

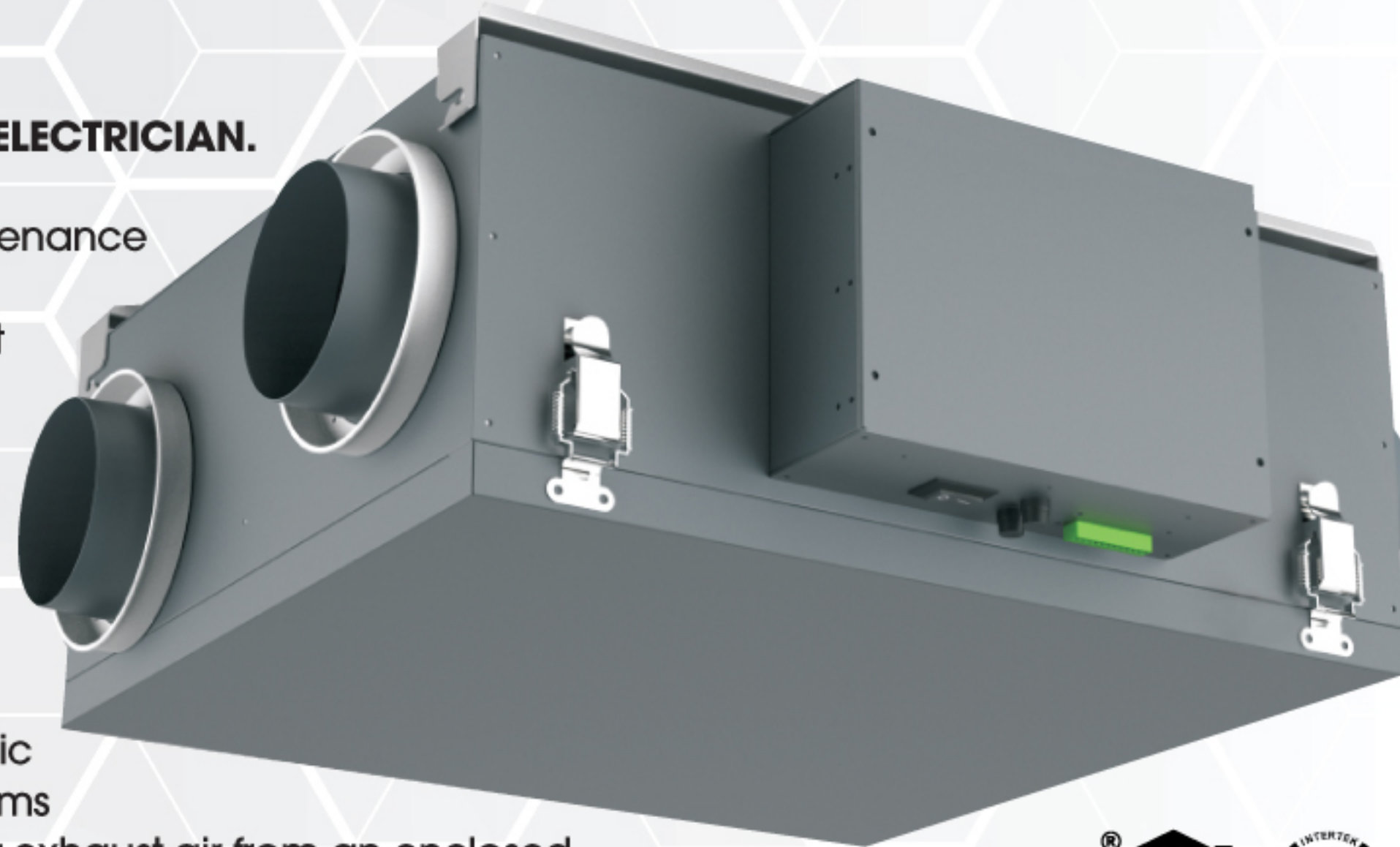
ENERGY RECOVERY VENTILATOR

ODD-ERV-80R | ODD-ERV-120R | ODD-ERV-150R

WARNING

WARNING — THE INSTALLATION MUST BE CARRIED OUT BY A QUALIFIED ELECTRICIAN.

- Risk of property damage, injury or death. Installation, service, and maintenance must be performed by a qualified service technician
- 110 or 220 Volts may cause serious injury from electric shock. Disconnect electrical power before starting installation or servicing. Leave power disconnected until installation/service is completed
- The unit must be ceiling mounted. Please mount the unit with the access door facing down
- Sharp edges may cause serious injury from cuts. Use care when handling duct work
- Inhalation of toxic gases or fumes can be harmful. The fresh air intake must be mounted in a location removed from sources of dangerous toxic gases. All ducting must be separate from other household exhaust systems
- Insufficient combustion air may cause toxic conditions. The unit must not exhaust air from an enclosed room with combustion appliances
- Excess negative or positive pressure may cause health problems or structural damage. The airflow must be balanced after installation
- Dropping may cause personal injury or equipment damage. Handle with care and follow installation instructions



CAUTION

PLEASE READ INSTRUCTION BEFORE COMMENCING INSTALLATION AND RETAIN FOR FUTURE REFERENCES.

The installation must conform to all applicable codes. The fresh air duct from outside and to the house and the stale air duct from the unit to the outside must be fully insulated to prevent condensation from forming on the duct work

STRUCTURE AND OPERATING LOGIC

The unit has the following operating logic (Figure 1):

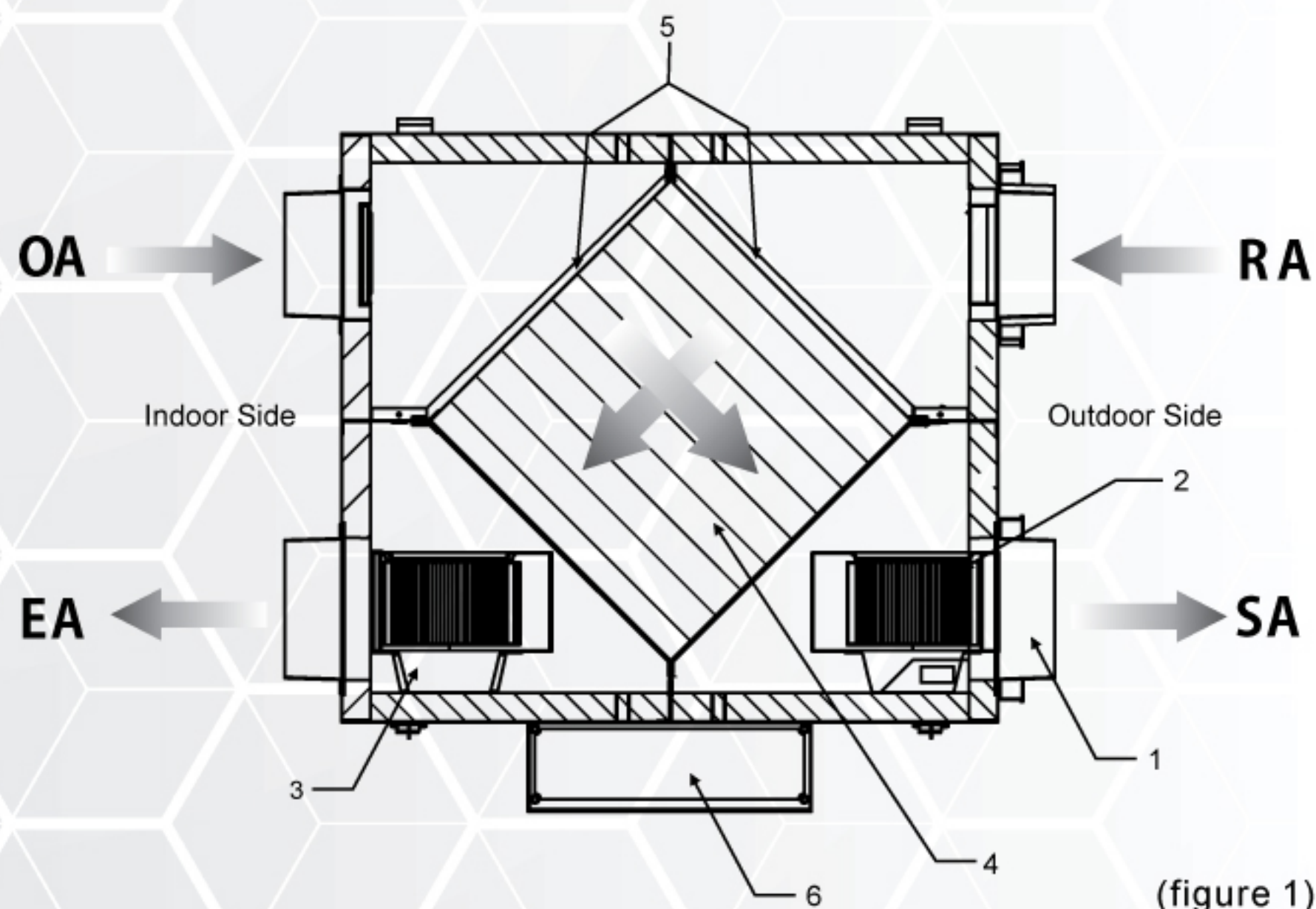
Warm stale air extracted from the indoor space is purified in the exhaust filter and is supplied to the heat recovery core before being exhausted to an outdoor space. Clean cold air from outside is purified through the supply filter and is supplied to the heat recovery core before being supplied to the indoor space.

Thermal energy of warm extracted air is transferred to the supplied fresh air before the fresh air is supplied to a room. The extract and intake air flows are fully separated during heat recovery which prevents any transfer of odors and pathogens to the supply air. Heat recovery minimizes thermal energy losses, energy demand and heating costs.

Both sensible thermal energy and latent moisture energy contained in the extract air are transferred in the unit heat recovery core to the cold intake air flow from outside to warm it up before supplying to the room.

ERVs: The graphene modified polymer membranes core of the unit operates as a moisture balancer in case of low outdoor humidity or as an air dryer in case of high outdoor air humidity. Due to high hydroscopic features of the heat and energy recovery core material the unit does not need condensate drainage. Application of the heat exchanger provides decreasing thermal energy losses and heating costs saving during cold season.

HRVs: The Aluminum heat recovery core of the unit operates as a temperature balancer in case of large temperature differences between indoor and outdoor. When the air streams flow through the core, condensation may accumulate, requiring a drain for extraction out of the unit.



(figure 1)

- | | |
|----------------------------|------------------|
| 1. Duct connecting collars | OA - Outside Air |
| 2. Exhaust fan | SA - Supply Air |
| 3. Supply fan | RA - Room Air |
| 4. Energy exchanger core | EA - Exhaust Air |
| 5. Air filters | |
| 6. Connection box | |

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MECHANICAL INSTALLATION (CEILING MOUNT)

When moving the unit during or after unpacking, make sure to lift it by holding its hanger brackets. Do not exert any pressure on other parts, especially duct connecting collars. Please purchase the installation accessories before starting installation.

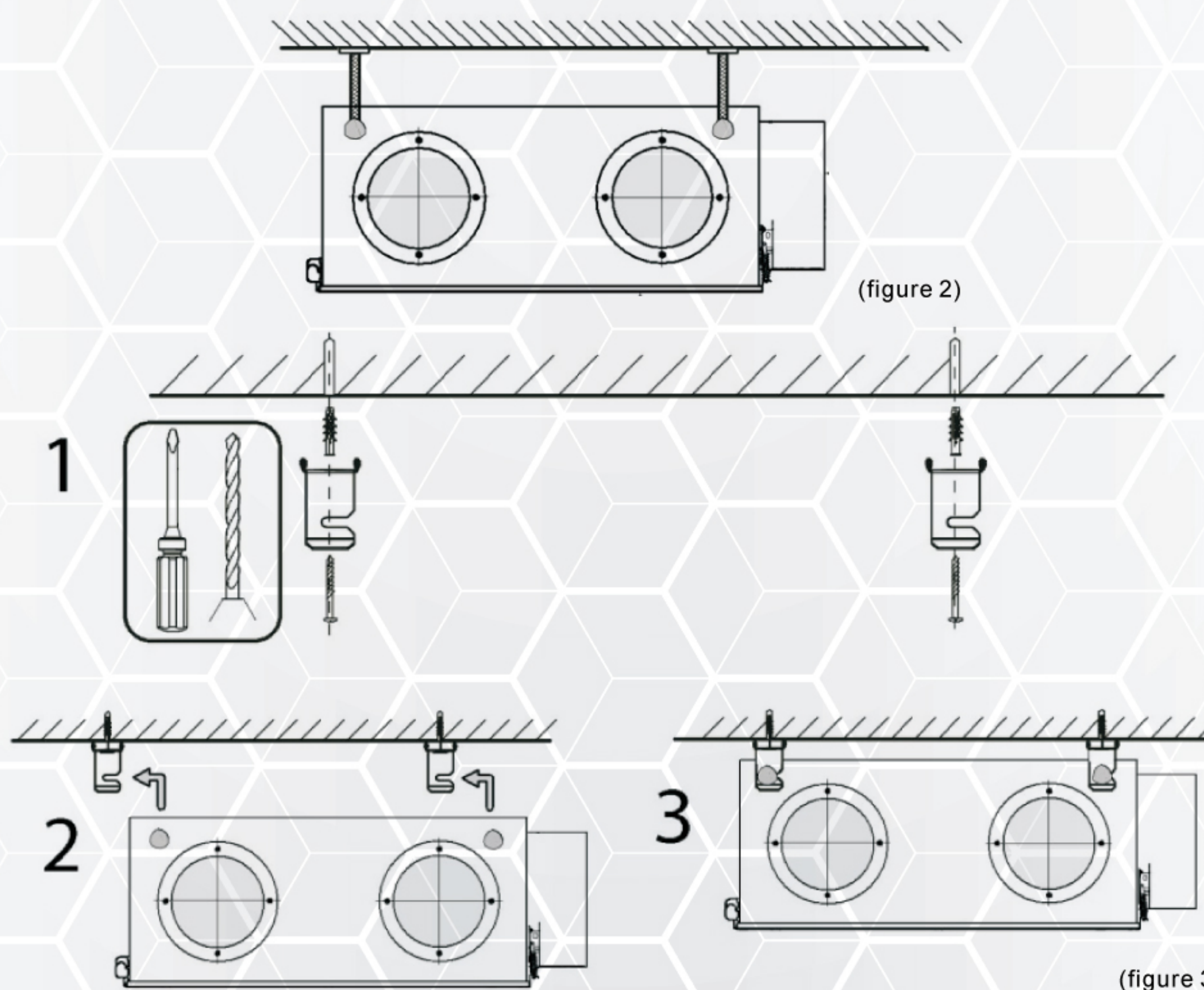
SELECTING INSTALLATION SITE

Select an installation site where the following conditions are fulfilled:

- Install in a place which has sufficient strength and stability. (Beams, ceiling and other locations capable of fully supporting the weight of the unit.) Insufficient strength is dangerous. It may also cause vibration and unusual operating noise
- Where nothing blocks air passage
- Where sufficient clearance for maintenance and service can be ensured

USE SUSPENSION BOLTS FOR INSTALLATION

- Check whether the ceiling is strong enough to support the weight of the unit or not. If there is a risk, reinforce the ceiling before installing the unit
- The fasteners are not included in the delivery set and must be purchased separately.. While selecting appropriate fasteners consider the material of the mounting surface as well as the weight of the unit, refer to technical data. Fasteners selection and unit mounting should be done by service technicians
- To mount the unit to the ceiling use belts rigidly fixed to a horizontal surface or threaded rods and expansion anchors
- The belt, threaded rods and expansion anchors are not included in the delivery set



To attain the best performance of the unit and to minimize turbulence-induced air pressure losses while mounting connect a straight air duct section on both sides of the unit.

Minimum straight air duct length:

- equal to 1 air duct diameter on intake side
- equal to 3 air duct diameters on outlet side

If the air ducts are not connected or the connected air ducts are too short, protect the unit parts from ingress of foreign objects by covering the spigots with a protecting grille or other protecting device with mesh width not more than 1/2" to prevent uncontrollable access to the fans. Prior to commissioning of the unit make sure it contains no objects.

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DUCT CONNECTION

Perform duct work by following instructions below

- Do not connect the ducts as shown below:

(1) Bend

(Do not bend the duct over 90°)



(2) Multi Bend

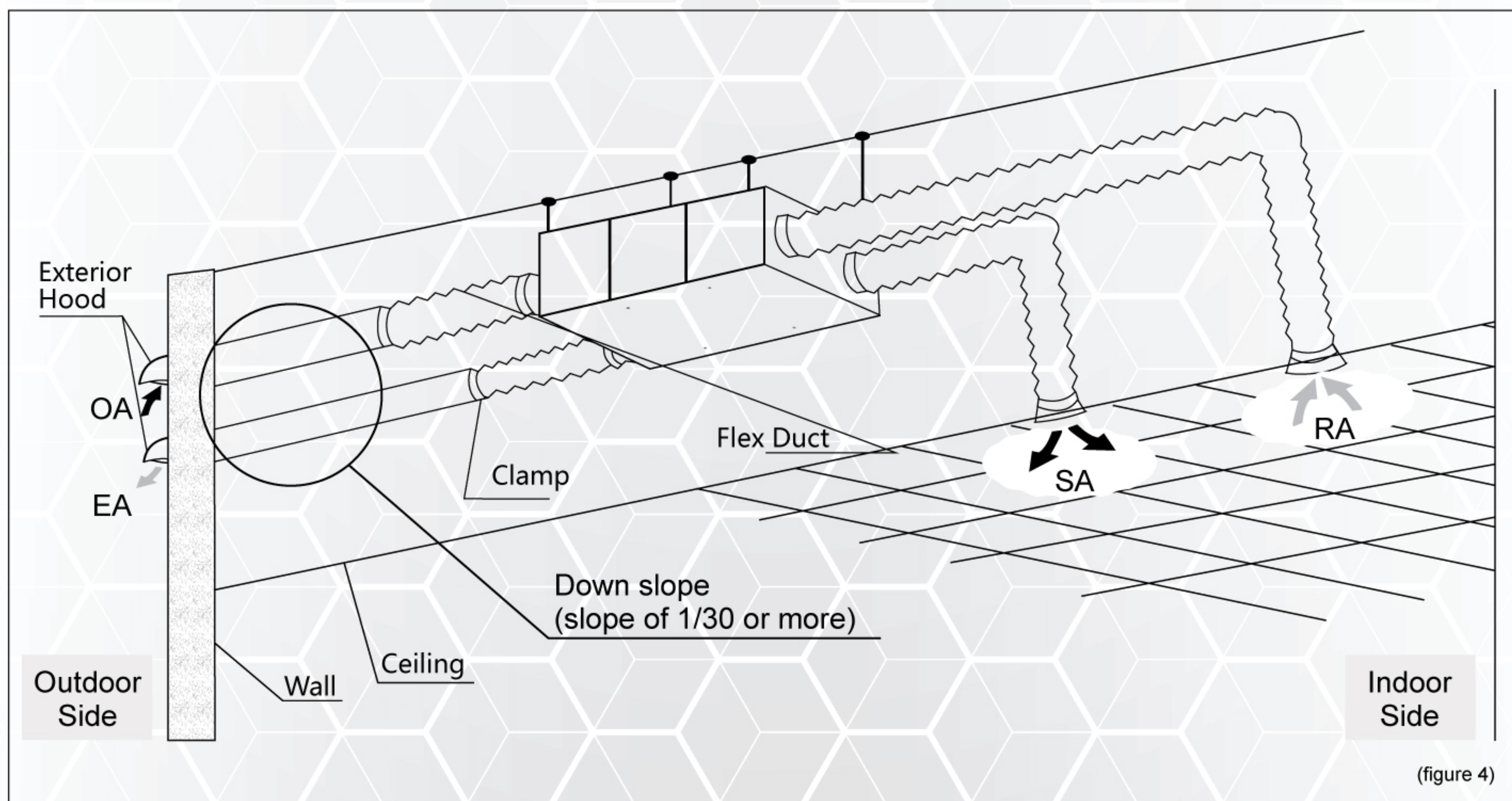


(3) Reduced the diameter of the duct to be connected



(Do not reduce the diameter halfway)

- To prevent air leakage, wind aluminum tape round the section after the duct connecting flange and the duct are connected
- To prevent air leakage, install the opening of the indoor air intake as far as from the opening of the exhaust suction
- Use the duct applicable to the unit used
- Install the two outdoor ducts with down slope (slope of 1/30 or more) to prevent entry of rain water. In cold climate, please provide insulation for both ducts to prevent dew formation. (Material : Glass wool of 1 in. thick) If the unit is going to be used in cold places where the outside temperature reaches 14°F or below, insulate the indoor ducts as well
- If the level of temperature and humidity inside the ceiling is always high, install a ventilation equipment inside the ceiling
- Insulate the duct and the wall electrically when a metal duct is to be penetrated through the metal lattice and wire lattice or metal lining of a wooden structure wall
- Using flexible or silent ducts can be effective in reducing the air discharge sound of the supply air to inside (SA). Select materials keeping in mind the fan speed and operating sound of the unit
- Set the pitch between the exhaust air outlet (EA) and the outdoor air intake (OA) to at least 3 times the duct diameter
- Do not use a bent cap or a round hood as the outdoor hood if they might get rained on directly **(We recommend using a deep hood.)**



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CONNECTION OF CONTROLS

Timer:

Use of a timer is recommended for exhausting frequently polluted indoor air areas. When the timer is activated, the unit runs on high speed for the amount of time specified on the timer.



(figure 5)

High Speed Mode

The unit has a two-position speed switch. LOW or MED speed positions are used to set continuous operation mode and OFF is used to set the STANDBY mode. The external controls (timer) switch the ventilation unit to high-speed mode. The supply and exhaust fan speeds can be individually adjusted.

Speed Setting

The control screen enables equal speed settings or synchronous speed correcting for the supply and exhaust fan (see **ALL**).

If the air resistance differential in the supply (**SPL**) and exhaust (**EHT**) air ducts is unequal, the speed of the supply and exhaust fan can be individually adjusted and saved in the controller memory (see **SPL** and **EHT**, respectively).

The controller circuit board has a digital indicator and **<KEY1>**, **<KEY2>**, **<KEY3>** buttons which are used for operation mode setup and editing of the operation parameters. After switching on power, the ventilation unit operates normally and the light indicator is off. Press **<KEY1>** to open the setup menu. Select the required menu item using the buttons **<KEY2>** and **<KEY3>**. The display shows the current setting of the menu item:

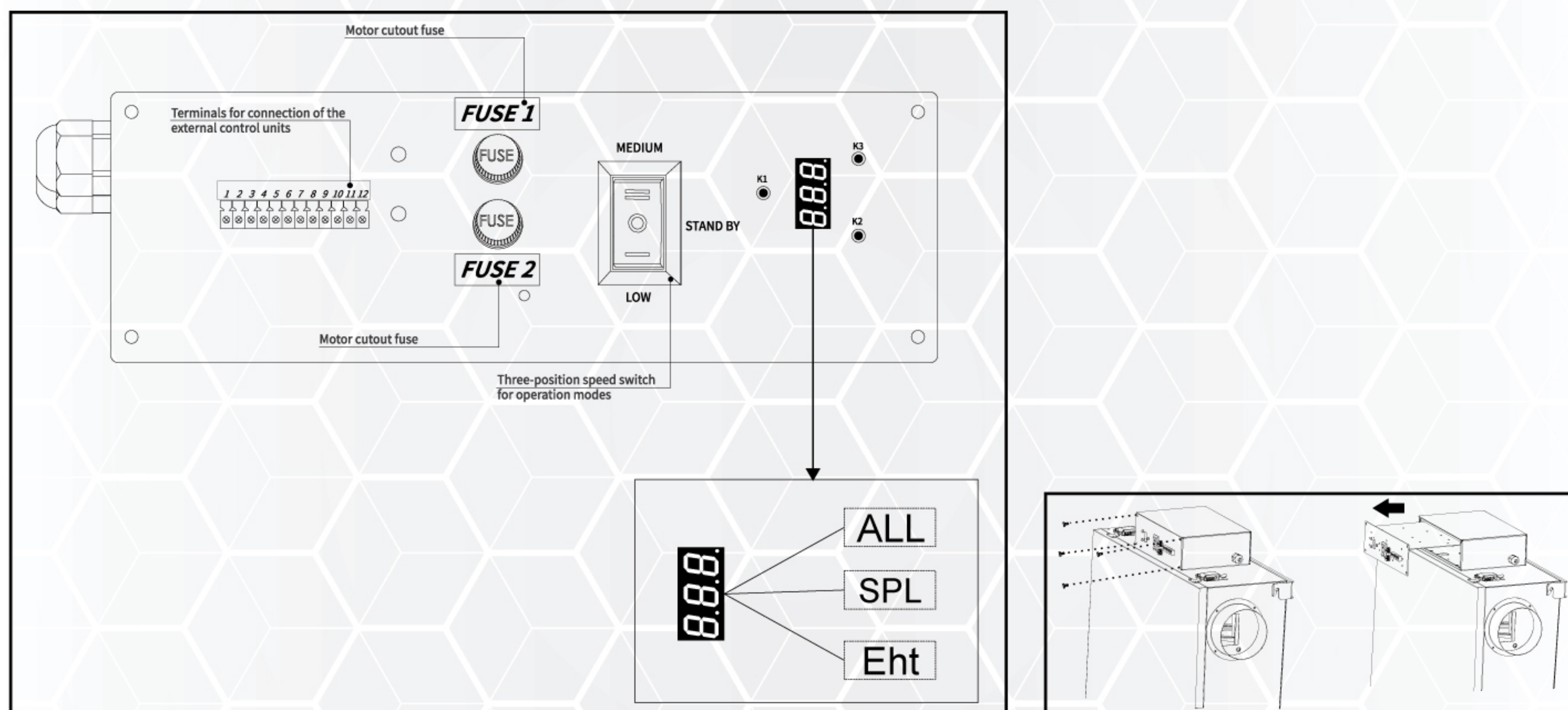
- **<ALL>** : Set fan speed percentage for the active speed both in the supply and exhaust air ducts in the range from 1% up to 100%. The set fan speed percentage is displayed according to the previous saved air flow settings in the supply and exhaust air duct for the active speed. For instance, in case of activating **LOW** speed, the changes establish new air flow both in the supply and exhaust air ducts synchronously. The new value will be a set fan speed percentage for the **LOW** speed in both supply and extract air duct. To display or change the value turn on the required speed (**<LOW>**, **<MEDIUM>**), press the **<KEY1>** button and set the required value for the fan speed in the supply and exhaust air ducts using the **<KEY2>** and **<KEY3>** buttons. Press the **<KEY1>** button to save the value and return to the setup menu.
- **<SPL>** : Set fan speed percentage for the active speed in the supply air duct in CFM in the range from 40 CFM up to max speed. For instance, in case of activated **MEDIUM** speed the changes establish new air flow in the supply air duct. The new value will be a set air flow value for the **MEDIUM** speed in the supply air duct. To display or change the value turn on the required speed (**<LOW>**, **<MEDIUM>** or **<HIGH>**), press the **<KEY1>** button and set the required value for the air flow in the supply air duct using the **<KEY2>** and **<KEY3>** buttons. Press the **<KEY1>** button to save the value and return to the setup menu.

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OPERATION MODES

<Eht>: Set air flow for the active speed in the extract air duct in CFM in the range from 40 CFM up to 120 CFM. For instance, in case of activated **HIGH** speed the changes establish new air flow in the extract air duct. The new value will be a set air flow value for the **HIGH** speed in the extract air duct. To display or change the value turn on the required speed (**<LOW>**, **<MEDIUM>** or **<HIGH>**), press the **<KEY1>** button and set the required value for the air flow in the extract air duct using the **<KEY2>** and **<KEY3>** buttons. Press the **<KEY1>** button to save the value and return to the setup menu.



<dEF>: Reset to the factory settings (default settings). To reset to the factory settings press **<KEY1>**, then select **<-Y>** using the **<KEY2>** and **<KEY3>** buttons and press the **<KEY1>** button. To edit the factory settings, select the **<-n>** value using the **<KEY2>** and **<KEY3>** buttons and press the **<KEY1>** button. The ventilation unit reverts to the manual settings.

<Cor>: Temperature corrections. To correct the temperature value communicated by the temperature sensor, press the **<KEY1>** button, change the temperature setpoint using the **<KEY2>** and **<KEY3>** buttons, then press the **<KEY1>** button.

<Prg>: software version. Press the **<KEY1>** button to display it.

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START-UP AND CHECK OUT PROCEDURE

- Make sure power is disconnected by unplugging electrical cord
- Check field-supplied control wiring to ensure proper installation and that all connection are tight
- Check field-supplied power supply for proper voltage
- Make sure that unit is securely mounted or suspended and that there are no tools or loose debris in, around or on top of the unit
- Check all duct connections to insure they are sealed
- Check all duct outlets. All outlets must be free of obstructions
- Check unit filters
- Close unit door
- Ensure the intake hood is positioned away from any exhausts or other sources of pollutants. The quality of the introduced fresh air is the most important function of this system!
- Instruct end user on proper operation procedures and leave use and care manual

TROUBLESHOOTING

Use the guide below to help identify and correct system faults. Please contact technical support for additional troubleshooting or before replacing the unit and components.

Symptom	Possible Reason	Troubleshooting Procedure
The fans do not start running	No power to fans	• Check that the ERV is plugged in. • Check that the power switch on the ERV is ON. • If wired to an external control, verify wire connections inside ERV and at control. • Connect the two yellow wires in the ERV. If the fans turn on, the problem resides with the external control.
	Thermal fuse is melted	• Disconnect the unit from power mains. Remove the overload. Replace the thermal fuse and check the unit.
The fans are running, but in low air capacity	The filters, fans or heat recovery core are clogged	• Clean or replace the extract filters. • Clean the fans and the heat recovery core.
	The ventilation system is clogged or damaged	• Check the diffusers and louvre gravity shutters opening. • Check the exhaust hood and intake grille and clean those if required. • Check the air ducts are not clogged or damaged.
Noise, vibration	The impeller(s) is (are) clogged	• Clean the fan impeller(s).
	Fan screw tightening is loose	• Check and tighten the screws if required.

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SERVICING AND MAINTENANCE

Servicing of the unit should be performed 3-4 times per year. Besides general cleaning, the following operations are required:

- **Filter maintenance (3-4 times per year)**

Dirty filters increase air resistance in the system and reduce supply air flow to the indoor space. Clean or replace the filters as often as required, at a recommended 3-4 times per year. Clean the filter with running water or a vacuum cleaner.

- **Heat recovery core maintenance (once per year)**

Some dust can accumulate on the recovery core block even if you clean or replace the filters regularly in compliance with above procedure. To maintain the high heat exchange efficiency, regular cleaning is required.

To clean the energy recovery core of the unit, pull it out of the unit and clean it with a vacuum cleaner. The core can be cleaned with water as well. Do not use sharp objects, abrasive detergents and aggressive solvents during cleaning in order to prevent damage to the recovery core. Make sure that the recovery core is dry and re-install it back inside the unit.

- **Fan maintenance (once per year)**

Even if you perform regular maintenance of the filters and the heat recovery core, some dust and grease can accumulate inside the fans and reduce the fan performance and supply air flow.

Clean the fans with a soft brush or dry cloth. No water or abrasive detergent, sharp objects or solvents are allowed for cleaning to prevent impeller damage.

- **Supply air flow inspection (twice per year)**

Leaves and other objects can clog the intake grille and decrease the unit performance and supply air flow. Check the intake grille twice per year and clean if required.

- **Air ductwork maintenance (once in 5 years)**

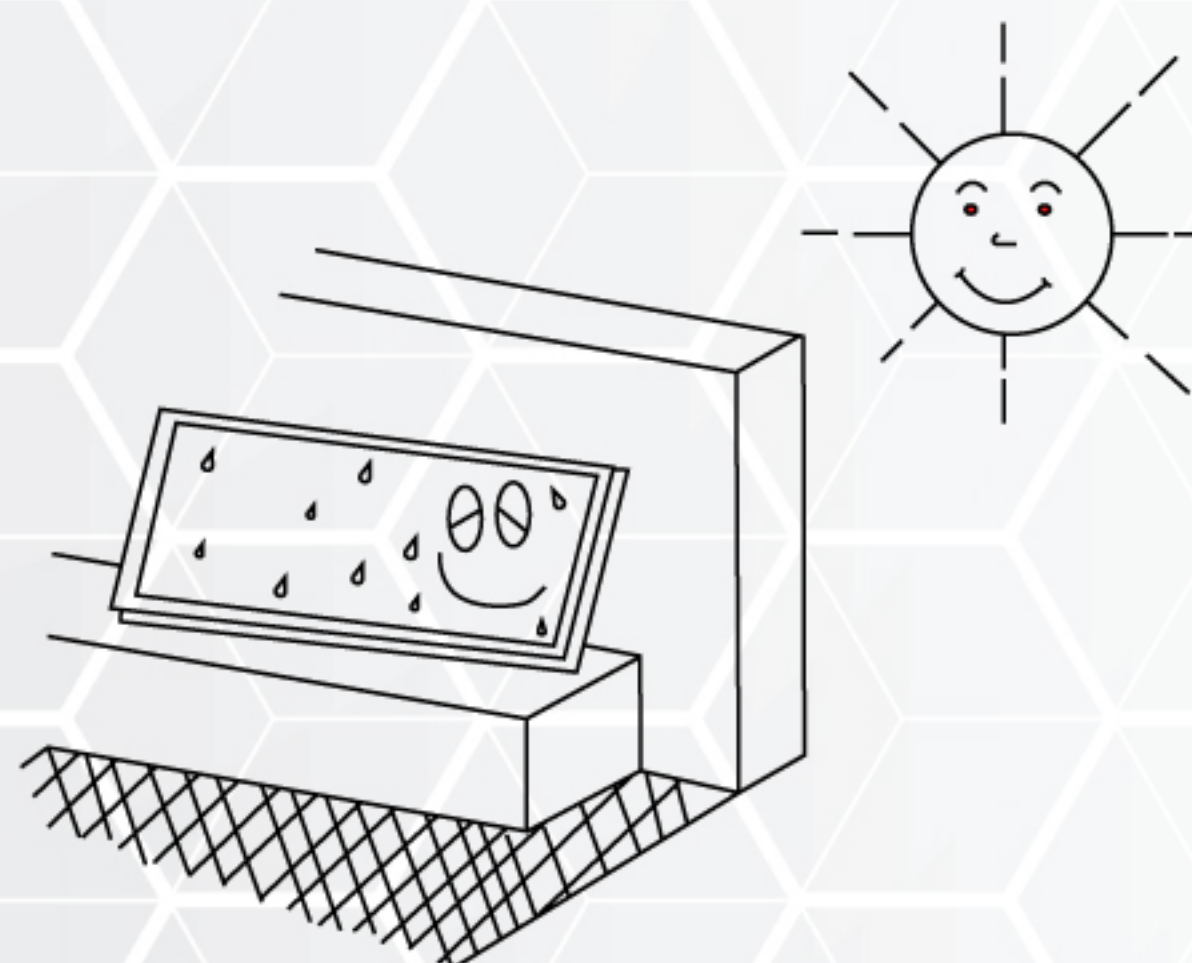
Even if you fulfill all the above maintenance guidelines regularly, a certain amount of dust can accumulate inside air ducts. This reduces the ventilation system performance. Clean or replace the air ducts periodically.



Cleaning with vacuum cleaner



Cleaning with water



Drying in the wind and sunlight

****Note: Warranty will be void if regular/annual Maintenance is not performed as recommended and instructed above.**

