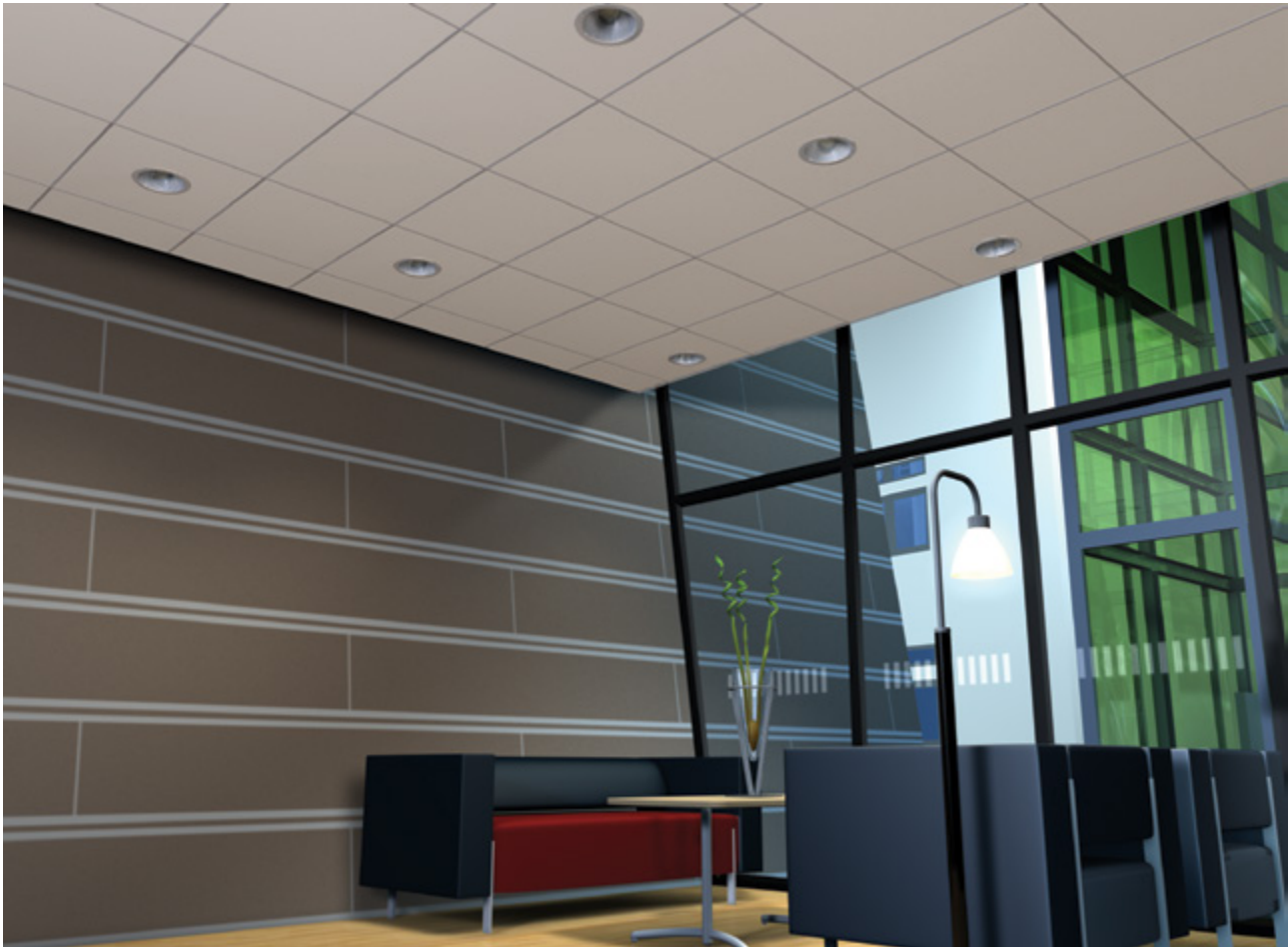


# Chilled beams

# Celo



## Use

Lindab has developed a supply air beam, Celo, which can be installed above a suspended ceiling.

Thus, you can conceal the ventilation and cooling features and create an unbroken ceiling without visible technical installations. The Celo concept has been developed together with Ecophon, which provides acoustic ceilings adapted for the system.

## Installation

Celo is installed above the suspended ceiling. The system requires open slits in the suspended ceiling for the cooled air to exit and for the intake of warm air from the room to the chilled beam.

## Worth noting

Celo is based on a unique technology in which the cooled air is carried down through an outlet slit in the suspended ceiling, then along the wall and down towards the floor. The cooled air has a fan-shaped distribution, which ensures low air velocities in the occupied area. Lindab's supply air beams are Eurovent-certified and tested according to EN-15116 and EN-14518.



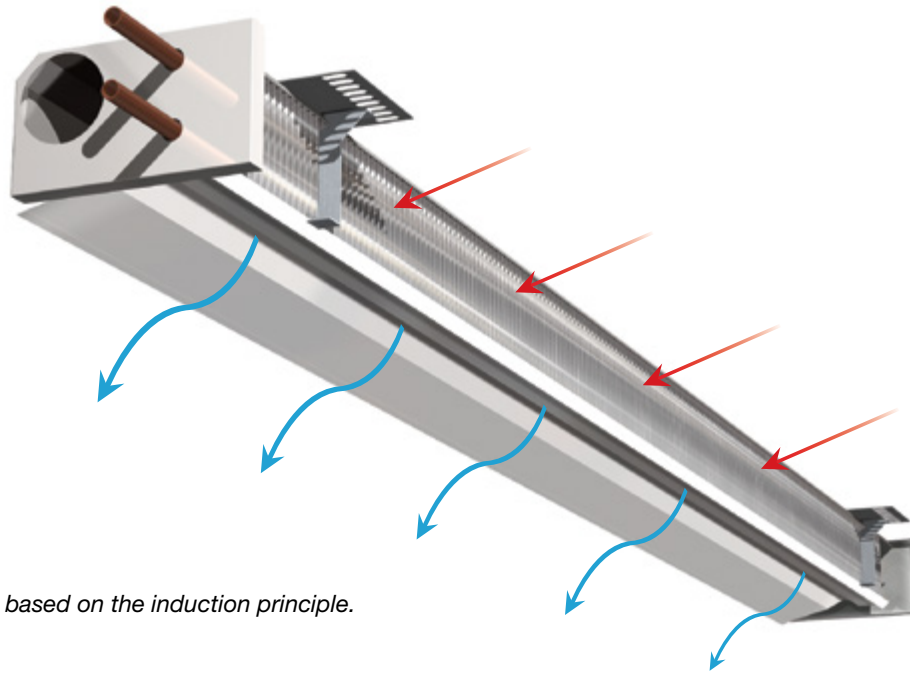
## Key figures

Capacity: Cooling effect of up to 2,370 BTU  
Air quantity of up to 42 cfm

# Chilled beams

Celo

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Picture 1. Celo is based on the induction principle.

## Function

Patent-applied-for technology guarantees a good indoor climate.

Celo consists of a supply air beam (see picture 1), which is placed above a suspended ceiling. Celo's technological solution is based on a unique technology (patent applied for), where the air is carried down through an outlet slit in the suspended ceiling, then along the entire wall and down towards the floor (see picture 2). The air has a fan-shaped distribution and all together, this ensures low air velocities in the occupied area.

The technology, where the clean cooled air is driven slowly down the wall towards the floor and where the exhaust unit is placed above the suspended ceiling, ensures good air-change efficiency in the room.

## Construction

Celo is equipped with a vertical battery and a lateral air duct. There is an air connector on each end of the beam, and one of these is used for connecting the air. A cleaning hatch, with a handle, is placed on the unused connection, Lindab designation ESHU 80. The cleaning hatch provides access to the beam's air duct for cleaning and inspection. The product is supplied with factory-preset airflow and nozzle pressure.

The air is supplied to the room through Coanda nozzles placed along the air duct. The outermost nozzles have a

sideways angle of 30°, an angle that decreases the closer the nozzles are to the center. This creates a fan-shaped distribution pattern.

The nozzles are accessible for plugging from below, if you wish to change the pressure and flow pattern at a later time.

The water pipes are made of copper. Nevertheless, the water should be oxygen-free to prevent corrosion.



Picture 2. Celo's technical solution is based on a unique technology, patent applied for, where the cooled air is carried down through an outlet slit in the suspended ceiling, then along the wall and down towards the floor.

# Chilled beams

# Celo

## Concealed installations

Celo makes it easy to create a beautiful unbroken ceiling (see picture 3). Celo provides great freedom when designing a suspended ceiling (see Picture 4). The choice is between a wall-to-wall suspended ceiling with slits and a suspended island installation.

Supply air beams, exhaust air units, ventilation ducts and electrical installations are all placed above the suspended ceiling.

## Simple installation and service

Installation of the Celo supply air beam is simple. Careful adjustment of the suspended ceiling is not required. When the installation engineer has finished installing the beam, the ceiling installer takes over; basically, the only thing he has to do is fit the ceiling.

Since the suspended ceiling panels can be easily dismantled, the supply air beams and the other technical installations are easily accessible for maintenance and service.

The many years of experience with conventional chilled beam systems, where the air is drawn through slits in the suspended ceiling and then brought back through a supply air beam placed at the center of the room, prove that there is good hygiene above the suspended ceiling. The big difference with Celo is that the supply air beam is not visible!



Picture 3. Celo makes it easy to create a beautiful unbroken ceiling.



Picture 4. Celo provides great freedom for the design of the suspended ceiling.

# Chilled beams

# Celo

## Data

### Variants

Celo is installed above a suspended ceiling.

**Lengths:** Celo is available in lengths from 47.2" - 141.7", in steps of 12".

**Water connection:** The water connection is horizontal 0.60".

**Air connection:** The air connection is horizontal 3"Ø.

**Nozzle angle:** The standard angle of the nozzles is 30°.

**Surface treatment:** Celo is manufactured as standard from enameled sheet metal, color white, RAL 9010.

**Airflow control:** The product has a preset pressure drop value, so on-site adjustment is not necessary. A prerequisite is that the duct system in the building has a relatively low-pressure drop compared to the product. Where a damper is desired, you can order a balancing damper.

### Plus features

Factory preinstalled.

**Drypac™:** Anti-condensation-treated cooling batteries that enable water temperatures below the dew point without condensation drips.

**Valves and actuators:** Valves and actuators are fitted externally.

**Air vent:** An air vent is mounted on the return side of the connection pipe on the exterior of the product.

### Accessories

Delivered separately.

**Suspension wires:** Suspension wires and Z-bars can be supplied for ceiling installation, 4 suspension points.

**Threaded rods:** Threaded rods can be supplied for installation in the ceiling. 4 suspension points.

## Cooling effect, Celo

### Drypac™, condensation protection

Drypac™ is a condensation protection consisting of Perlite (volcanic stone), which is applied to the fin surfaces. Drypac™ has properties, which allow a feed temperature that is 39.2° F below the dew point, for continuous operation, and 41 to 46.4° F below dew point for limited periods. Drypac™ provides both an increased effect output and increased security against condensation drips. At a working temperature above the dew point, the output is reduced by 17 % but when the working temperature is below the dew point, there is no reduction in output. This means that the effect is highest when the need is greatest.

# Chilled beams

# Celo

## Couplings & connections

Celo is supplied in lengths from 47.2" - 141.7" in steps of 12". The connection dimension for the water is o.d. 0.6" and for the air 3"Ø.

### Designations

Figure 2 shows the different coupling options for Celo. Type A1 has a horizontal air connection at the end and a horizontal pipe connection at the same end of the beam.

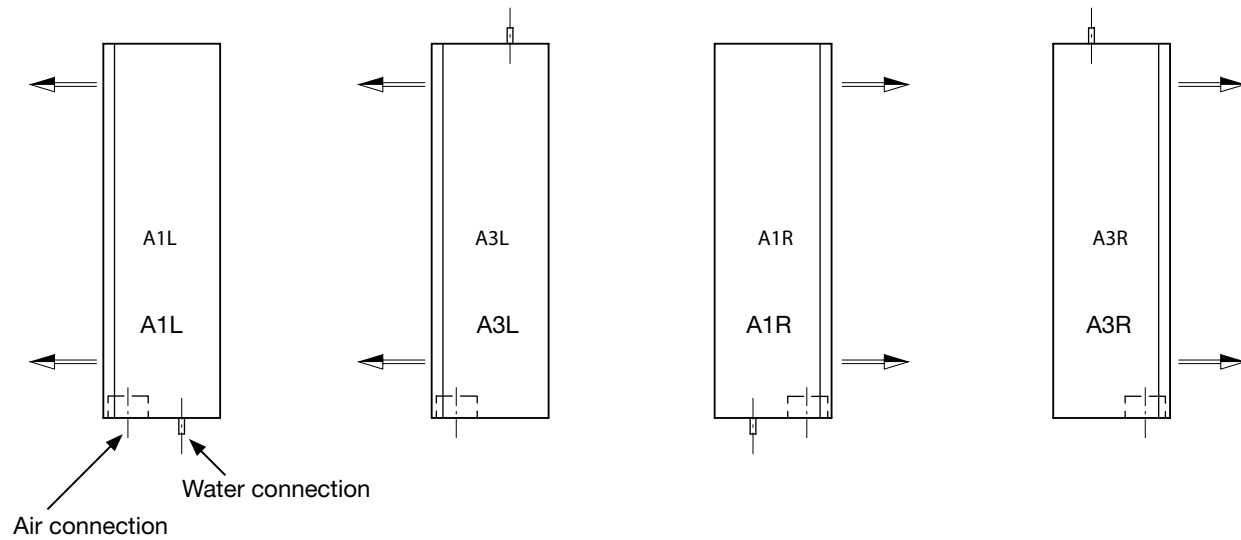
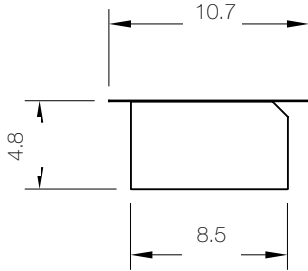


Figure 2. Celo has four different coupling options, A1L, A3L, A1R and A3R.

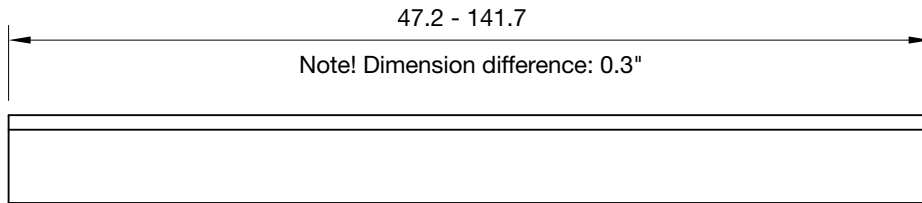
# Chilled beams

# Celo

## Width & height, (in)



## Length, (in)



## Connection dimensions, (in)

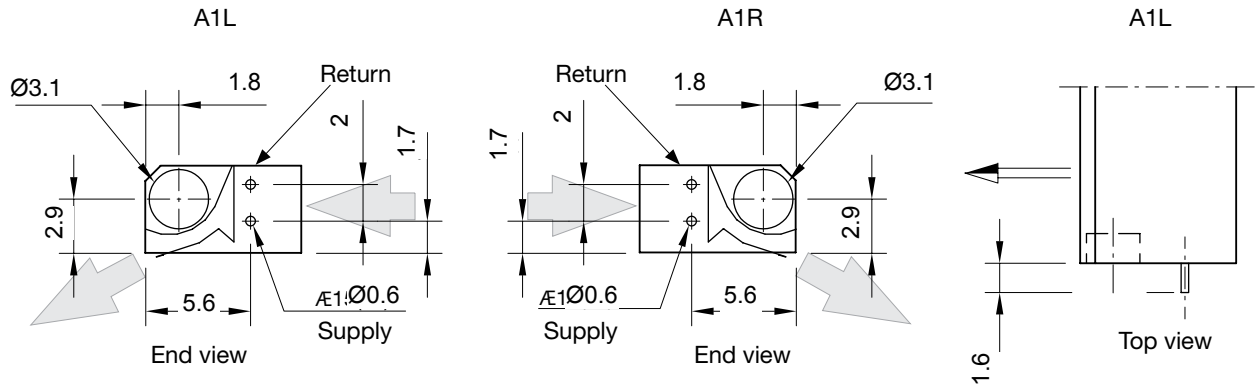


Figure 3. Celo, width, height and connection dimensions.

## Weight & water content

Weight, lb/ft	4.4
Water content, gal/ft	0.03

Table 7. Celo, weight & water content.

# Chilled beams

# Celo

## Installation

Celo is installed above the suspended ceiling. The beam is attached to the ceiling joist with suspended wires, threaded rods or screws. Installation components can be ordered as accessories. All dimensions are in inch.

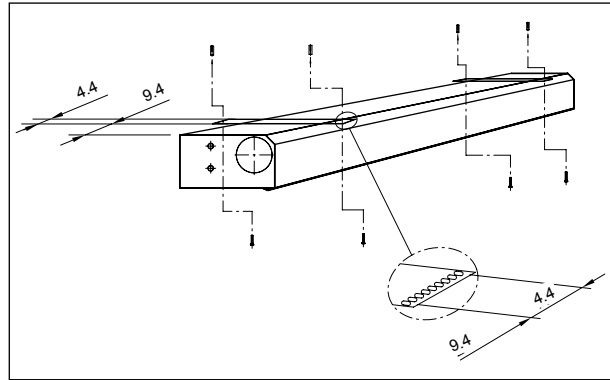


Figure 3. Dimensions for fixing points.

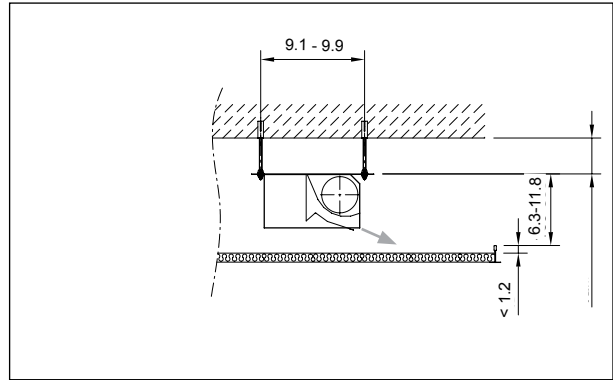


Figure 4. Dimensions for suspended installation. Suspended island installation.

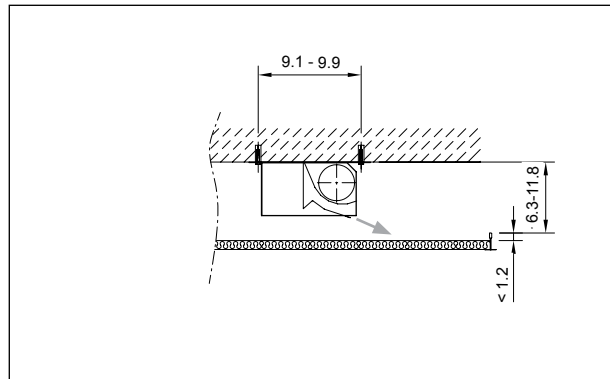


Figure 5. Measurement for installation on to a ceiling joist. Suspended island installation.

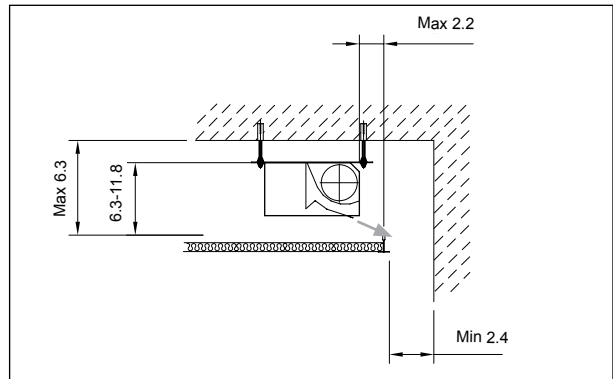


Figure 6. Dimensions for installation, outlet along the wall.

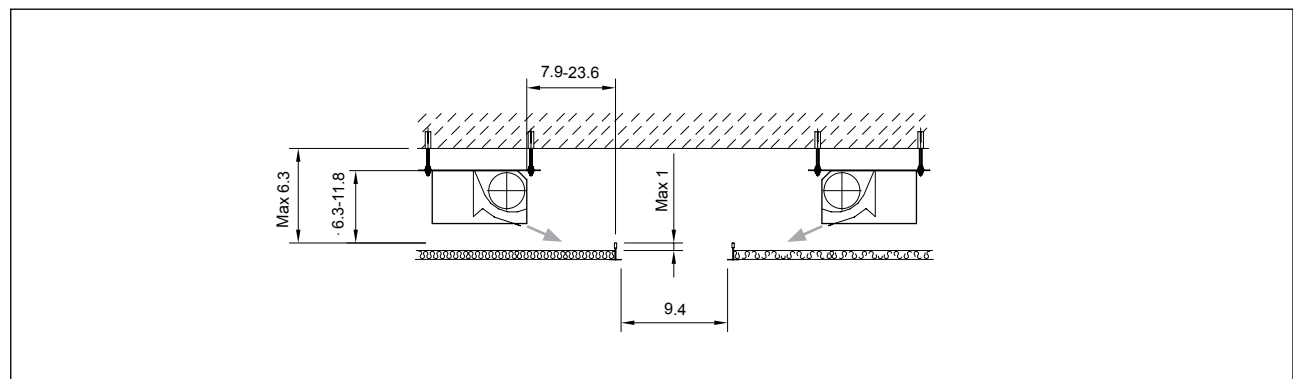


Figure 7. Dimensions for suspended island installation. The maximum dimension of 1" is between the upper edge of the suspended ceiling and the highest point of the ceiling that can interfere with the air current.

\* The dimension is between the upper edge of the beam and the highest point of the ceiling that can interfere with the air current.

# Chilled beams

# Celo

## Installation examples

### Wall-to-wall suspended ceiling with slits

To achieve a sufficiently high water flow according to the effect diagram when shorter units are used, it is often necessary to have two Celo beams connected in series.

When the water circuit is connected in series, the same water flow goes through both beams.

This results in a water flow through the beam that is twice as large as the flow in parallel-coupled beams, at the same temperature difference (supply/return) and cooling effect.

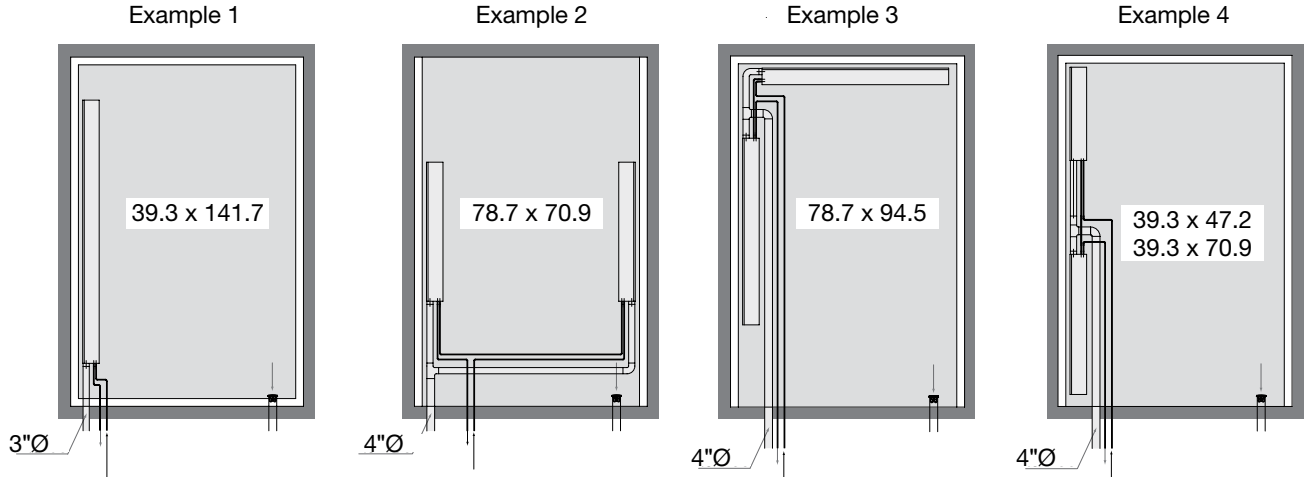


Figure 8. Four examples of how Celo beams can be placed in combination with different slits in the suspended ceiling, including suitable water and air connection.

**NB!** Each supply air beam has an air connection of 3"Ø. Each supply air beam has a maximum air volume to fulfil the desired noise levels. Two beams cope with a greater total air volume.

To avoid increased air velocities, the distance from end to end should be greater than 47.2" (see figure 8, example 4). Lindab's control valves can be used as exhaust air units.

### Suspended island installation

Celo can also be installed in a suspended island. The picture below shows examples of this.

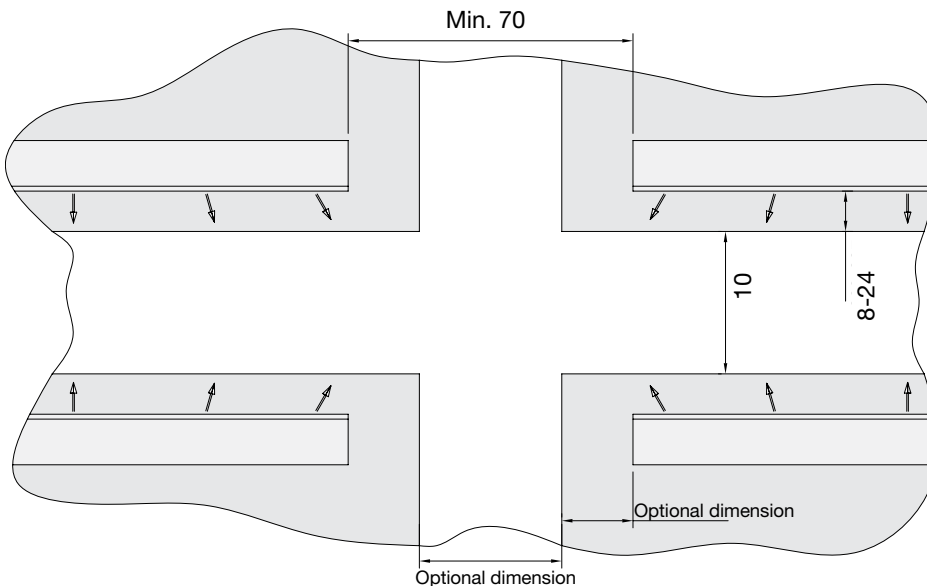


Figure 9. The picture shows four corners where suspended ceiling islands meet.

All dimensions are shown in inches.