

Overhead Door Design Guide

The complete guide for architects

ASSA ABLOY Entrance Systems

Experience a safer and more open world



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"A suitable solution for every building project."



Introduction

As a full-service supplier of entrance solutions, ASSA ABLOY Entrance Systems knows that every property and construction project is different. As an architect, you are often largely dependent on client wishes, which in turn must take into account the users of an existing or future building. The diversity of customers and end users is huge and is only going to increase. Consider, for instance, the increasing demand nowadays for sustainable, smart buildings. At ASSA ABLOY Entrance Systems, we believe every aspect of a building's design – from the overall vision to the smallest of details – contributes to creating an inspiring, liveable and sustainable building.

An overhead door is only one small aspect of a building. Your primary focus will most often be on the most expensive aspects: the facade, floors and roof, for example. But, an overhead door is a component with a major impact on people, vehicles and goods. A safe, efficient and sustainable solution is therefore essential.

So it is important that an overhead door effectively meets the requirements and wishes of architects, clients and end users. There are many more options than you may think. In this Design Guide, we provide an overview of the most important choices that need to be made when selecting an overhead door.

Of course, an entrance solution is always tailor-made. We would therefore like to help you determine the best overhead door for your building on an individual basis.

For more information, please contact:

Marc Janssen +46 104 747 534 marc.janssen@assaabloy.com



"BIM is the information carrier within the construction sector."



Overhead doors in the BIM model

ASSA ABLOY Entrance Systems is convinced of the strength of BIM as an information carrier within the building industry. We believe in the importance of integrating entrance solutions – such as overhead doors – into the BIM model of buildings at an early stage of the design process.

BIM families

In addition to individual products, ASSA ABLOY Entrance Systems provides BIM families of overhead doors that can make the process from design to work preparation much more efficient. One family may consist of dozens or even hundreds of versions of an overhead door, thereby providing an overview of the entire ASSA ABLOY Entrance Systems product range. This allows you to quickly and easily determine which product options are best for your needs based on, for example, the sizes, materials and features available and how they affect the rest of the building.

ASSA ABLOY Entrance Systems' BIM series of overhead sectional doors offer space-saving solutions. When overhead doors are installed in a building, the tracks will usually bend somewhere, so that the door will eventually end up in a horizontal position in relation to the ceiling or roof. Thanks to BIM, this bending and movement of the door can be included in the building blueprints, preventing the door from clashing with pipework or a sprinkler system, for example.

In addition, BIM can take into account the placement of such items as the overhead door control box or motor, so that information is available to the contractor on where the cabling should go.



Our constant dialogue with stakeholders allows us to align our BIM models to the market's requirements and by that further facilitate integration of BIM in building projects.

"Taking structural requirements into account."



Structural requirements

When choosing an overhead door for a building, a number of aspects must be considered with regard to structural requirements, such as the mounting frames, floor details, installation and suspension facilities.

Mounting frames

An overhead door must be placed on an 'auxiliary structure' in the wall of the building.

In doing so, it is important to take into account the desired materials and accompanying dimensions of these mounting frames, and to discuss this with the contractor or manufacturer at an early stage of the process. For example, a steel mounting frame requires a different minimum profile width than a concrete or wooden frame. A specific solution is available for every situation and ASSA ABLOY Entrance Systems is happy to help you find the right overhead door and mounting frames for your building.



Floor details

If an overhead door does not lower completely to the floor surface due to uneven floor conditions, water may enter. It is therefore important that a water barrier, i.e. an offset, is integrated into the floor. The door is placed in front of the offset, which also slopes slightly. Because of this angle line, any water that enters will automatically run out again. If this kind of floor detail is not provided, water can enter the building, especially if the floor behind the door slopes downwards.

Installation

Cabling and power supply to the door must be taken into account when choosing an overhead door for a building. A 230V power supply can be used for a standard overhead door. If you opt for an overhead door in conjunction with a dock leveller, for example at a loading bay at a distribution centre, you must always use a 400V power supply. It is also important to determine early on the side on which the control box should be placed, so that the contractor knows where the cabling must be routed.





Suspension devices

An overhead door is extremely space-saving. As the door swings upwards, there is plenty of space left and goods can be placed up to ten centimetres away from the door frame. In most cases, the overhead door swings inwards. This means that the horizontal tracks of the door must be hung in the roof plane, which sometimes requires the use of suspension devices.

The suspension devices depend, among other things, on the size of the door, the fitting – i.e. the rails and spring package – and the height of the roof. The latter determines the available headroom.

If there is little headroom, the door will probably slide inwards directly above the clearance opening. In this case, extra low mounting or normal mounting is sufficient. If there is more headroom available, a highlift can be used. The door then first opens as far as possible along the facade and then turns inwards. This offers several advantages: a more stable suspension is created, there is less risk of damage to the opened door and more space is available beneath the opened door. If there is enough headroom available, it is even possible to run the door vertically along the facade without the door swinging at all.

"Overhead doors contribute to the sustainability of a building."

Sustainability

Overhead doors can make a tremendous contribution to a building's sustainability. The type of overhead door that is most suitable for achieving a sustainable effect depends on the user situation.

Four considerations

When choosing an overhead door, the following considerations are important:

1. Does the door need to be insulated?

Most overhead doors are installed in the outer shell of a building and are insulated. If the building is equipped with cooling or heating, overhead doors with extra insulation are the perfect solution. This type of door features highly insulated sandwich panels for better thermal separation.

2. Is manual or electrical operation required?

Either manual or electrical operation can be chosen depending on how the door will be used. The most important criteria for this are door size and frequency of use. For example, if the door is very large, electric operation is clearly the preferred option. The same applies to a door that is opened and closed very frequently.

3. Is automation required?

With manual or electrical operation, it is important that users open and close the door consistently to prevent a loss of energy, but also to prevent, for instance, unwanted guests from entering the building. If there is a risk of the overhead door being left open unintentionally, automation is a better choice.

4. How important is the speed of the door?

An overhead door that is opened and closed frequently reduces the insulation value of the door. In this case, a fast-operating overhead door is more appropriate. ASSA ABLOY Entrance Systems offers overhead doors with an opening and closing speed of one metre per second – four times faster than a standard overhead door. Not only does this help prevent energy loss, but is also useful if production processes and the flow of goods in the building are to be kept to a minimum.

Do you need help choosing between a fast or extra insulated overhead door for your building?

We would be happy to advise you using our energy calculator. **Get** in touch with us now

Certifications and declarations

BREEAM

If the client has specific requirements regarding the BREEAM certification of a building, overhead doors can contribute to obtaining the following BREEAM credits:

Management: Man 8 – Safety

The right burglar-resistant overhead door can contribute to BREEAM credit Man 8. This credit requires compliance with the safety adviser's report in terms of the requirements for the outer shell of a building. More information on burglar resistance can be found in the section on Security.

Energy: Ene 6 – Minimisation of air infiltration for loading platforms and unloading platforms

An overhead door is often used in a dock environment, where loading and unloading platforms are located. According to BREEAM credit Ene 6, air infiltration around loading and unloading platforms must be minimised.

This applies both when the door is closed and during loading and unloading. Specifically, this means that the door must have a minimum U-value of $0.6 \text{ W}/(\text{m}^2 \cdot \text{K})$ on the installed door. The closing speed must also be a maximum of five seconds, i.e. from fully open to fully closed. If the door's closing speed exceeds five seconds, inflatable shelters may be a good solution. Because they inflate around the docked vehicle, these dock shelters provide significantly better sealing and insulation

Energy: Ene 26 – Building shell thermal quality assurance

The BREEAM Ene 26 credit relates to the air permeability measurement carried out in accordance with NEN-EN 13829 and/or NEN-EN ISO 9972. To meet this credit requirement, overhead doors can be installed in front of the dock levellers in a dock environment. A dock leveller in such an environment is often the largest thermal bridge and the weakest point when it comes to heat flows.

By installing a fast-closing or additional insulated overhead door in front of the dock leveller, the thermal quality of the building shell can be increased.

Materials: Mat 5 – Substantiated origin of materials

The BREEAM Mat 5 credit sets different requirements for the origin of the materials used. ASSA ABLOY Entrance Systems also feels it is important to know exactly where our products originate and how they are assembled. Our overhead doors are manufactured in a factory that meets the requirements of the ISO14001 certificate, a copy of which is available if required.



Our Energy Calculator helps you find the right door solution for your needs, and compares energy efficiency with other models. Find it here: energycalculator.assaabloyentrance.net



E



Environmental Product Declaration

EPDs are available for all ASSA ABLOY Entrance Systems overhead doors to provide full insight into the environmental impact, materials purchased, energy consumption and packaging materials of an overhead door. The EPD also states that the overhead door does not contain substances that are hazardous to health or the environment. ASSA ABLOY Entrance Systems is the only manufacturer with an EPD that complies with ISO14025 and EN15804 requirements for all of its products.

Search 'EPD' on assaabloyentrance.com for a complete list.

"The safety of people and goods is essential."





Safety

The safety of people and goods is an essential factor in any building, industrial or otherwise. That is why overhead doors are designed to ensure the safety of processes 24 hours a day. To ensure optimum safety, it is advisable to keep different traffic flows – such as people, goods and vehicles – as separate as possible. This can be done, for example, by installing a separate door for people. If this is not possible, a wicket door can be installed in the overhead door.

European and national standards

The different components of an overhead door must comply with specific European (EN) or national (NEN) standards. For overhead doors:

- the door must comply with NEN-EN 12604;
- the installation must comply with **NEN 1010**;
- the lifting cables must comply with NEN-EN 12385.

Safety around dock situations

Overhead doors are often used in dock environments, such as loading bays. Safety plays an important role in such an environment. Did you know that **25 percent** of all reported industrial accidents happen around a loading bay?

Want to learn more about how to improve safety around the loading bay? Download our white paper. https://www.assaabloyentrance.com/ en/products/loading-dock-equipment/ When designing a building, it is important to consider a number of common accidents that occur around loading bays. Overhead doors, for instance, as well as other systems, allow measures to be taken to improve safety. The most common accidents are:



- Falling off the edge of the dock due to slippery surfaces, open doors or distractions.
- - A gap between a docked vehicle and the loading bay because the vehicle has moved unnoticed.
 - Vehicles that leave the dock early or 'creep away' due to loading and unloading using heavy equipment, without the forklift driver or anyone in the trailer being aware of this.
 - Several moving vehicles next to each other, which increases the risk
 of people getting trapped in the confined space.



• Vehicles can roll backwards and trap people between the vehicle and the dock. This can also happen when vehicles are reversing and people are working in or around the dock.

To increase safety in and around the loading bay, a variety of solutions are available, such as overhead sectional doors designed for loading bays, immobilisation for trucks and dock levellers. ASSA ABLOY Entrance Systems is committed to providing the right solutions for every loading situation.









Burglar resistance

The burglar resistance of an entrance solution is often referred to as the Resistance Class (RC) based on the European EN1627 standard or Dutch Resistance Class (WK) based on the Dutch NEN5096 standard. The higher the class, the more resistant a door is to burglary.

Overhead doors can be made burglar resistant using a safe lock. There are also several options available for SKG certificates for the locks or a WK2 certificate for the entire door. ASSA ABLOY Entrance Systems can help configure an overhead door to meet the needs and requirements of users in terms of burglar resistance and the applicable laws and regulations.

The ASSA ABLOY Group is the global leader in access solutions. Every day we help people feel safe, secure and experience a more open world.

