

VENTILATION SYSTEMS

IMPLEMENTATION GUIDELINES

This guideline indicates critical considerations and common hurdles to support potential users in selecting a product but contains no advice on which product to choose.



DEFINITIONS

Ventilation systems are designed to provide fresh air from the outdoors into the building and deliver exhaust air outdoors. The ventilation systems that are included on the Bridge the Gap website are split up into two types:

1. Centralised ventilation systems: One centralised unit ventilates the entire building or apartment.

2. Decentralised ventilation systems: Separate decentralised units ventilate every room individually.

Bridge the Gap features ventilation systems that are either exceptionally energy-efficient during their operation, are designed and manufactured in a material-efficient way, thus lowering the embodied carbon footprint, or are designed in a circular way that allows efficient reuse or recycling of its components or materials.

POINTS OF INTEREST

SYSTEM SELECTION



GUIDANCE	DESCRIPTION
Identify requirements	Clearly define the ventilation needs, such as the air change rate, based on the specific application and desired air quality.
Determine goals	Establish goals to tailor the ventilation system accordingly, such as indoor air quality and building energy efficiency.
Integrate related systems	To generate energy, consider combining the ventilation system with photovoltaic panels or wind turbines. In this way, the energy is renewable and generated on-site, contributing to a lower operational carbon footprint of the building. Include heat recovery to save on energy.
Balance selection criteria	Base the selection of the type of ventilation system on multiple criteria other than costs, such as lifespan, maintenance, and environmental impact.



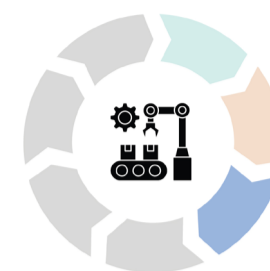
CONTRACTING AND PROJECT FINANCE

GUIDANCE	DESCRIPTION
Government incentives	Explore available government incentives, e.g. tax reliefs or subsidies, to reduce financial barriers to improving the environmental performance.
Define the scope of work between parties	Suppose part of the technical installations are already pre-installed in off-site building systems. In that case, the contracts should clearly define the division of work and responsibilities between on-site and off-site installers.



DESIGN

GUIDANCE	DESCRIPTION
Select a preferred technology early	Deciding on the preferred technology early in the design process will prevent inefficient or improperly designed technical installations and space conflicts later.
Involve the system supplier in the design process	To realise the full potential of each system, consult the system supplier during the design stages.
Design for Circularity	Position technical installations to be easy to access and account for maintenance, replacement, and resulting waste. Technical installations have a much shorter lifespan than the structure of the building.
Consider embodied carbon	Apart from optimising operational energy use, the embodied carbon of technical installations has a significant impact. Opt for sustainable and environmentally friendly materials to minimise the ecological footprint. The product's EPD provides verified data.
Make use of the functional unit	When comparing the carbon footprint, use the same functional unit for the different products. The Product Category Rules define the typical functional units of ventilation systems as follows: 1 m of product or 1 kg of product for ducts and 1 piece of product or 1 kg of product for other components.
Design for modularity and scalability	If future expansions and upgrades are to be expected, consider using modular and scalable systems.



MANUFACTURE

GUIDANCE	DESCRIPTION
Track and manage waste	Clients should verify that their suppliers track the amount of waste generated or monetise it through various reuse/recycle streams. This will help lower the use of raw materials and waste.
Provide documentation of installed product	Suppliers/installers should provide clear documentation of the products installed regarding material type, material amount, reuse potential, etc.



TRANSPORTATION TO SITE

GUIDANCE	DESCRIPTION
Product packaging	Minimise materials needed to package products to reduce environmental impacts. Furthermore, packaging models that allow the return and reuse of packaging should be considered.



ON-SITE ASSEMBLY WHEN COMBINED WITH OFF-SITE CONSTRUCTION

GUIDANCE	DESCRIPTION
Off-site MEP connections	Ensure good accessibility of the technical installations and their connection points when preassembled in off-site building systems to facilitate quick and easy connection without damage.
Temporary weather protection during construction	There is a risk of weather damage when on-site assembly is in progress. Temporary weatherproofing should be provided for technical installations integrated into off-site building systems, which risk exposure to weather conditions.



MAINTENANCE

GUIDANCE	DESCRIPTION
Regular inspections	Conduct regular inspections and maintenance to ensure optimal performance and longevity.
Data management	When using off-site building systems, clients have access to all technical installation data and locations in a digital form as part of the off-site data package. This will help to trace used products, components, and materials and ease maintenance and replacement.
Recycling and disposal	Plan for the end-of-life phase by incorporating recycling and proper disposal practices during the design of the technical installations to minimise environmental impact.



END-OF-LIFE

GUIDANCE	DESCRIPTION
Establish and implement end-of-life scenarios for circularity	<p>End-of-life scenarios to reduce environmental impact should be investigated. Ideas could include, but are not limited to:</p> <ul style="list-style-type: none"> · Repair and reuse: If a component or system is still functional, repair it as needed and reuse it in future projects. There are companies specialising in the refurbishment of technical installations. · Return materials to suppliers: If a manufacturer or supplier has a “take-back” program, disassemble the products so they can be reused or recycled correctly by the supplier. · Sell materials with high residual value: Some materials have a high residual value in secondary marketplaces and should be salvaged by the disassembly team. <p>More information on circularity can be found in the Knowledge Bank.</p>



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