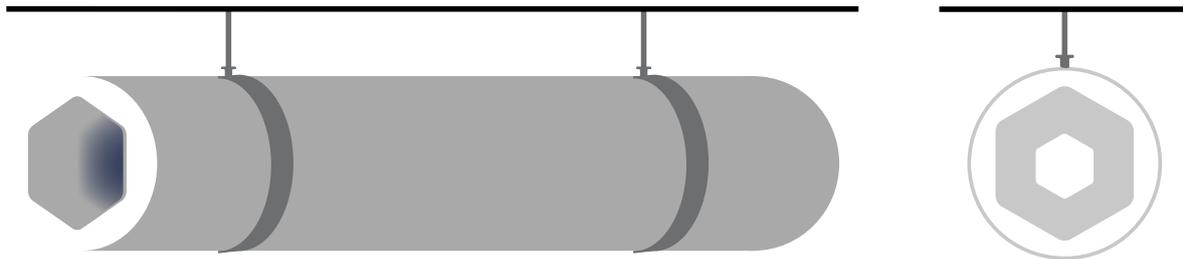


# Climate Recovery Duct System Planning Guide – Build-in Solutions



The fact that CR Ducts can be installed both round and rectangular offers building solutions that have never before been possible at reasonable costs.

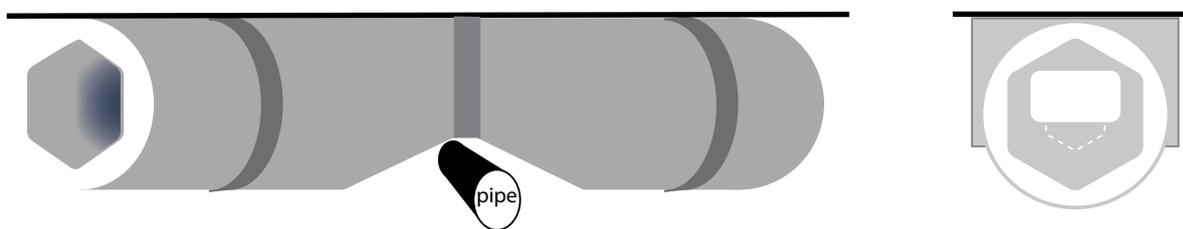
The most natural solution is to mount CR Ducts round and hang them in a standard way.



As CR Ducts don't vibrate or transfer vibrations, it is possible to place directly against the inner ceiling, secured with approved ventilation hanging straps.



Often it is a single obstacle that prevents the opportunity to install larger dimensions of ductwork. CR Ducts can be made rectangular with a CR Transformer to bypass these obstacles and utilize the available space with lower pressure drops and increased air volumes.



This mounting gives a localized pressure drop of 1 Pa.

# Building solutions

If it is necessary to install CR Ducts rectangularly for a longer run, it is possible with the use of multiple CR Transformers on a single duct.



Rectangular pressure drop values must be used for this run  
Branches will require CR Saddle Pieces

To illustrate the outcomes of different building solutions, we will calculate based on 1 Pa pressure drop per duct meter. The following air volumes and build-in heights can be utilized as assumptions (rough values).

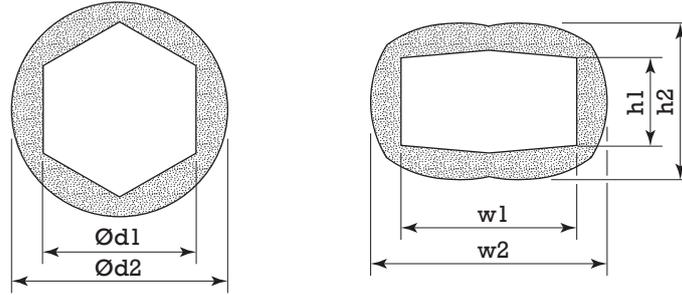
| Climate Recovery Ducts (Images 1-4)                    |                      | Ø125 | Ø160 | Ø200 | Ø250 | Ø315 |
|--|----------------------|------|------|------|------|------|
| Image 1  | Air volume (l/s)     | 30   | 75   | 130  | 230  | 400  |
|  | Build-in height (mm) | 245  | 280  | 320  | 370  | 435  |
| Image 2  | Air volume (l/s)     | 30   | 75   | 130  | 230  | 400  |
|  | Build-in height (mm) | 195  | 230  | 270  | 320  | 385  |
| Image 3  | Air volume (l/s)     | 30   | 75   | 130  | 230  | 400  |
|  | Build-in height (mm) | 135  | 166  | 175  | 221  | 225  |
| Image 4  | Air volume (l/s)     | 20   | 40   | 75   | 130  | 230  |
|  | Build-in height (mm) | 135  | 166  | 175  | 221  | 225  |
| Rund plåtkanal<br>pendlad 50mm<br>och isolerad<br>30mm | Air volume (l/s)     | 30   | 75   | 130  | 230  | 400  |
|  | Build-in height (mm) | 205  | 240  | 280  | 330  | 395  |
| <b>Build-in height gained (mm)</b>                     |                      | 70   | 74   | 105  | 109  | 170  |

**For example:**

**170mm gained build-in height with matching air volume and pressure drop.**

**Up to 325 l/s air volume gained with same build-in height.**

# Building solutions



## Round

| Ød1* | l    | Ød2 | kg/m |
|------|------|-----|------|
| mm   | mm   | mm  |      |
| 125  | 2.35 | 195 | 0.64 |
| 160  | 2.35 | 230 | 0.86 |
| 200  | 2.35 | 270 | 1.06 |
| 250  | 2.35 | 320 | 1.34 |
| 315  | 2.35 | 385 | 1.66 |

## Rectangular

| Ød1 | w1  | h1  | w2  | h2  |
|-----|-----|-----|-----|-----|
| mm  | mm  | mm  | mm  | mm  |
| 125 | 140 | 75  | 200 | 135 |
| 160 | 188 | 94  | 258 | 166 |
| 200 | 220 | 115 | 280 | 175 |
| 250 | 283 | 141 | 358 | 221 |
| 315 | 340 | 175 | 400 | 225 |

\*Actual inner diameter  $\approx$  10–20 mm larger than Ød1

We recommend use of CR Transformers to secure rectangular forms.



# Building solutions

## Conclusions

One way to utilize the unique building opportunities of CR Ducts is to increase air flow and choose another system solution. These solutions offer the ability to:

- Utilize a VAV system instead of chilled beams;
- Increase ceiling heights;
- Decrease the total pressure drops that the fan needs to recover.

Lowering pressure drops allows for decrease of the fan speed, reducing power requirements by a factor of 3, as seen in the below equation.

$$P/P_1 = [(n/n_1)]^3$$

For example, if the fan speed is reduced by 10%, the energy requirements are reduced by 27%; if fan speed is reduced by 20%, the energy requirements are reduced by nearly 50%.

**It is possible to take full advantage of CR Ducts increased adaptability for project, life cycle, and environmental benefits without significantly increasing costs.**

**Enjoy work  
Create business.®  
[www.climaterecovery.com](http://www.climaterecovery.com)**

#### Ansvarsfriskrivning

All information i det här dokumentet kan komma att ändras på begäran av Climate Recovery.

Informationen erbjuds utan ansvar för användare eller tillämpning.

Alla foton, logotyper, och märkesprofilering i detta dokument tillhör Climate Recovery och får ej reproduceras utan skriftligt medgivande.

