



DASMA
Door & Access Systems
Manufacturers Association
International

COMMERCIAL & RESIDENTIAL GARAGE DOOR DIVISION

TECHNICAL DATA SHEET

#173

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Garage Doors and Ventilation

Introduction

In some instances, garage space is required to have ventilation. As per code requirements, it may be necessary for the garage space to allow for the passage of air in order to prevent the buildup of carbon monoxide gas or other harmful airborne situations, or to allow for the passage of water in flood-prone areas. For the building designer or contractor, oftentimes it is either necessary or convenient to provide the means of ventilation via a garage door. This Technical Data Sheet identifies the various situations where ventilation is needed, common requirements for each situation, and industry recommendations with respect to using garage doors to provide for ventilation.

General

Vent Material

Garage door venting can involve a number of different types of materials. The materials could be different than the materials used in the garage door sections. Availability of standardized vent sizes, compatibility with garage door section materials, and the venting requirements themselves could influence the choice of a particular garage door vent material.

Vent Design

Garage door vent design can involve louvered, screened, or a combination of both types. It may be a matter of customer preference, or practicality based on security or keeping unwanted animal entry from occurring. In addition, venting can be either one-way or multi-directional. This need should be determined either by local code requirement or via building/engineer specification.

Note: Technical Data Sheets are information tools only and should not be used as substitutes for instructions from individual manufacturers. Always consult with individual manufacturers for specific recommendations for their products and check the applicable local regulations.

This Technical Data Sheet was prepared by the members of DASMA's Commercial & Residential Garage Door Division Technical Committee. DASMA is a trade association comprising manufacturers of rolling doors, fire doors, grilles, counter shutters, sheet doors, and related products; upward-acting residential and commercial garage doors; operating devices for garage doors and gates, sensing devices, and electronic remote controls for garage doors and gate operators; as well as companies that manufacture or supply either raw materials or significant components used in the manufacture and installation of the Active Members' products.

Venting Effect On Door Design

When garage door venting is required, the garage door manufacturer should be contacted under all circumstances, but particularly with regard to ventilation effect on operation, structural capabilities, and the thermal performance of the door where such performance is required in association with conditioned garage space. For example, cutting a hole in a section to install a vent can weaken the structural integrity of the section and possibly the entire door system so door manufacturer guidance becomes important. If windborne debris resistance compliance is required where vents larger than 60 square inches are needed, testing must include venting with the entire door assembly. Further, venting may affect the wind load requirement of the building. It becomes very important to note whether local code or the building specifications require higher wind load requirements for the particular structure.

Natural/Passive (Air) Ventilation

Two documents that address natural or passive (air) ventilation in garage space are the International Mechanical Code (IMC) and ASHRAE 62 which is also referenced in the IMC. The general requirement is 100 cubic feet per minute per vehicle allocation within a garage space; however, a comment based in ASHRAE 62 reads that garage space air ventilation requirements are “normally satisfied by infiltration or natural ventilation.” In actuality, the garage door opening itself can be considered a “natural vent” not only because of its obvious capability of opening and closing but also because its area is usually more than 4% of the area of the affected garage space. Therefore, vents in garage doors should not be needed for natural or passive ventilation.

Mechanical (Air) Ventilation

The IMC and ASHRAE 62 also address mechanical (air) ventilation as it may apply to garage space. In this case, an HVAC contractor or professional engineer will likely need to be involved in specifying the number, size, type and location of vents.

Hydraulic (Water) Ventilation

The most common situation where garage space requires hydraulic (water) ventilation is to allow the passage of flood related waters. “Hydrodynamic” occurrences, often the result of flooding near rivers or tidal surges near ocean/gulf coastlines, can require “breakaway” garage door construction as opposed to venting; therefore, these occurrences are beyond the scope of this document (see DASMA TDS-184.) It is

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important to note that even if a garage door is used for hydraulic ventilation, another wall must be utilized for such ventilation in order to meet code requirements.

FEMA Technical Bulletin #001-93 and ASCE 24 are two documents containing requirements for flood ventilation that can be applied to garage spaces. The International Building Code has also included requirements based on information from those documents. Essentially, structures in flood-prone locations are required to be designed to allow for the entry and exit of floodwaters which would be accomplished through the design of vents. Specifically, FEMA Technical Bulletin #001-93 and ASCE 24 require that size requirements are such that one square inch of venting to allow floodwater entry, and the same for floodwater exit, is to be provided for every square foot of floor area in the enclosed structure. In addition, it is usually required that the bottom of vents be no higher than 12-inches above grade – or, in the case of a garage door, no more than 12-inches above the floor.

Multiple Ventilation Requirements

Any time garage space ventilation involves both air and water, and a garage door is involved in providing for both, a professional engineer responsible for coordinating such ventilation should be involved. The engineer should seek alternatives other than using the garage door. If the garage door must be used, the engineer should work with a representative of the garage door manufacturer to ensure that the door's operational and structural capabilities are not compromised.

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