



## SMHRU: a Smart Heat Recovery Unit

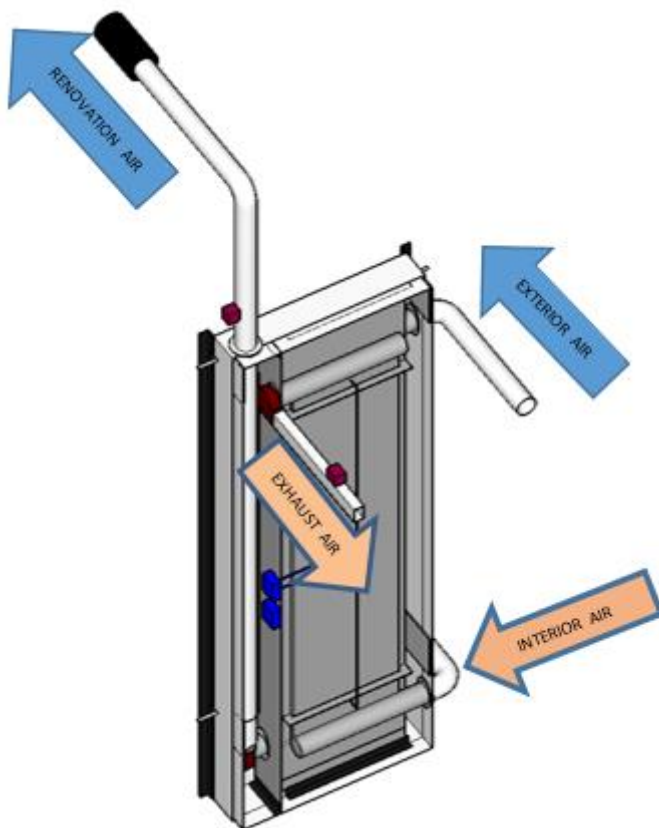
### Notice

#### Concept

The SMHRU is an air-air heat exchanger that is adaptable to be installed into the cavity of the ventilated façade. It will be able to recover heat from ventilation air.

- In winter: pre-heat the ventilation air
- In summer: pre-cool the ventilation air

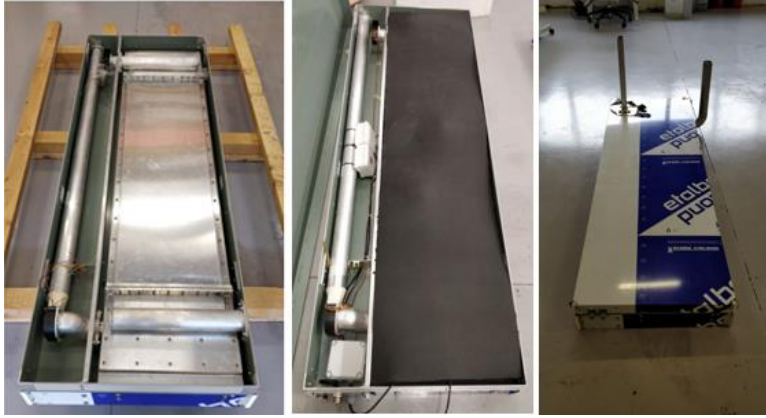
Some of the advantages of installing the SMHRU are the improvement of the inner air quality, the reduction of cooling and heating demand and the avoidance of installing large duct systems transporting ventilation air throughout the whole building. As the system is made in aluminum, it is lightweight and is easy to install in the building's wall.



The SMHRU has 2 streams.

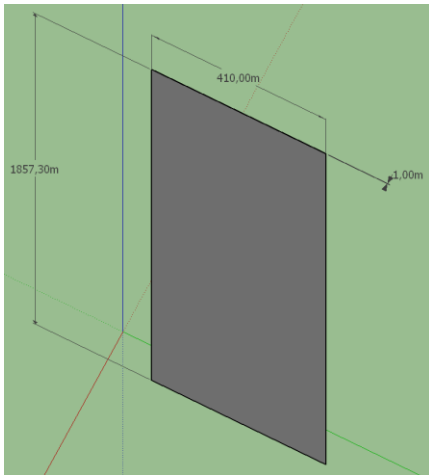
Stream 1: it takes air from the exterior (exterior air) and goes through the plates to the fan below that blows it to the interior (Renovation air).

Stream 2: it takes air from the interior of the building (Interior air) and after going up through the plates it is expelled (Exhaust air).



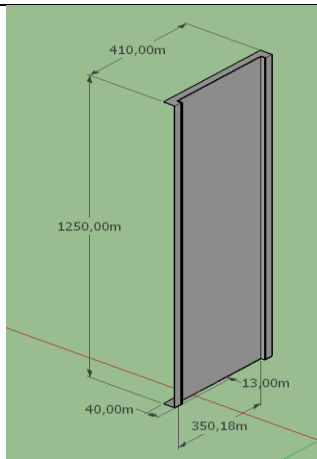
## Technical presentation

### Elements

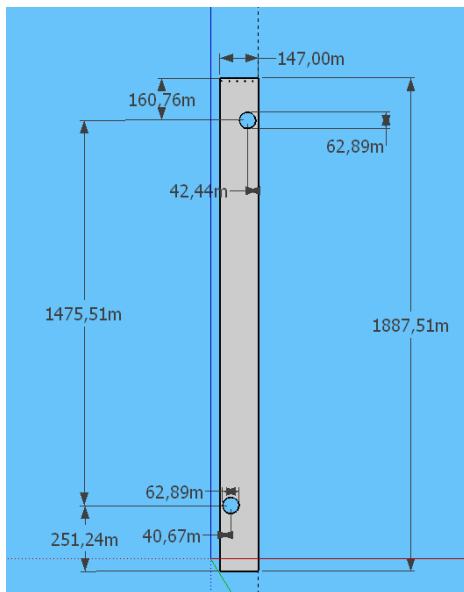


Core of the SMHRU : The piece that separates two air streams.

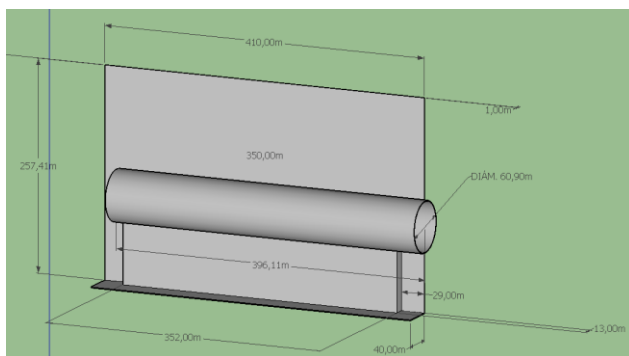
Cover of the core : Piece that allows fixing the plates and the core.

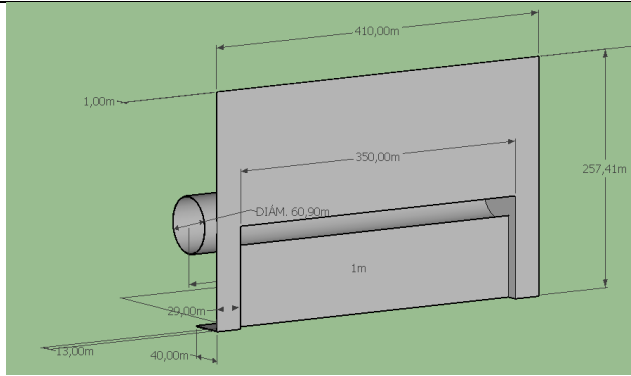


Separator : the piece that separates the heat exchanger from the tube on the left.

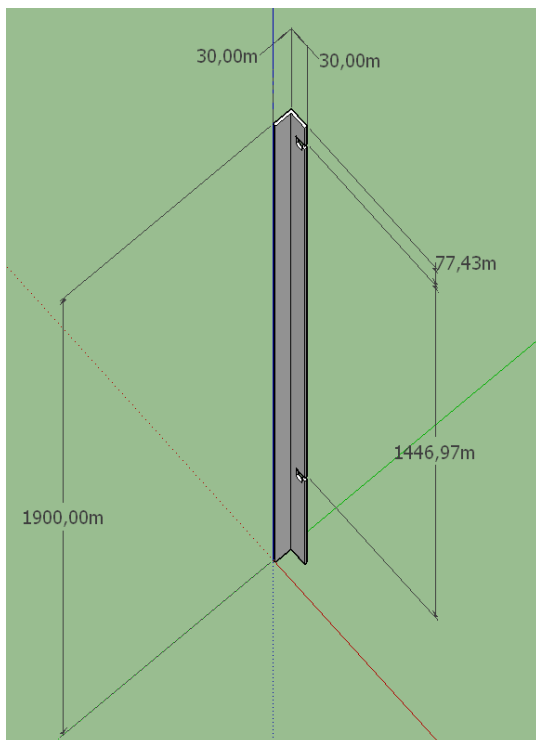


Collector : this piece is the distributor. There are 4 unit on each SMHRU. At the entrance and exit of each stream.

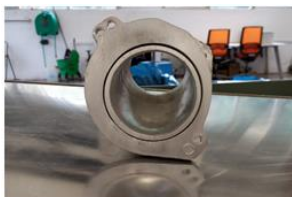




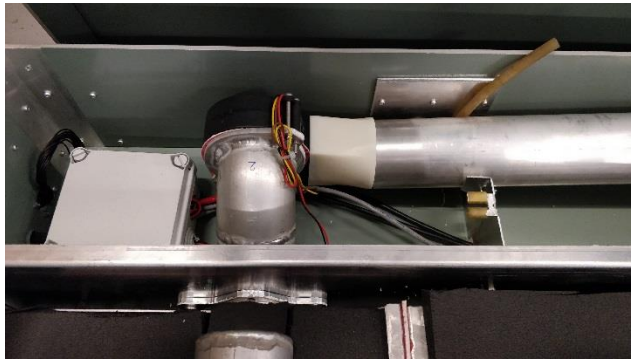
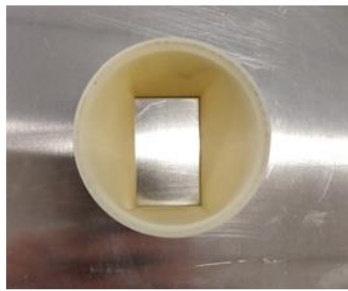
L profile : 2 profiles to fix the Etalbond box to the wall.



S piece : the piece that allows connecting the fan below with the heat exchanger.

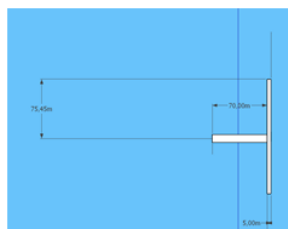
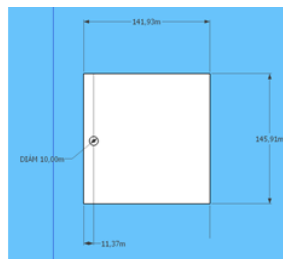
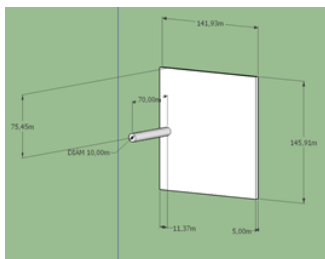


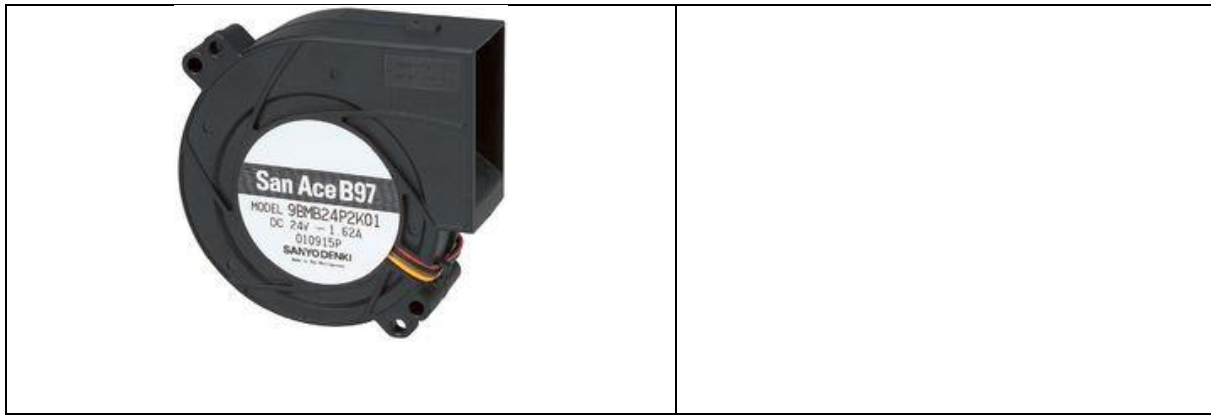
3D piece : the piece that allows connecting the cylindrical tube with the square exit of the fan.



Fixing piece : 4 pieces inside th Etalbond box to fix the box with the L profiles in the wall.

Fan : SANYO DENKI San Ace B97  
9BMB24P2K01





## Table summary

Height Width thickness	1900 * 650 * 160
Weight	62 Kg
Air flow	65 m3/h
Max power	465 W
Fan energy consumption	27 W

## Size and installation

Dwg image ? with lengths

Installation process :

- 1) Install the insulation in the wall. **2MM thickness insulation.**
- 2) Install the L profiles above the insulation.
- 3) Install the square tube (Exhaust air tube) to the unit. This process can be done in parallel by an operator while others are installing the L profiles.
- 4) Install the tube (Exterior air) to the unit. This process can be done in parallel by an operator while others are installing the L profiles.

To continue with the steps described below each SMHRU unit should be approached to the cable with the connector previously installed with the procedure designed by CARTIF.

- 5) Connect the male PIN to the female PIN to see if the unit is well sensorised.
- 6) If everything is OK, follow next steps. If not, open the box and check what happens and do not close until the problem is solved. Once the problem is solved, follow next steps.
- 7) Place the unit in the L profiles.
- 8) Install the upper tube (Renovation air) with the silencer installed.
- 9) Install the temperature sensor TR (temperature\_renovation) in the hole that has the tube. This sensor should be fixed using and small slice of insulation and some tape or other material to fix the sensor to the tube.

SMHRU – a air renewal system of the E2VENT module developed by Tecnalia

- 10) Install the temperature sensor TE (temperature\_exterior) in the hole that has the tube. This sensor should be fixed using a small slice of insulation and some tape or other material to fix the sensor to the tube.
- 11) Install the last tube (Interior air).
- 12) Isolate all the tubes.
- 13) Install the filters and grids.

More on the E2VENT website: <http://e2vent.eu/>

More on the system of the E2VENT module: <http://systems.e2vent.eu/>

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