

# **American Safe Room Installation and Operation Manual**

## **for the ASR-50-OP Overpressure Relief Valve**



**Wall mount**



**Ceiling mount**



**Blast valve - wall mount**



**Blast valve - ceiling mount**

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## Description, Specifications, and Configurations

### Description

The ASR-50-OP Overpressure Valve is constructed from high grade stainless steel, a chemical resistant latex rubber membrane and high impact acrylonitrile butadiene styrene. It has a weight 48½ ounces (1.4 kilograms) - without the blast valve attached.

### Configurations

The ASR-50-OP Overpressure Relief Valve kit may be configured for installation on either a wall or ceiling exhaust port, with or without a blast valve.

### Overpressure

The Safe Cell air filtration system works by drawing outside air through its filter banks and introducing it into the shelter area creating a slight overpressure. This overpressure prevents unfiltered air or toxins from migrating into the shelter area through any openings or cracks.

### Adjusting the room overpressure and airflow

The overpressure relief valve is the variable factor which governs airflow and overpressure in an airtight shelter room and has been preset at the factory for optimum performance.

Should you wish to change the pressure setting we urge you to first consult with technical support at the factory at telephone 541-459-1806.

An airflow of 5-CFM (cubic feet per minute) per person at 0.3-inch w/g (water gauge) is recommended. This meets the class-1 filtration requirement for Collective Protection as stated by the Department of the Army, Corps of Engineers in their technical letter, number ETL 1110-3-498.

### Valve Functions

Your ASR-OP overpressure valve serves two functions:

1. It creates and maintains an overpressure in the shelter by adding the proper resistance to the exhaust air outflow. The valve is normally closed and opens when the air pressure inside the shelter has reached the release pressure of 0.04-inches of water column.
2. It automatically closes when a positive pressure wave from an explosion exceeds the internal pressure of the shelter - up to 2.5 psi. When the outside air pressure returns to normal the overpressure valve automatically returns to its normal operational state. For more protection, the blast valve must be installed **before** the overpressure relief valve as in the ASR-OP-BVWM and ASR-OP-BVCM configurations.

An **airtight** shelter **must** have an exhaust vent with an overpressure valve installed on an opposite wall of the filtration unit output to insure that the sufficient per occupant ventilation rate is taking place as well as proper overpressure.

## Installation steps

### Mounting Location

The overpressure valve body **must** be installed inside the sheltered area.

The valve body **must** be installed over the exhaust port.

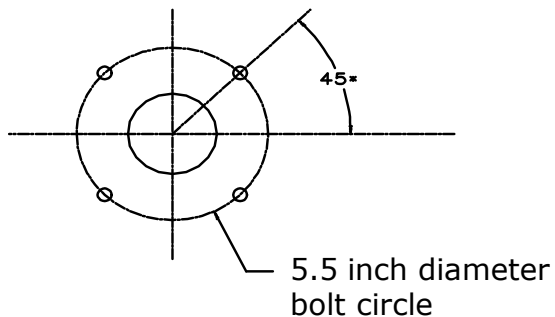
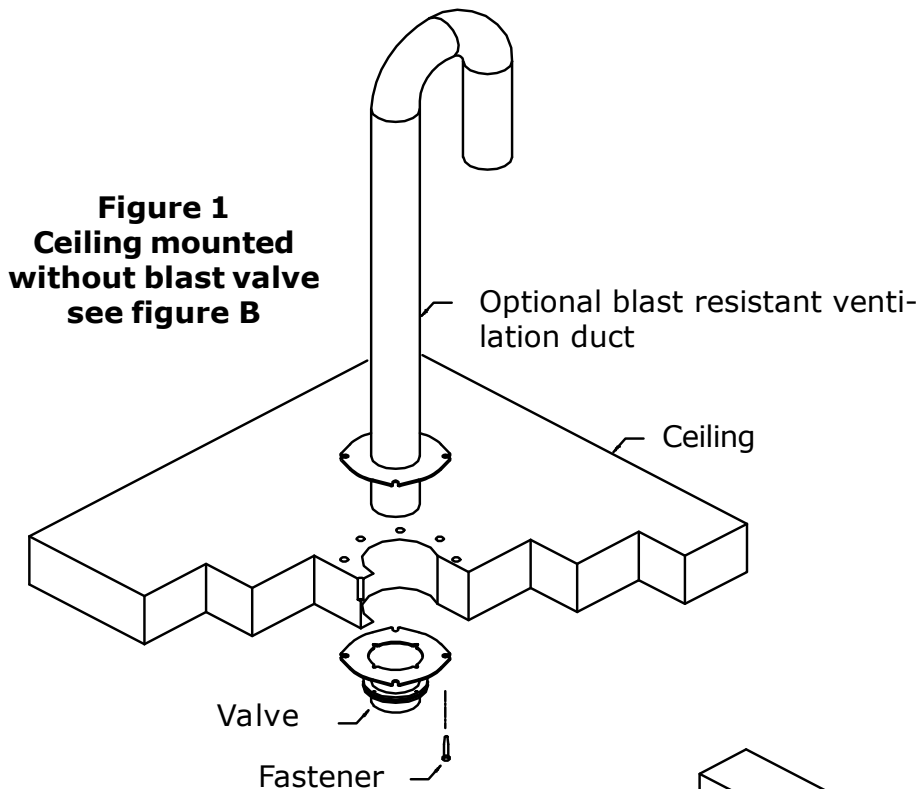
All exhaust air **must** pass through the overpressure valve.

The valve body **must** be installed on a opposite wall from the filter unit in order to prevent short circuiting of the airflow.

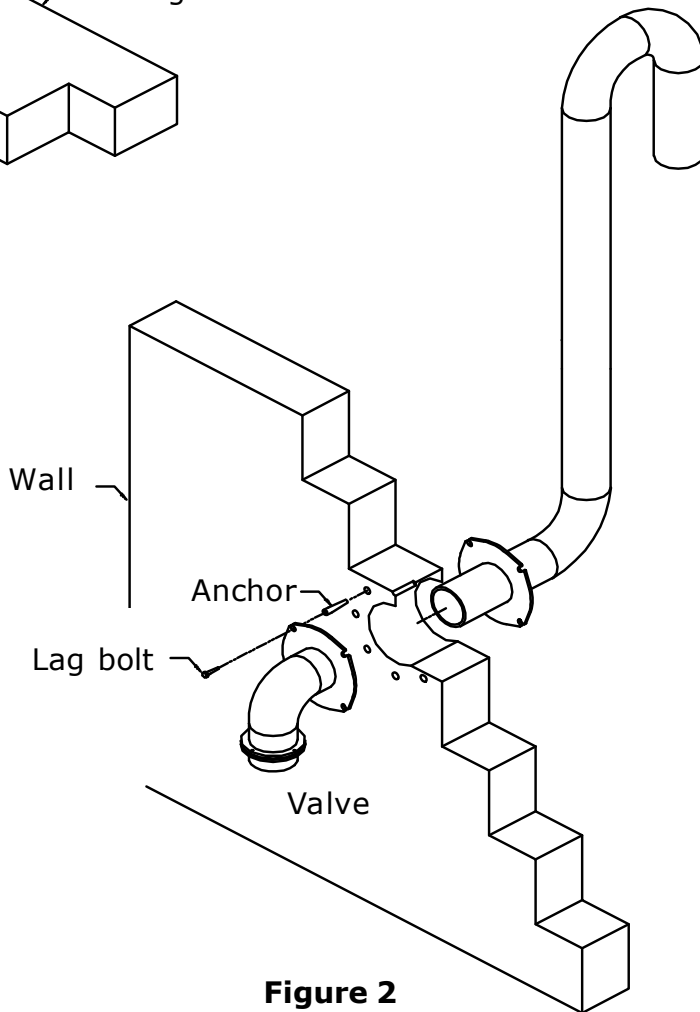
The ASR-50-OP overpressure valve may be easily configured by the installer to accommodate any of the configurations described in this manual.

1. The overpressure valve is installed inside the shelter room as shown in figures 1 through 4 and B-E, on the following pages.
2. Locate and cut the exhaust vent hole through the shelter wall - minimum diameter of 3-inches/76-mm.
3. Layout and drill holes for lug bolt anchors as shown in fig. 2 in the installation section of this manual, taking care to insure that the overpressure valve hole pattern is centered over the exhaust vent hole cutout.
4. Fasteners: due to the variation of construction methods used for protected spaces, the fasteners are not included. For standard stick-built construction, it is recommended that two of the screw fasteners (either the left or right two holes) be anchored into a wall stud. The other two fasteners should be drywall anchors and screws. For concrete walls, lag bolts are recommended.
5. Put the gasket and the mounting flange over the hole and install the fasteners.

## Installation drawing - without the blast valve

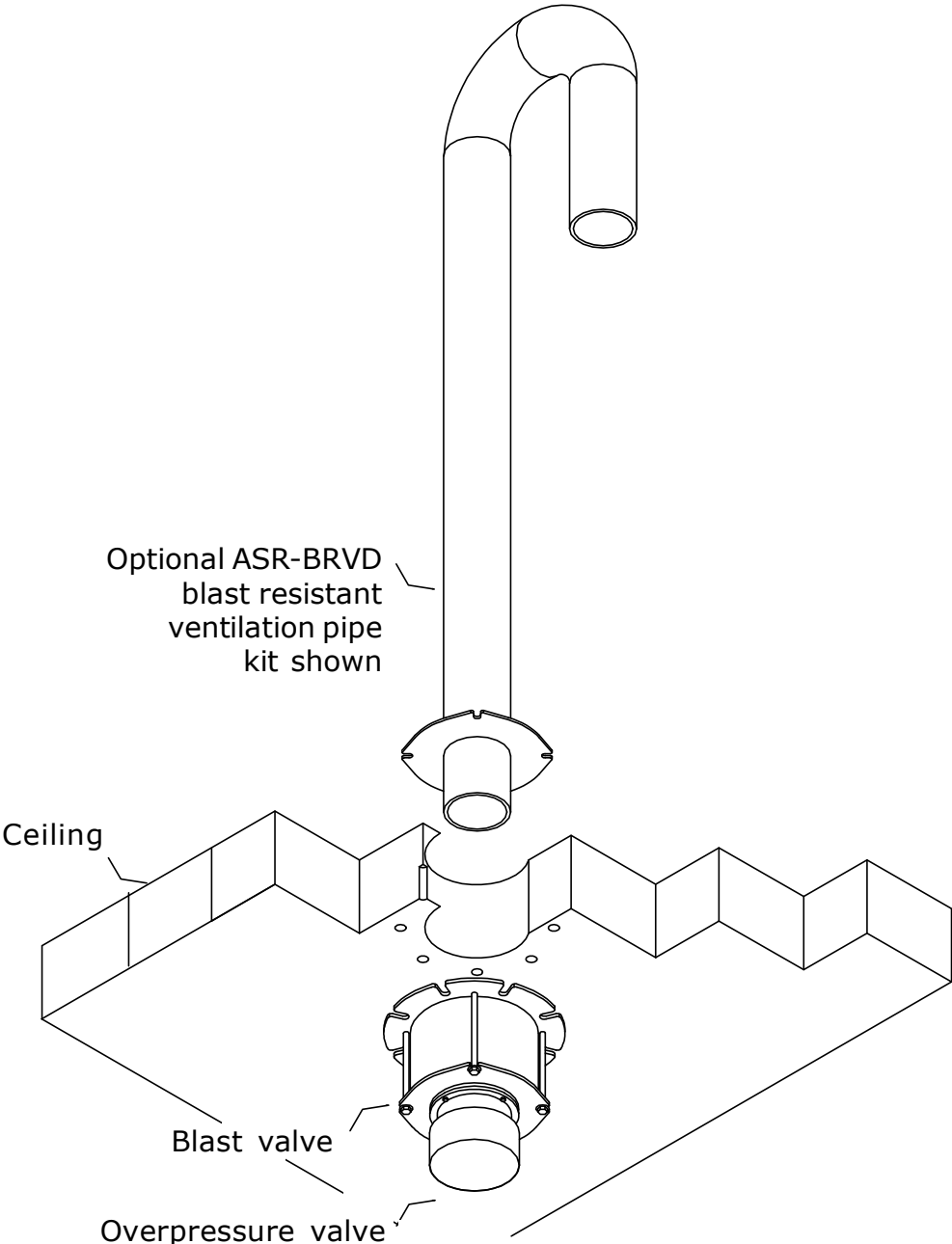


**Figure 3**  
**Hole pattern**



**Figure 2**  
**Ceiling mounted**  
**without blast valve**  
**see figure D**

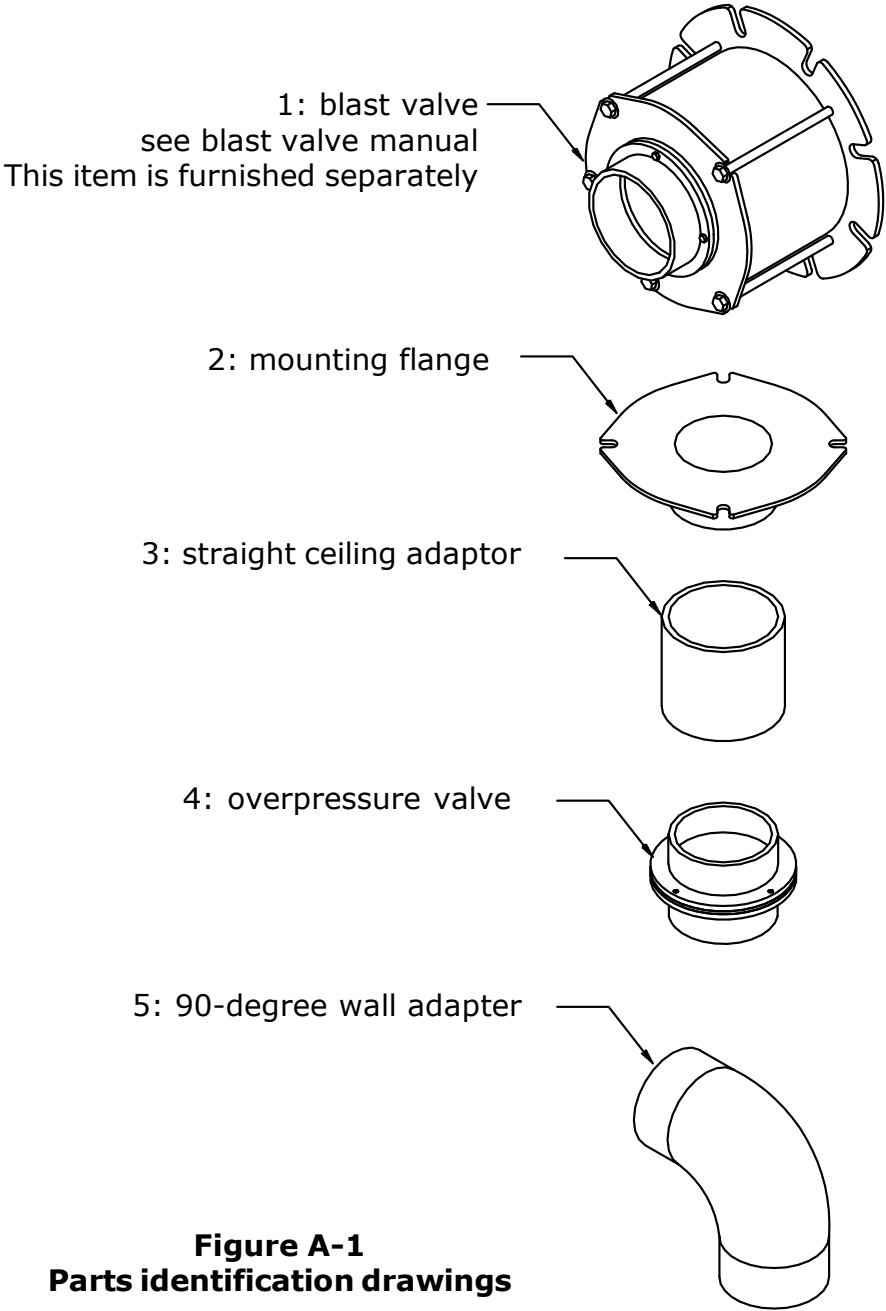
# Installation drawing - with the blast valve



**Figure 4**  
**Ceiling mount with blast valve**  
**see figure C**

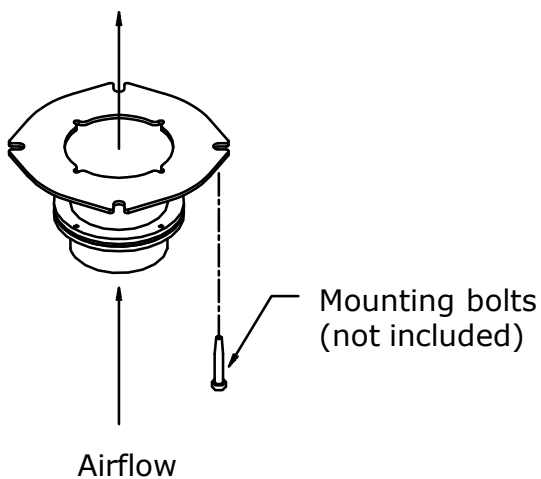
Please note:  
The wall mount configuration  
(ASR-OP-BVWM) is identical to  
this except for the orientation of  
the valves

# Installation Parts

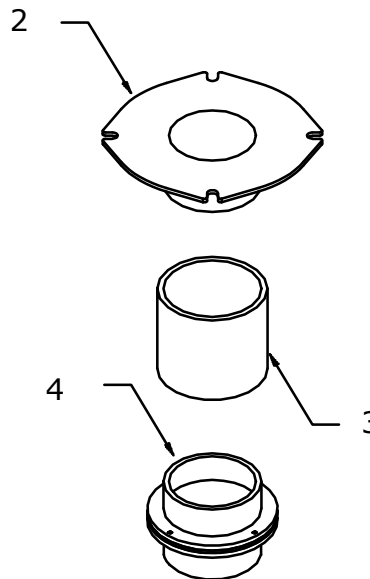


**Figure A-1**  
**Parts identification drawings**

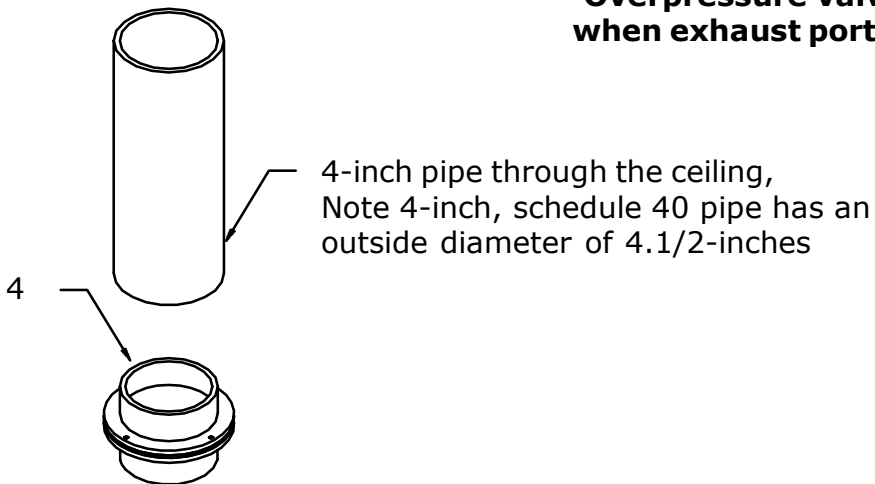
## Ceiling installation without blast valve



**Figure B-1**  
**Overpressure valve**  
**finished ceiling installation**



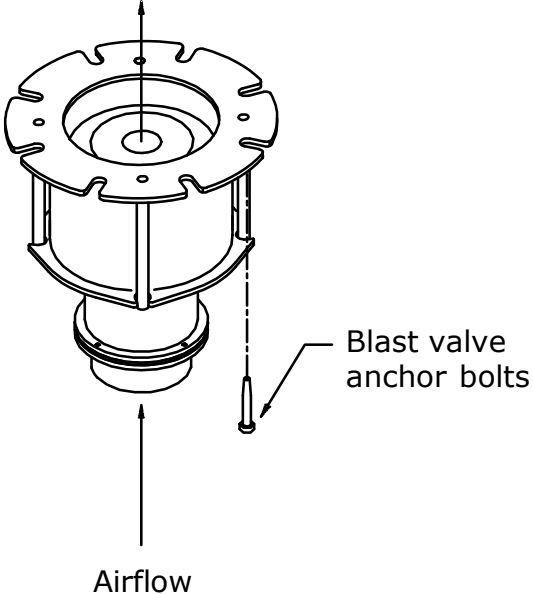
**Figure B-2**  
**Overpressure valve assembly option**  
**when exhaust port is flush with ceiling**



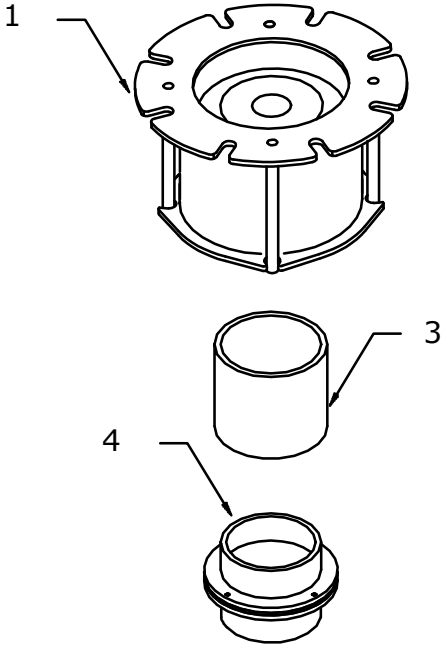
**Figure B-3**  
**Overpressure valve assembly option**  
**when exhaust pipe extends 2-inches**  
**into the shelter**



# Ceiling installation with blast valve

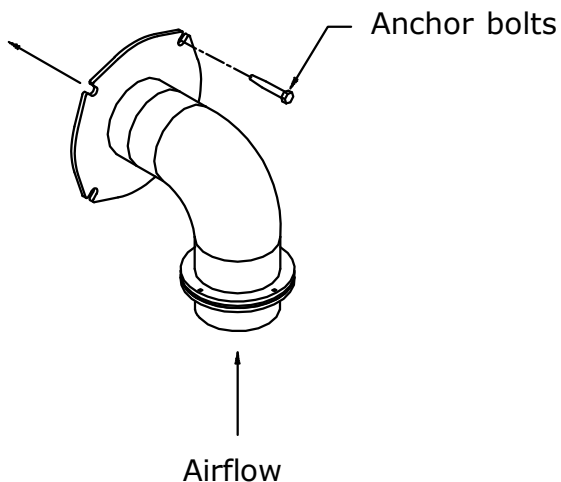


**Figure C-1**  
**Overpressure valve with blast valve**  
**finished ceiling installation**

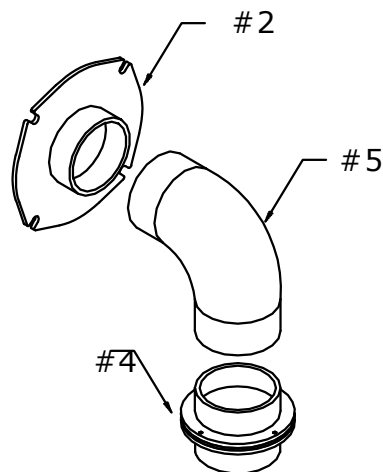


**Figure C-2**  
**Overpressure valve assembly when**  
**used with ceiling mounted blast valve**

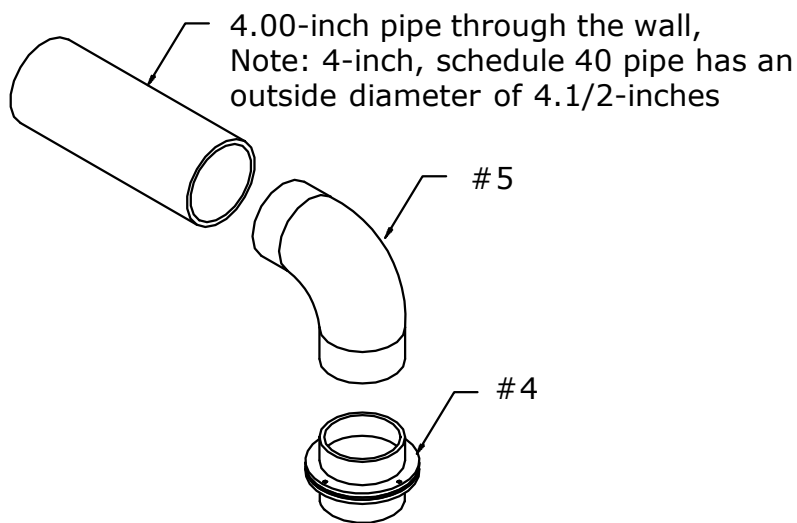
## Wall installation without blast valve



**Figure D-1**  
**Overpressure valve**  
**finished wall installation**

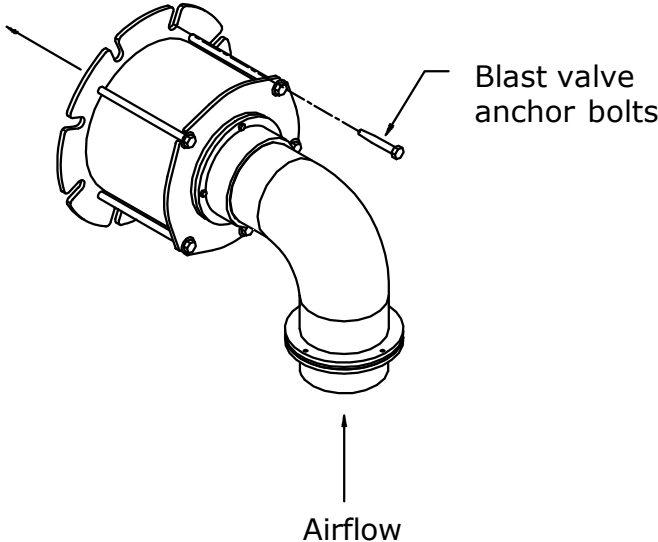


**Figure D-2**  
**Overpressure**  
**valve assembly**  
**option when**  
**exhaust port is**  
**flush with wall**

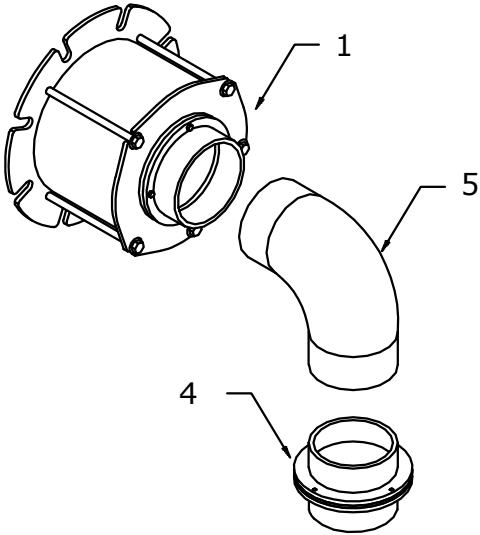


**Figure D-3**  
**Overpressure valve assembly option**  
**when exhaust pipe extends 2-inches**  
**into the shelter**

# Wall installation with Blast Valve

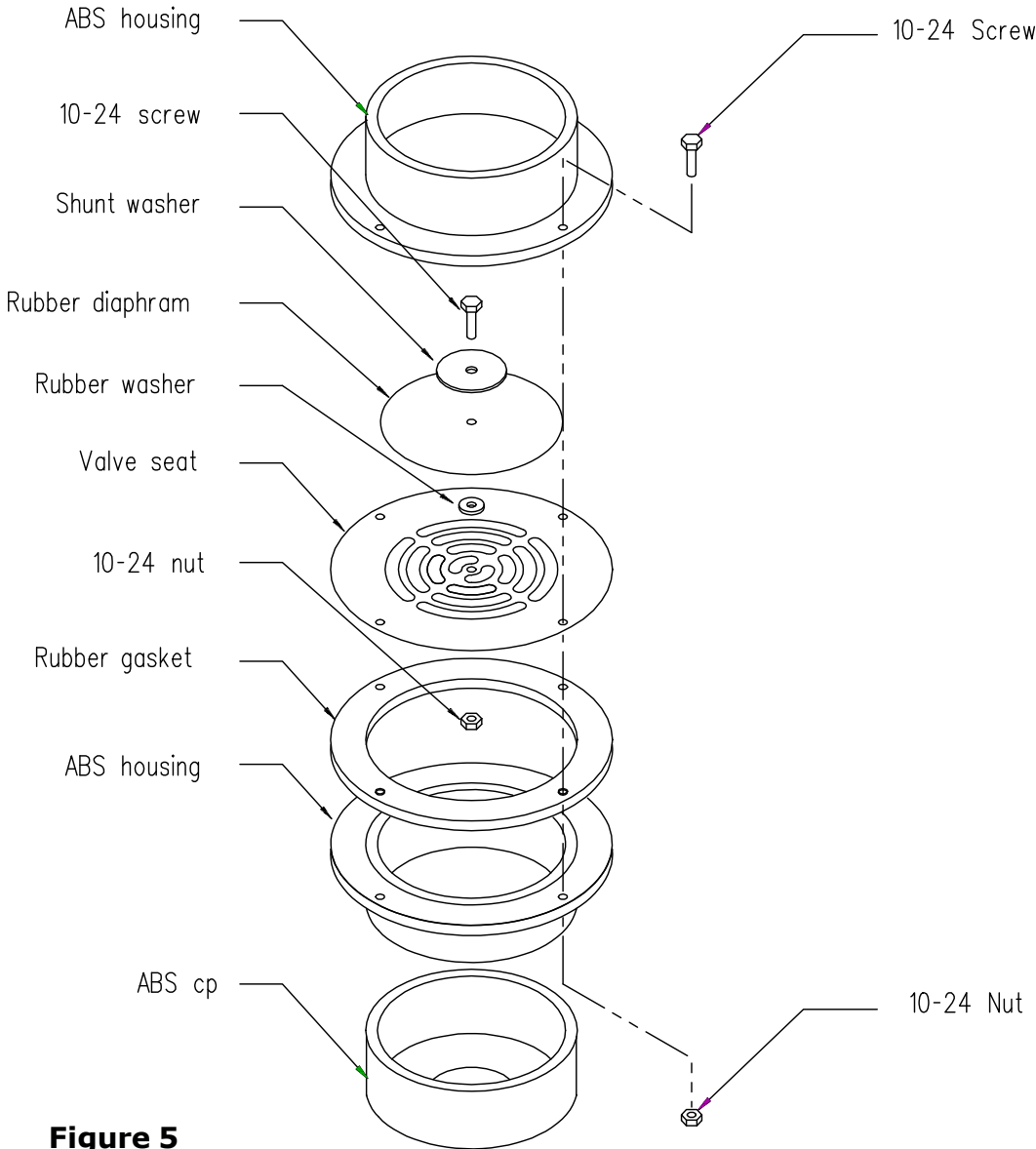


**Figure E-1**  
**Overpressure valve with blast valve**  
**finished wall installation**



**Figure E-2**  
**Overpressure valve assembly when**  
**used with wall mounted blast valve**

# Valve Body Parts Drawing



**Figure 5**  
**Exploded parts drawing**  
**Overpressure Valve**