

Commercial Doors

101

On Sep 4, 2020 | masonite

While they only account for a small percentage of a building's design budget, **commercial doors** are a key component of a successful project. Commercial doors do more than complete your design. Certain performance features are required for compliance with building codes, but that doesn't mean they need to appear boring. It's smart to focus on a commercial door's **technical specs** and **performance needs** before its design, but aesthetics can't be forgotten, either. That's why it's important to understand a few commercial door basics to ensure the doors you specify meet your project's architectural and design needs.

Here's a rundown of the most important elements of commercial doors that architects and designers need to know to plan a successful project.

Commercial Door Styles

Doors come in many different styles, but they can be broadly separated into flush wood doors and stile and rail doors.

Flush Wood Doors

Flush wood doors have a smooth, or flush, surface without any moldings. It is common for flush doors to be covered with ply, MDF board, or wood and finished with laminate or painted. They are often **specified for hospitals, hotels, and schools**. Flush doors are better sound insulators and tend to be more fire-resistant and pest resistant.

Stile and Rail Doors

Stile and rail doors get their name from the **horizontal wood joiners (rails)** and **vertical wood joiners (stiles)** that create the panels on the door. These doors are more stylish and aesthetically pleasing, but they tend to cost more because of the **extensive craftsmanship** that goes into making them.



ACOUSTICS

AESTHETICS

DOOR SELECTION

DURABILITY

SAFETY

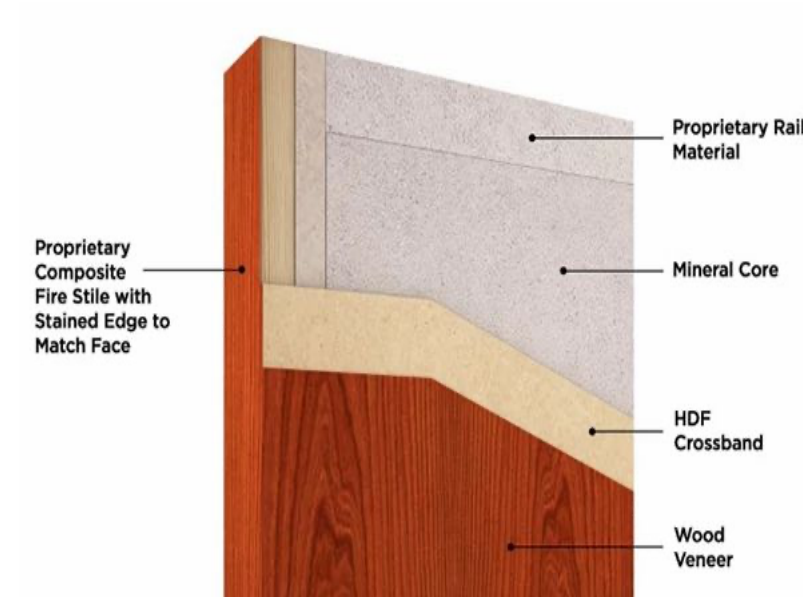
SUSTAINABILITY

UNCATEGORIZED

Commercial Door Core Types

Doors typically come as solid wood, hollow-core, or solid core. Hollow doors actually have a cardboard honeycomb inside. When it comes to commercial solid door cores, there are four main types:

- **Structural Composite Lumber (SCL) Core:** Strands of different types of small-diameter hardwood trees combined with special resins. It is more durable and heavier than particleboard.
- **Particleboard Core:** Ground-up raw wood glued together. It is durable, low cost, and widely available. Particleboard is suitable for most commercial construction.
- **MDF Core:** Glued wood fibers for a core that is more dense than particleboard. It makes a durable, budget-friendly choice.
- **Mineral Core:** A mix of noncombustible minerals used in **fire-rated doors**. They are very lightweight but require woodblocking to hold screws for hardware.



Commercial Door Surface Types

Depending on the style of commercial door, there are several broad categories of surface types to choose from. You will find variations on each of these, making for a wide range of options to meet just about any style or performance need.

- **Laminates:** Typically made of plastic bonded to a composite base, it is printed to look like real wood.
- **Veneers:** Thin pieces of wood glued directly onto the door core.
- **Fiberboard:** Available in different densities and ideal for painting.

Painted or Stained Wood Doors

When it comes to painting or staining a commercial door, it is important to remember that paint is often less costly, more durable, and provides more protection than a stain. Likewise, **paint quality doors** are more affordable than stain quality doors, and there is virtually no limit when it comes to door paint color. That said, **stained doors** offer a natural aesthetic better suited to certain projects. Essentially, it all comes down to your budget and the aesthetics you are trying to achieve.



Wood Species for Commercial Doors

The **wood species** you use can affect the door's durability and color. Some of the most common species used include:

- **Maple:** A strong, dense wood that is naturally light in color. Works well with both paint and stain.
- **Birch:** A light-colored wood featuring a straight wood grain. Also works well with both paint and stain.
- **Cherry:** A long-lasting medium-strength wood that is resistant to warping and is ideal for high-end projects. Exposure to sunlight can darken the wood over time.
- **Oak:** A long-lasting, classic wood that is resistant to cracking and water damage. It is ideal for high-use doors with either paint or stain.
- **Mahogany:** Perfect for high-end, **executive projects**. It is a darker color, limiting the stains it is compatible with.

Commercial Door Wood Cuts

The **look and style of a door can be changed based on the wood cut**, as it determines grain pattern and consistency. Common wood cuts for commercial doors include:

- **Rotary Cut:** Blade spirals inward through trees producing a wood sheet. This is the most environmentally friendly and economical cut.
- **Flat Cut:** Plain slicing of a log resulting in straighter grain and a more uniform look. This cut is highly affordable and a good option for commercial doors.
- **Quarter Cut:** A log is first cut into quarters with layers cut from each quarter. Creates a tight vertical grain, producing a uniform look. In oak, this creates a "flake effect," or shiny appearance.
- **Rift Cut:** Only available in oak, this cut is made 15-degrees to the radial accentuating the vertical grain.
- **Comb Grain:** Only available in oak, this cut has a tight, straight grain almost appearing as solid color, making it more costly.



Impact Edge Commercial Doors

The edges of doors have the most wear and tear, leading to the veneer or laminate getting damaged. **Impact edges** help protect the edges of the door, ultimately **increasing the durability of the door**. Some can even remove the need for metal edges or kick plates.

Glass Lites for Interior Doors

Lites are framed glass panels fixed in the door, sidelight, or transom. They neither open nor have an operable sash, but they can vastly change the look and feel of a space by **controlling the passage of light**. They can be decorative or clear and are typically made with safety glass and insulated. They can also be used beside or above a door to add visual interest.

Commercial Door Opening Components

A door slab is one of the many components of a fully functional commercial door. Here are other important components found in door openings.

Hinges

The type of hinge required for a commercial door will depend on the purpose of the opening. Some of the most popular commercial hinges are:

- **Mortise/butt hinge:** A removable pin joins two leaves that "butt" together when closed. Used with lightweight doors.
- **Ball bearing hinge:** Two leaves combined by permanently lubricated bearings making it smooth and quiet. Used with heavy and wide doors.
- **Continuous hinge:** A long, narrow hinge that goes the whole length of the door, providing more support and reducing stress on the hinge. Often used with fire doors.

Frames

Door frames play a key role in security. Wooden frames are susceptible to rot and damage, while steel door frames are more secure and can be **attack resistant**. Steel frames can also be wrapped in wood to match the aesthetic of a wood door but still provide additional security.

Hardware

Commercial doors require hardware of different kinds depending on the function of the door, where it is located, and the level of security needed. Hardware may include:

- **Doorknobs**
- **Lever handles**
- **Kickplates**
- **Door sweeps**
- **Locks and deadbolts**
- **Door reinforcements**
- **Panic bars and exit devices**
- **Security devices**
- **Door closers**



Any selected hardware must be able to withstand the traffic and use required. It must also provide the **necessary security**. Keeping all of this in mind, the hardware must also match the rest of the space's design.

ANSI Performance Levels

ANSI performance levels are national standards indicating the reliability of various commercial doors in certain environments and applications. There are three main levels:

- **Extra Heavy Duty:** This is the highest performance standard applied to doors that receive frequent, extreme use, such as hospital patient rooms, public bathrooms, and classrooms.
- **Heavy Duty:** This standard is used with doors that will still need a high-quality standard but are not in high-traffic areas, such as hotel room doors, apartment doors, and stairwell openings.
- **Standard Duty:** This is a basic standard for doors that are in low-use areas, such as private bathrooms, storage rooms, or closets.

Always double-check the ANSI performance level of any commercial door and ensure it meets the required standards for the area before incorporating it into your design.

ADA Requirements for Commercial Doors

The Americans with Disabilities Act (ADA) requires that entrances, doors, and gates have **certain measurements to ensure accessibility**. Regulations require at least 60% of public entrances to be accessible in a new construction. If there are double-leaf doors, one active leaf must meet ADA criteria. ADA door measurements are:

- Height opening of a minimum 80"
- Width opening of a minimum 32"
- No hardware above 48"
- No projections into the opening below 34"
- 10" of clear surface area from the floor
- Thresholds must not exceed ¼" high for exterior sliding doors and ½" for other doors
- Changes in level between ¼" and ½" must have a beveled slope

Contact Masonite Architectural for Help Finding the Right Commercial Doors for Your Project

While we've just shared a comprehensive resource to help you understand commercial doors, you may still have questions or **need help selecting the right door**.

Finding the right commercial door that meets all of the code requirements and fits into your overall design and aesthetic vision can be challenging. **Masonite Architectural offers a range of commercial doors** that give you the durable design you need to make your project a success. **Contact us today** to find the commercial doors you need.



Product Overview



SKU Transition Guide

Products

Aspiro Series
Cendura Series
Graham-Maiman Series
Order Samples
Cendura Standard Painted
Cendura Everyday Laminates
Cendura Standard Wood Veneer
Aspiro Choice Laminate and High Impact
Attack Resistant Door Opening
Aspiro Premium Painted
Aspiro Authentic Stile & Rail
Aspiro Select Wood Veneer
Factory Finished Stained Doors
Factory Finished Painted Wood Doors
Cross Reference

Markets

Case Studies
Healthcare
Hospitality
Education
Office/Mixed-Use
Acoustic Solutions
Cleanable Solutions

Technical Resources

Product Data Sheets
3 Part Spec
Warranty
Technical Updates
Literature
Accessories
Appendices
Forms
Sustainability
Acoustic Solutions
Blog
View All Technical Resources

Customer Assistance

Customer Service Contacts
Find a Rep
Cross Reference
Sales Tools
Brand Guidelines
Sign Up
Graham-Maiman Series
Baillargeon
USA Wood Door

DOORSELECTOR™