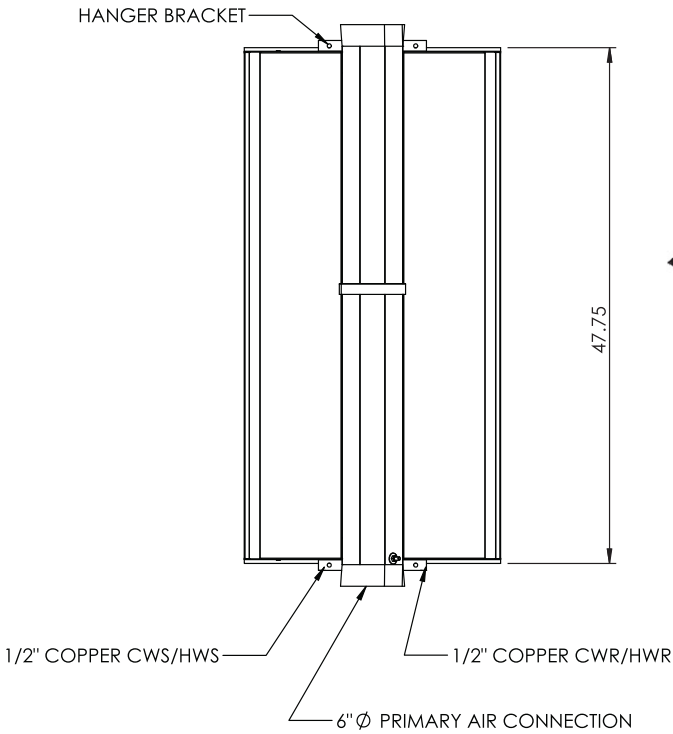
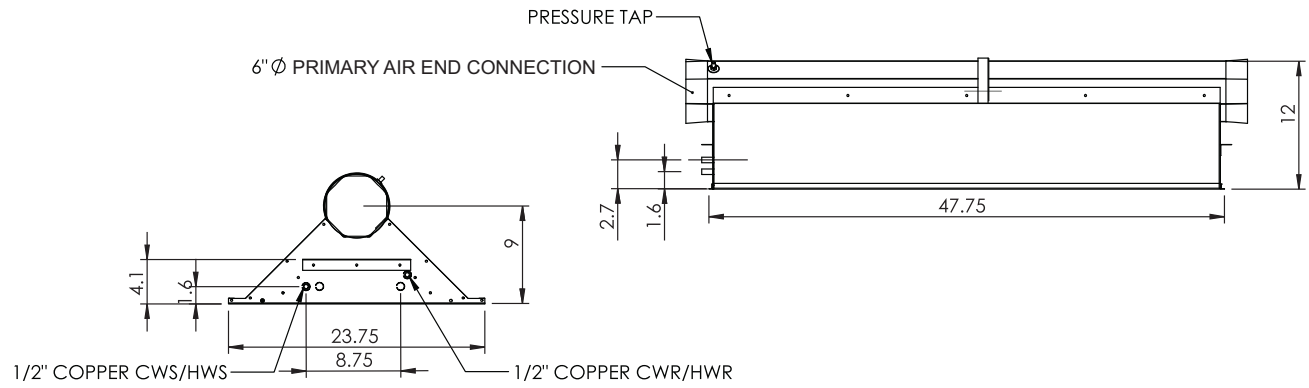


LEGEND

- CWR** — Chilled Water Return
- CWS** — Chilled Water Supply
- HWR** — Heated Water Return
- HWS** — Heated Water Supply

NOTE: Dimensions shown in inches unless otherwise indicated.

Fig. 1 — 36CBAL, 2-Pipe, Size 02 Unit Dimensions

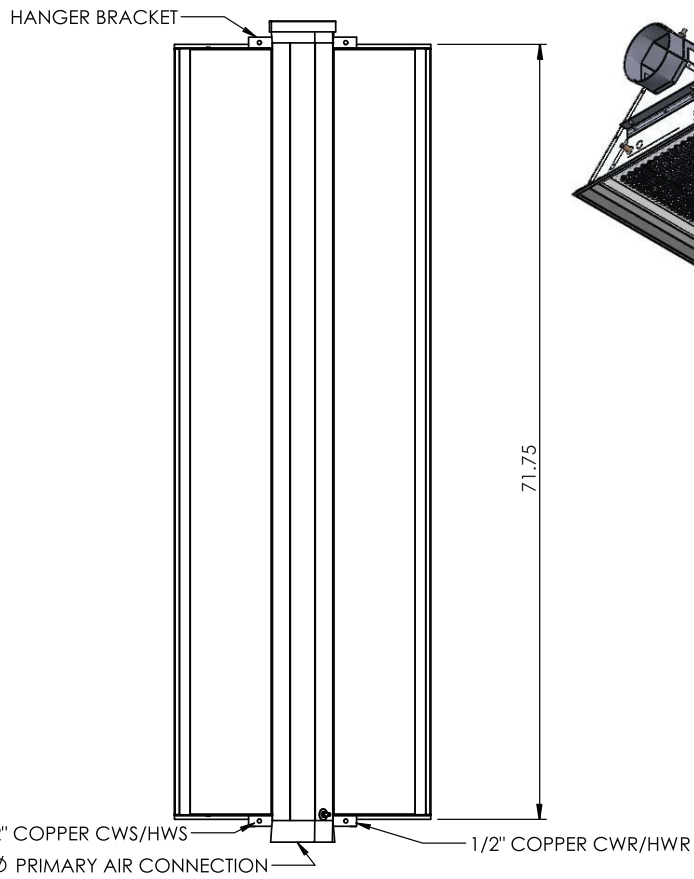
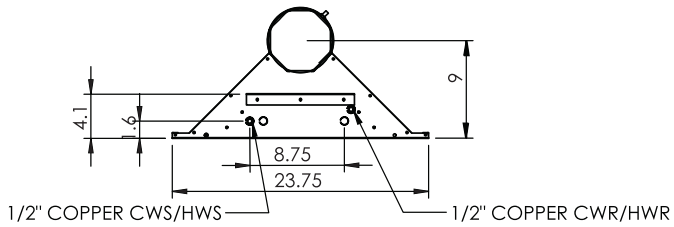
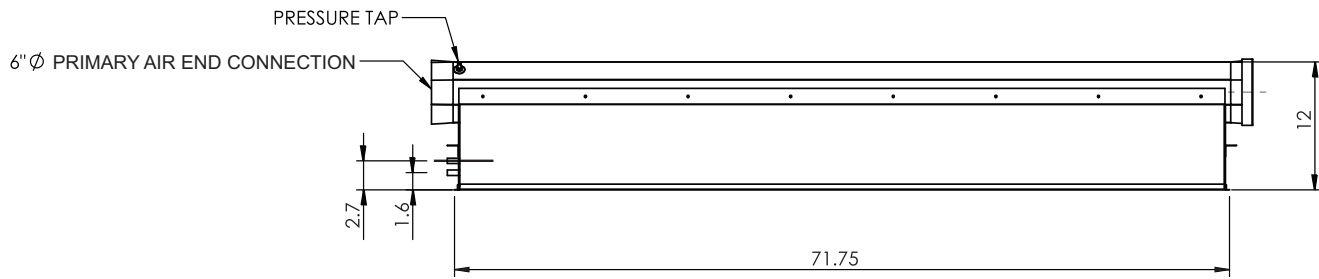


LEGEND

- CWR** — Chilled Water Return
- CWS** — Chilled Water Supply
- HWR** — Heated Water Return
- HWS** — Heated Water Supply

NOTE: Dimensions shown in inches unless otherwise indicated.

Fig. 2 — 36CBAL, 2-Pipe, Size 04 Unit Dimensions

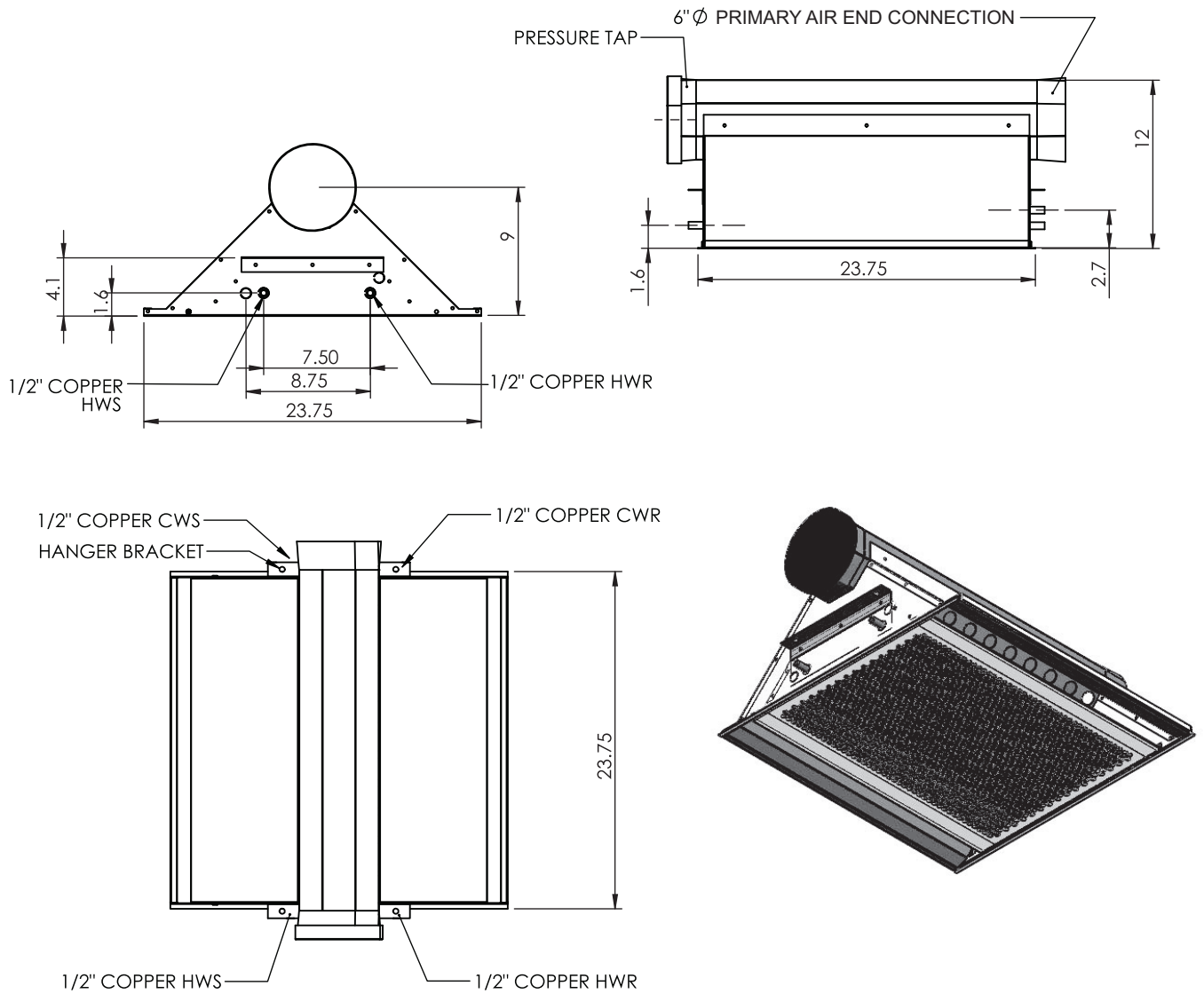


LEGEND

- CWR** — Chilled Water Return
- CWS** — Chilled Water Supply
- HWR** — Heated Water Return
- HWS** — Heated Water Supply

NOTE: Dimensions shown in inches unless otherwise indicated.

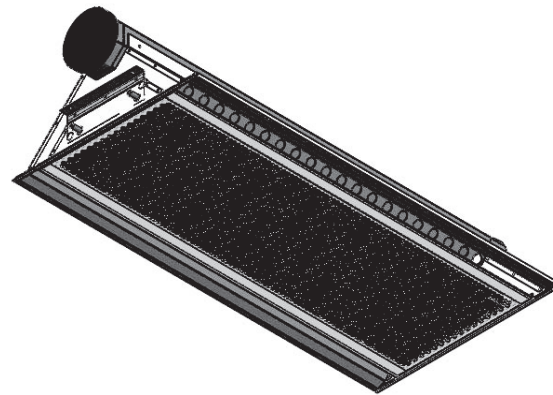
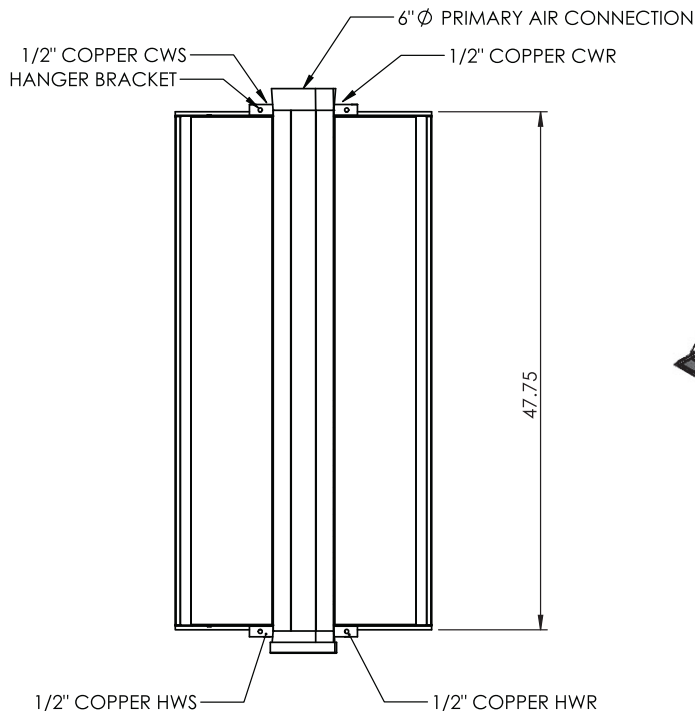
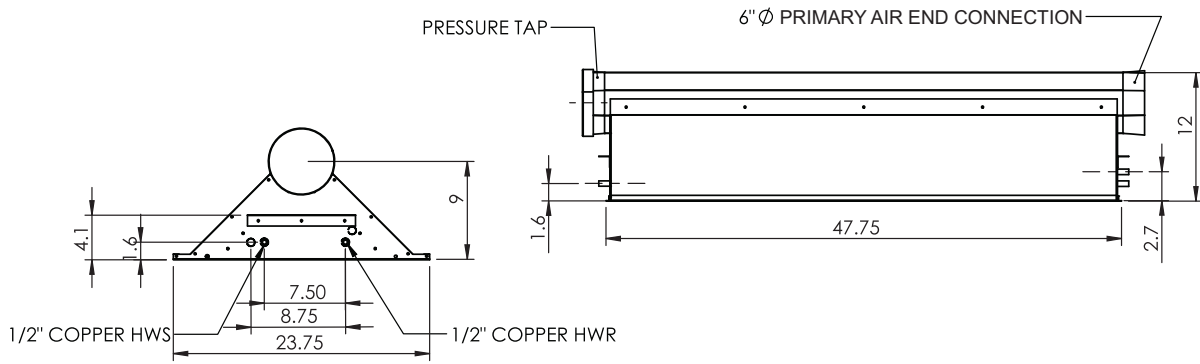
Fig. 3 — 36CBAL, 2-Pipe, Size 06 Unit Dimensions



- LEGEND**
- CWR** — Chilled Water Return
 - CWS** — Chilled Water Supply
 - HWR** — Heated Water Return
 - HWS** — Heated Water Supply

NOTE: Dimensions shown in inches unless otherwise indicated.

Fig. 4 — 36CBAL, 4-Pipe, Size 02 Unit Dimensions

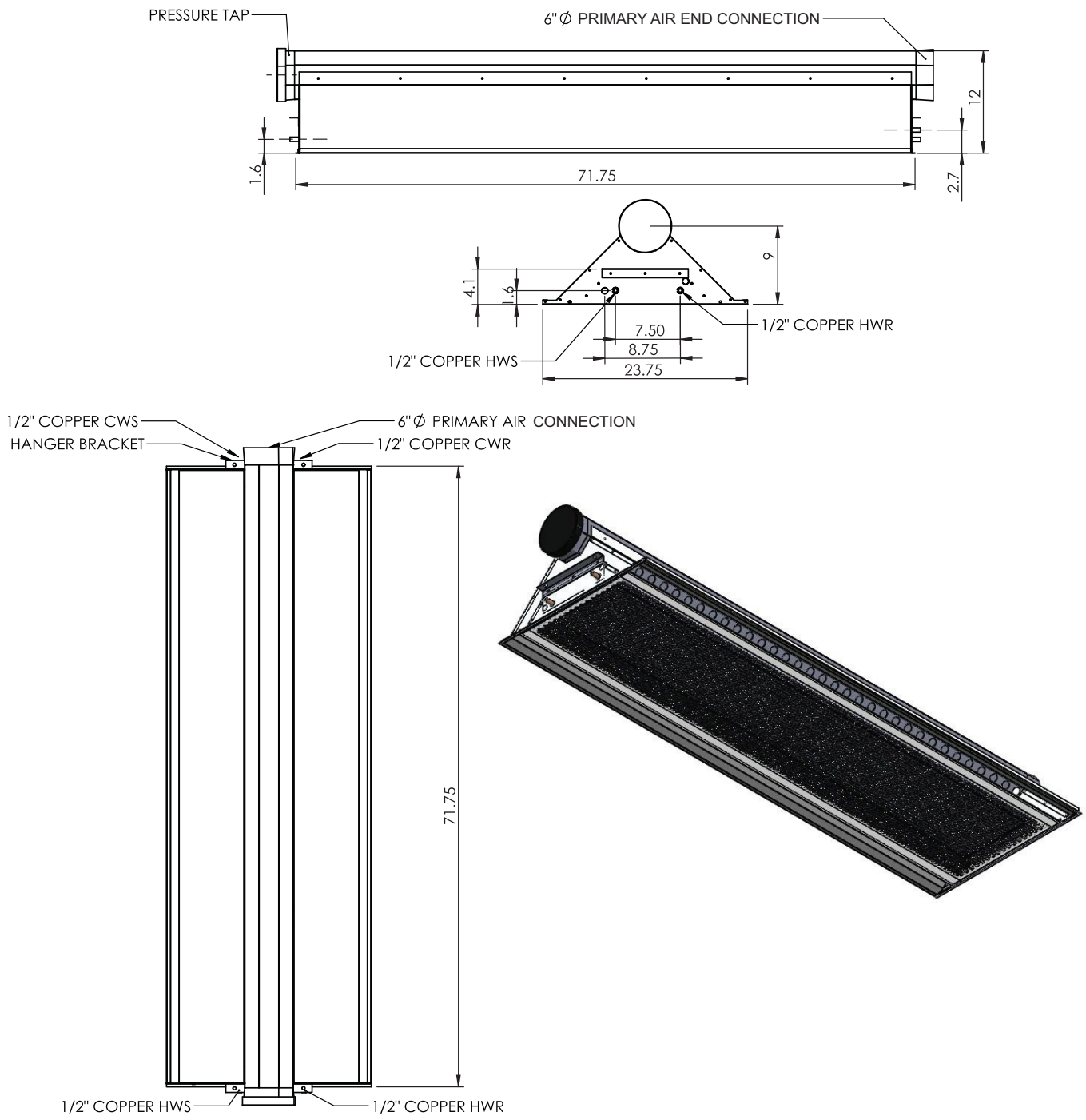


LEGEND

- CWR** — Chilled Water Return
- CWS** — Chilled Water Supply
- HWR** — Heated Water Return
- HWS** — Heated Water Supply

NOTE: Dimensions shown in inches unless otherwise indicated.

Fig. 5 — 36CBAL, 4-Pipe, Size 04 Unit Dimensions

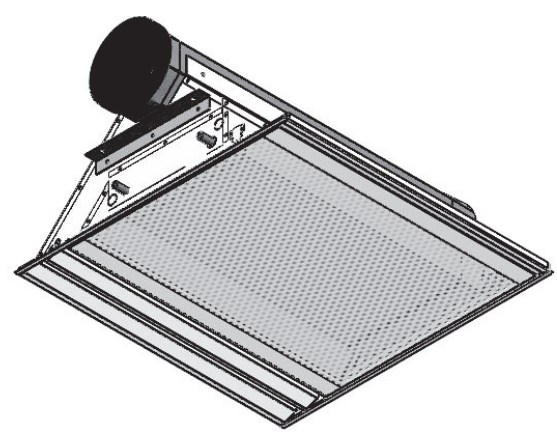
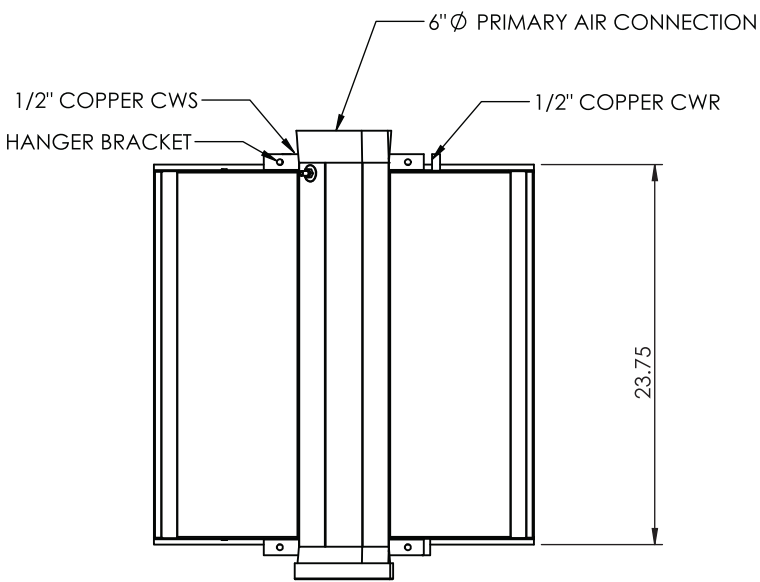
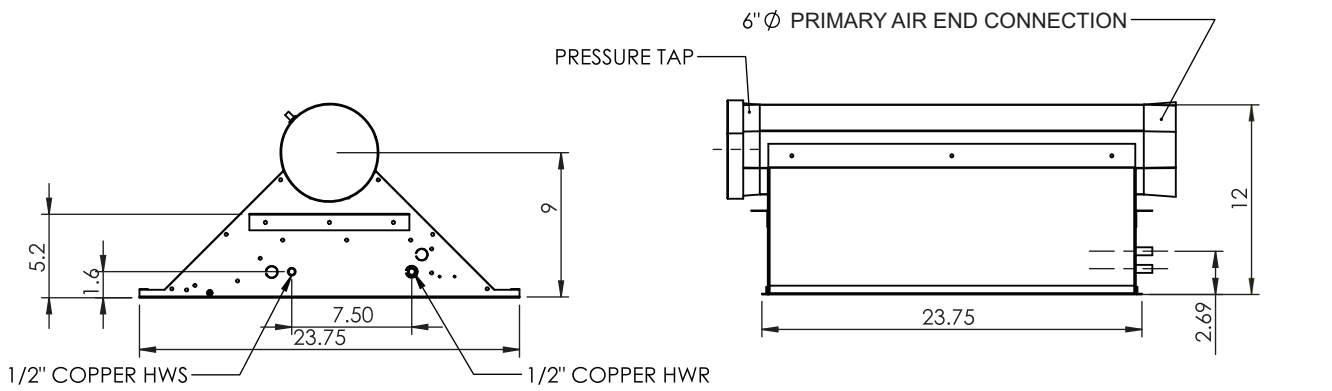


LEGEND

- CWR** — Chilled Water Return
- CWS** — Chilled Water Supply
- HWR** — Heated Water Return
- HWS** — Heated Water Supply

NOTE: Dimensions shown in inches unless otherwise indicated.

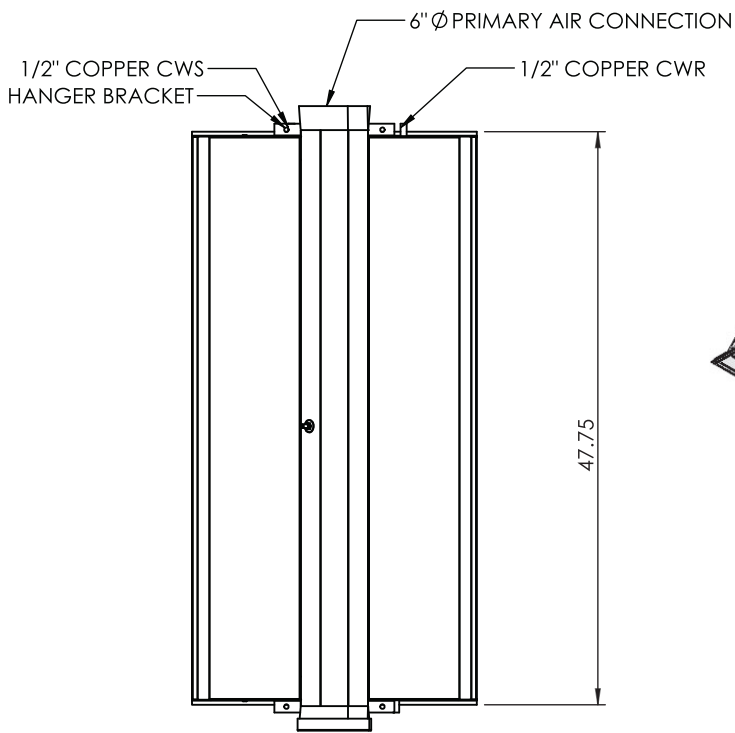
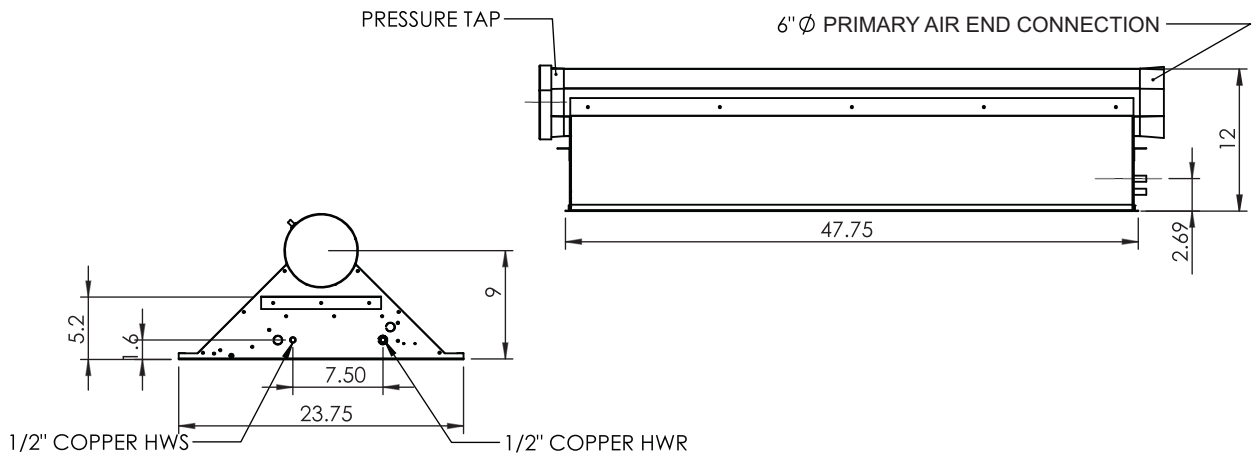
Fig. 6 — 36CBAL, 4-Pipe, Size 06 Unit Dimensions



- LEGEND**
- CWR** — Chilled Water Return
 - CWS** — Chilled Water Supply
 - HWR** — Heated Water Return
 - HWS** — Heated Water Supply

NOTE: Dimensions shown in inches unless otherwise indicated.

Fig. 7 — 36CBAJ, 2-Pipe, Size 02 Unit Dimensions

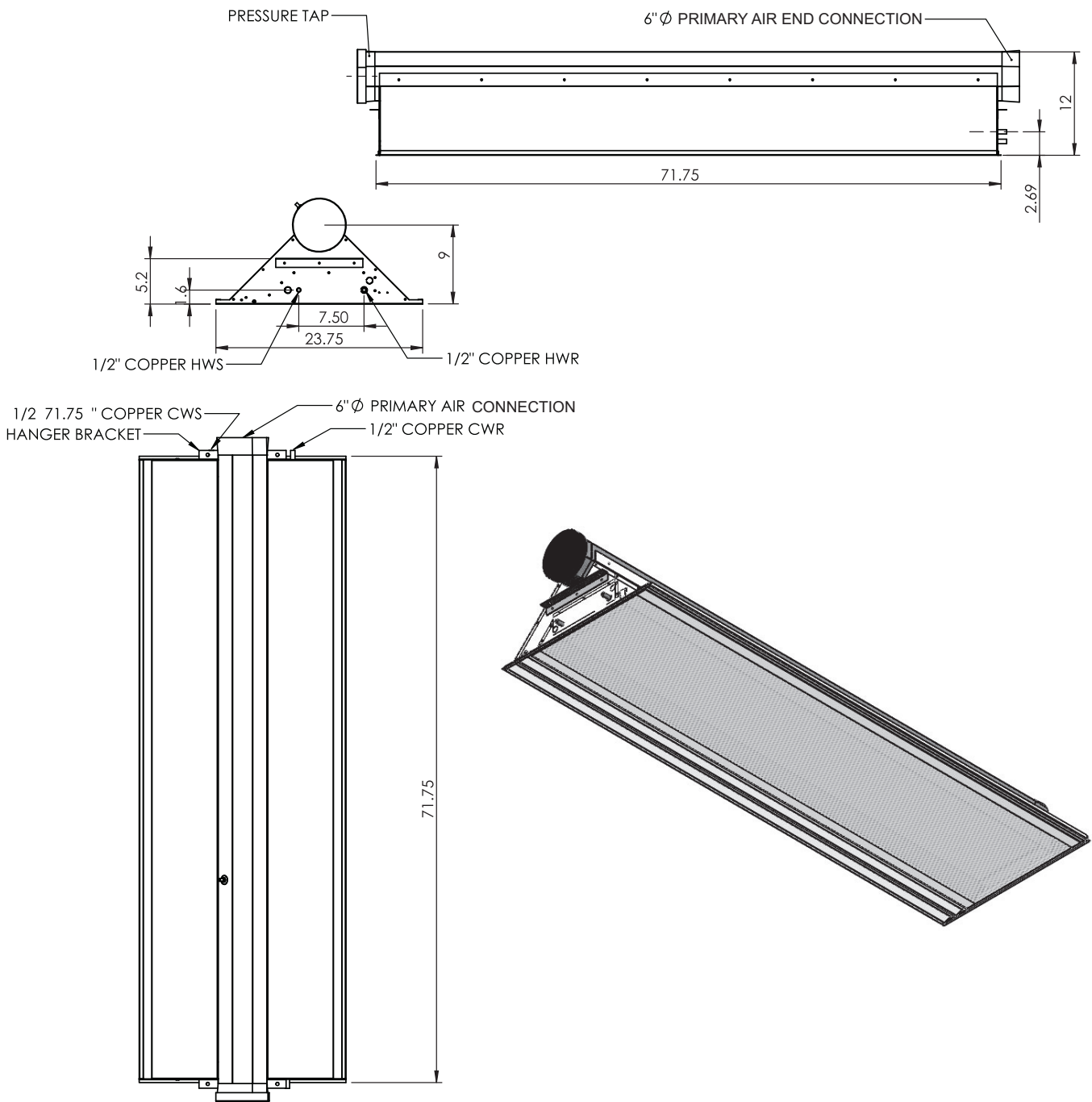


LEGEND

- CWR** — Chilled Water Return
- CWS** — Chilled Water Supply
- HWR** — Heated Water Return
- HWS** — Heated Water Supply

NOTE: Dimensions shown in inches unless otherwise indicated.

Fig. 8 — 36CBAJ, 2-Pipe, Size 04 Unit Dimensions

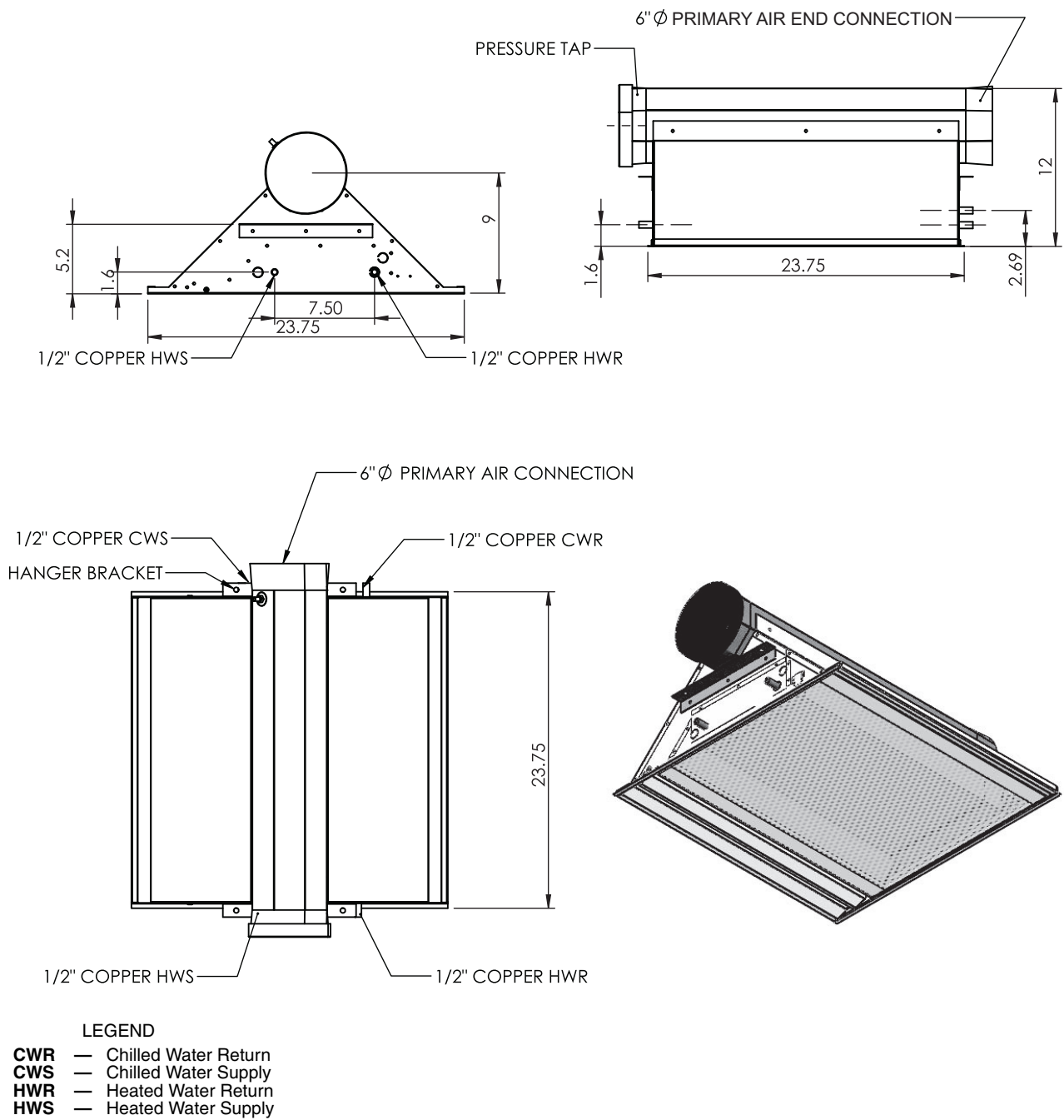


LEGEND

- CWR** — Chilled Water Return
- CWS** — Chilled Water Supply
- HWR** — Heated Water Return
- HWS** — Heated Water Supply

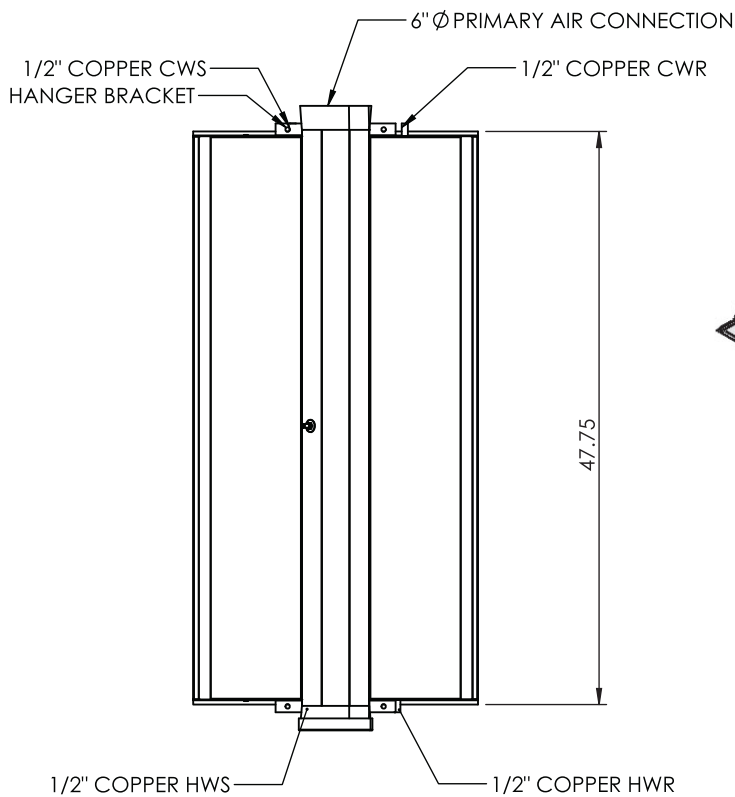
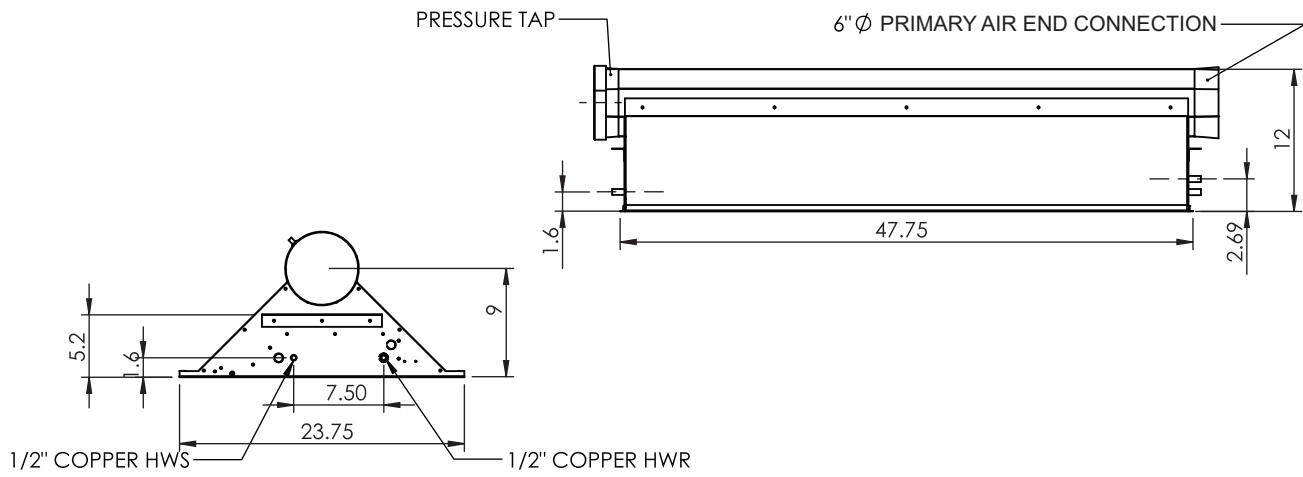
NOTE: Dimensions shown in inches unless otherwise indicated.

Fig. 9 — 36CBAJ, 2-Pipe, Size 06 Unit Dimensions



NOTE: Dimensions shown in inches unless otherwise indicated.

Fig. 10 — 36CBAJ, 4-Pipe, Size 02 Unit Dimensions



LEGEND

- CWR** — Chilled Water Return
- CWS** — Chilled Water Supply
- HWR** — Heated Water Return
- HWS** — Heated Water Supply

NOTE: Dimensions shown in inches unless otherwise indicated.

Fig. 11 — 36CBAJ, 4-Pipe, Size 04 Unit Dimensions

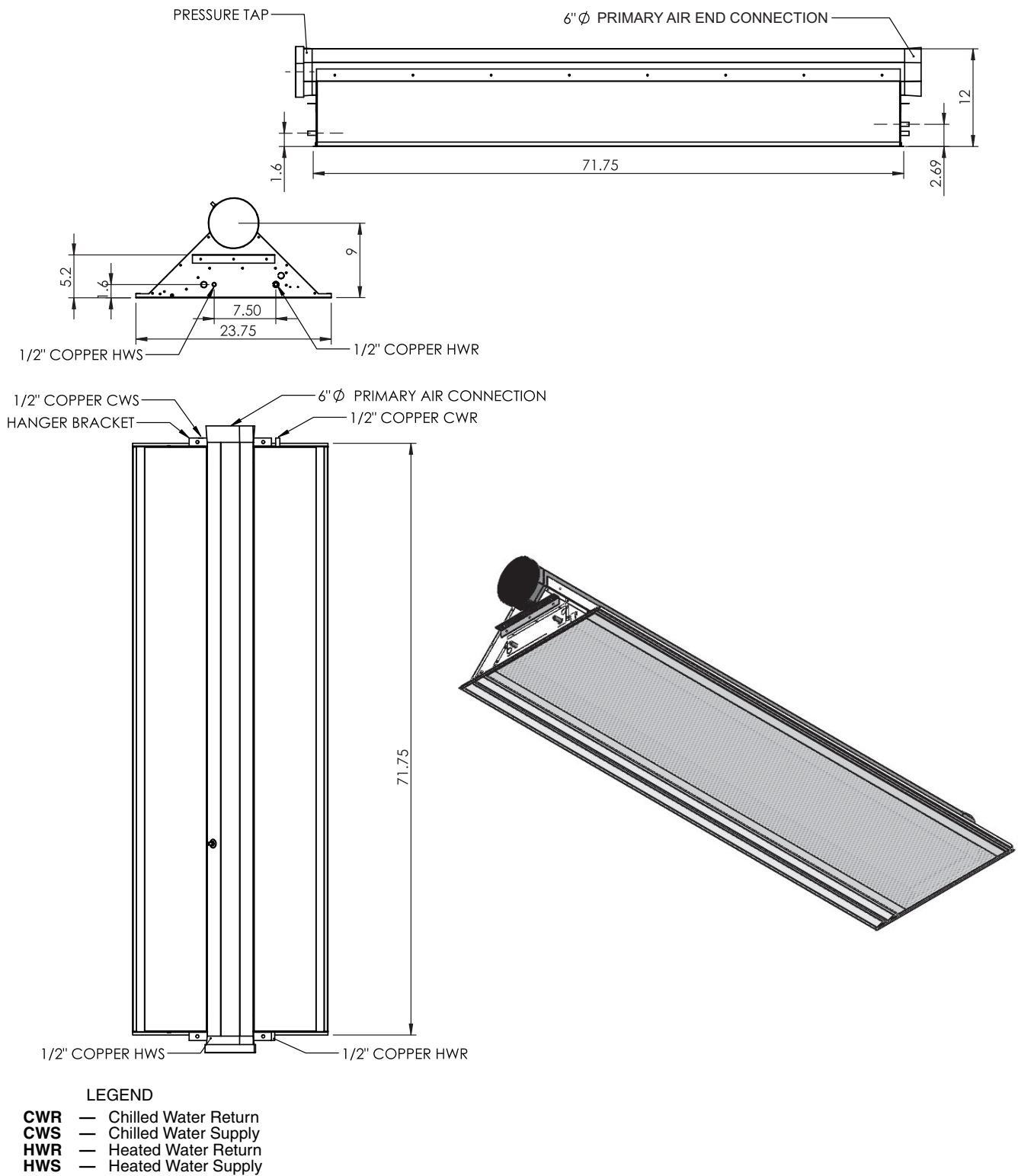


Fig. 12 — 36CBAJ, 4-Pipe, Size 06 Unit Dimensions

INSTALLATION

Step 1 — Install Unit — There is a hanging bracket with two $\frac{5}{16}$ in. holes on each side of the unit to facilitate hanging with $\frac{1}{4}$ -in. all-thread rod or wire. The coil should not be used to support the unit. To hang the unit, hang four $\frac{1}{4}$ -in. all-thread rod or wire from the building support, aligning the unit with the planned ceiling grid. Final elevation and horizontal adjustments can be made to align the diffuser in the ceiling grid by raising and lowering the unit to the ceiling grid.

Step 2 — Connect Chilled Beams to the Piping System — All piping connections can be made before the ceiling grid is in place. It is important to connect the supply water to the supply water connections and return water to the return water connections. These connections have been labeled on the unit pipe stub-outs. Be sure all air is vented at the coil before making final connections at the return.

Pipes for chilled water systems must be covered with sealed insulation to prevent condensation. Both the supply and return pipework should be insulated.

Chilled beams must be capable of being shut off and having flow controlled. A valve set providing these functions should be field-supplied and installed on every zone.

In order to permit adjustment of the chilled beam in vertical and lateral directions, it may be practical to connect it using flexible pipes. Flexible pipes offer greater resistance to flow than fixed pipes; therefore, it may be suitable to select flexible pipes with larger dimensions than fixed pipes.

Step 3 — Connect Chilled Beams to the Primary Air Ducting System — A short section of insulated flexible duct can be used to connect the primary air ductwork to the unit. Make sure that the flexible duct connection to the unit is sealed air tight. A field-supplied balancing damper should be provided in this primary air duct to facilitate the air supply balancing of each unit to the scheduled static pressure at the unit inlet.

ADJUSTMENT

Airflow Balancing Procedure — To balance the air system for the chilled beam units, it is only necessary to adjust the inlet static pressure at each chilled beam unit to the values shown on the schedule for each room. The inlet static pressure should be read at the duct connection to each chilled beam. A static pressure tap is supplied on each chilled beam unit for a balancer to take readings. The balancing contractor should attach a Magnehelic gage to the factory-mounted pressure tap and adjust the volume damper to the proper inlet pressure.

If multiple chilled beams in a given space are not accessible to measure the static pressure at the inlet to each unit, they can be balanced as a group, as follows.

1. Add up all the scheduled primary air to each chilled beam on a given primary air duct branch feeding a common area.
2. Adjust the damper to that branch to allow the primary air quantity determined above to the space. Since chilled beams all operate linearly at static pressures between 0.2 and 1.0 in. wg, all terminals on the primary air branch to a given space will operate at the common static pressure available in that branch duct that will produce the total primary air measured.

Total supply air is dependent on the primary air and static pressure at the unit. It cannot be directly measured.

MAINTENANCE

Once per year, remove the center core of grille and vacuum off the internal heating and cooling coil with a soft vacuum brush. The removable grille can also be vacuumed off as required. If the unit was provided with a lint screen filter installed, remove the filter and vacuum off the lint.

On chilled beams, the coil can be accessed by unlatching the hinged grille. Supply and return face sections are separated and can be removed.

