Engineering Buildings that are Accessible

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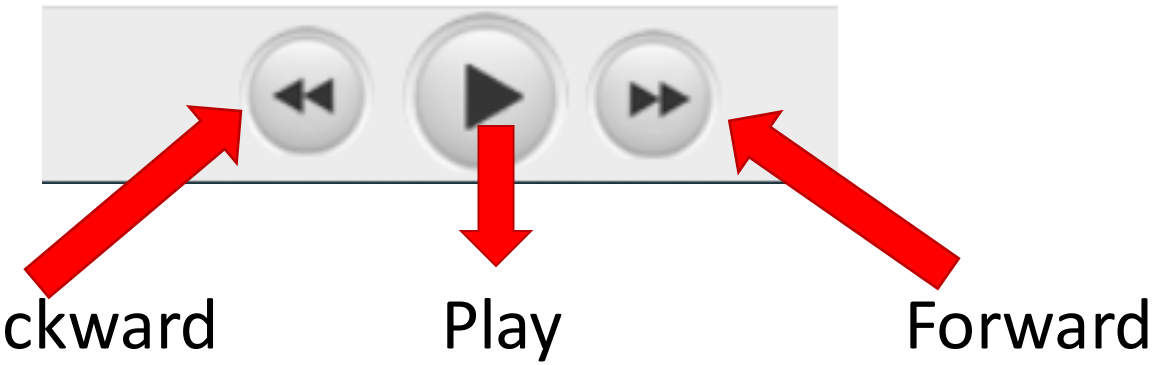

COMPUTER ADVENTURES

Accessibility means allowing people to enter and exit the building, as well as to navigate around it

In this slide presentation are some of the features engineers must consider when designing and building structures for the public.

Entrances are the most important feature when looking at the accessibility of a home or other type of building

The main part of this presentation will feature different types of entrances using different materials. As you view this presentation, decide which features you would use if you were designing a building.

Public Buildings Must Have Multiple Entrances

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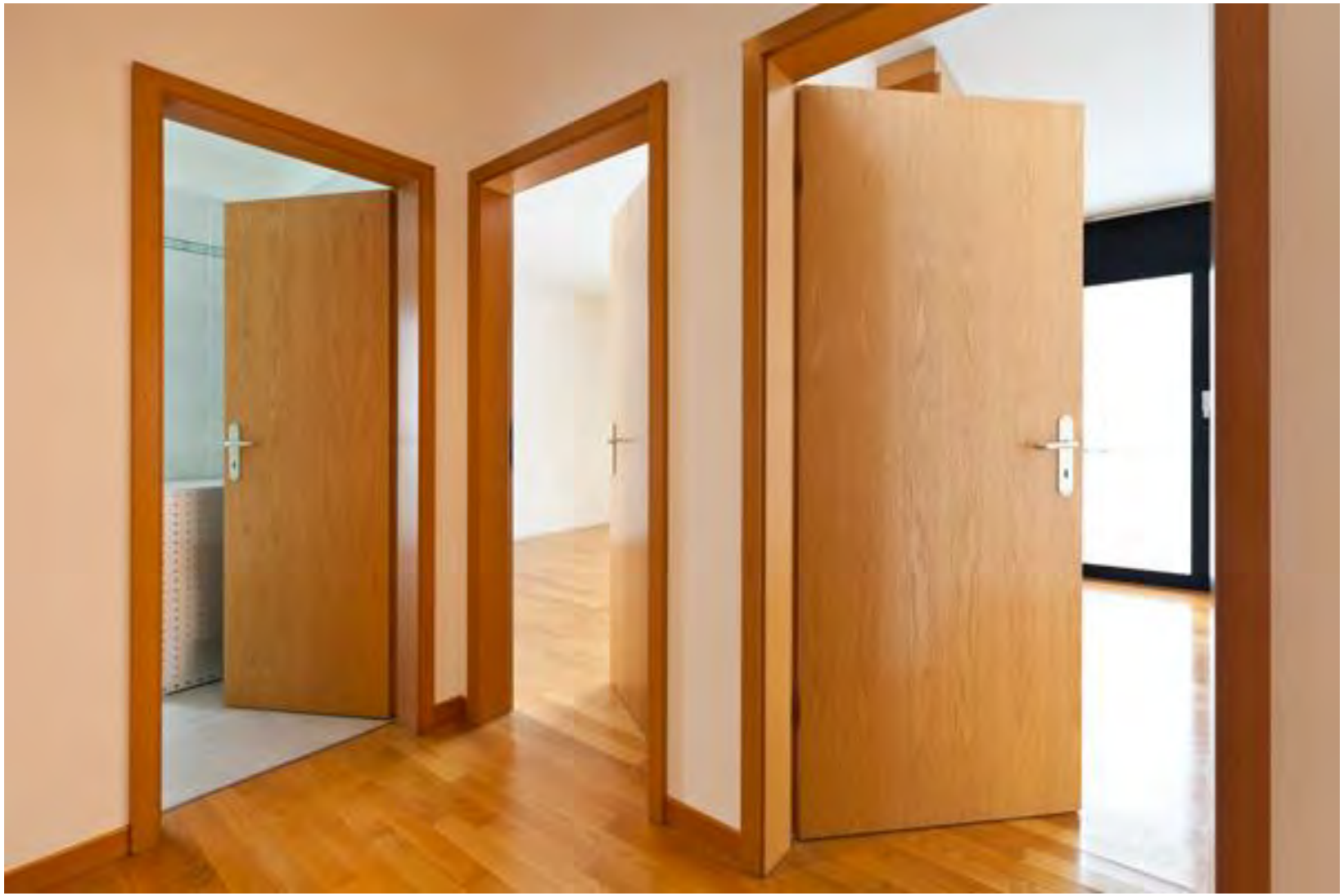
Exterior Doors

- Exterior doors allow entrance to or exit from a house or other building and provide a measure of security.
- These doors must be weather resistant as they are exposed to various climatic conditions
- They are generally made of steel or wood.

Interior Doors

- Interior doors separate rooms and provide privacy.
- Generally, interior doors are thinner than the exterior doors and they come in a variety of styles and materials.

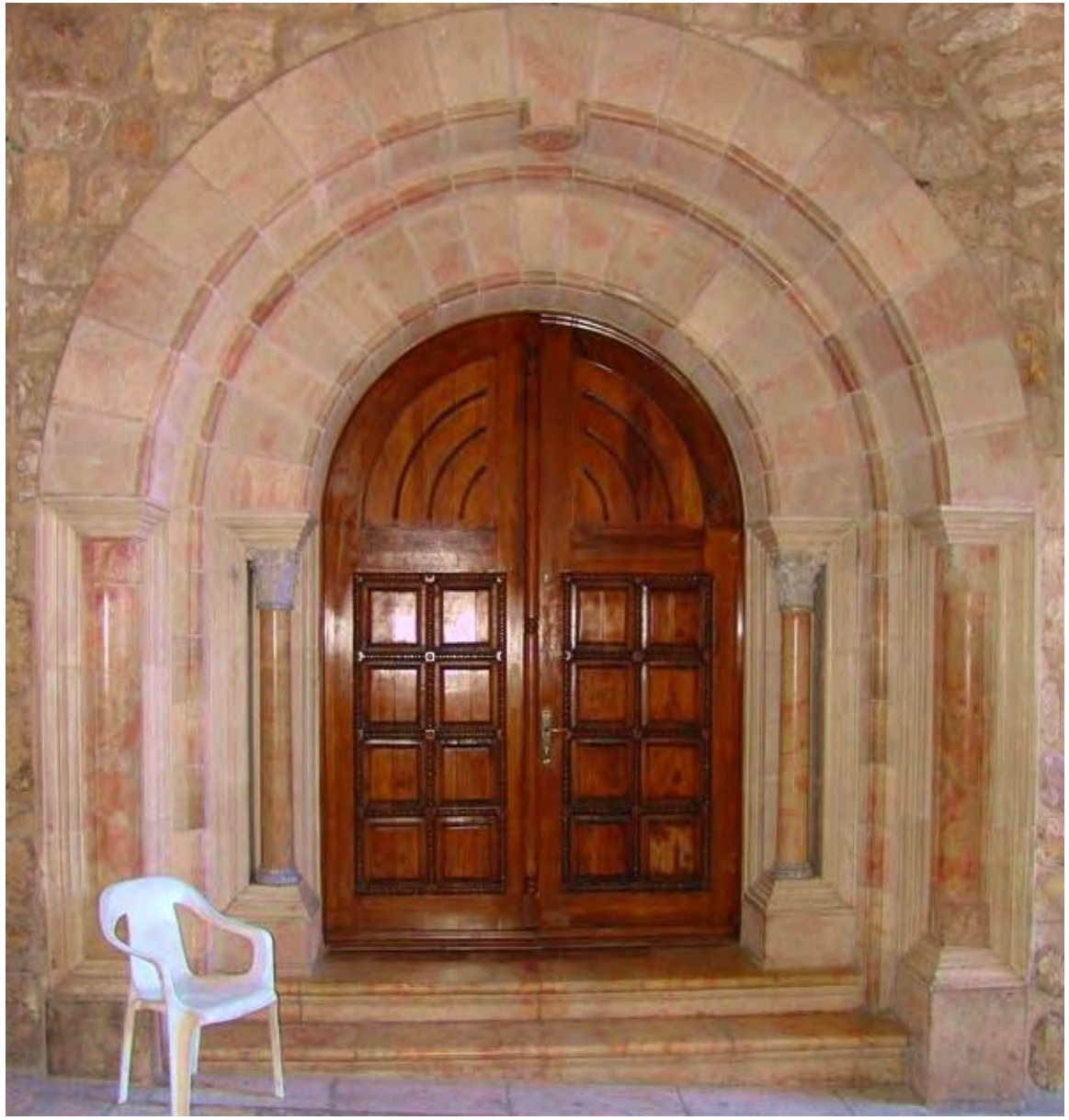


Glass Doors

- Glass doors look elegant and add richness and beauty to a home.
- They provide direct light.
- Cut glass panels fitted into wooden door frames provide an elegant option and also allow for those inside to see who is outside. However, glass panels are not as sturdy as wood and can be broken with enough force.

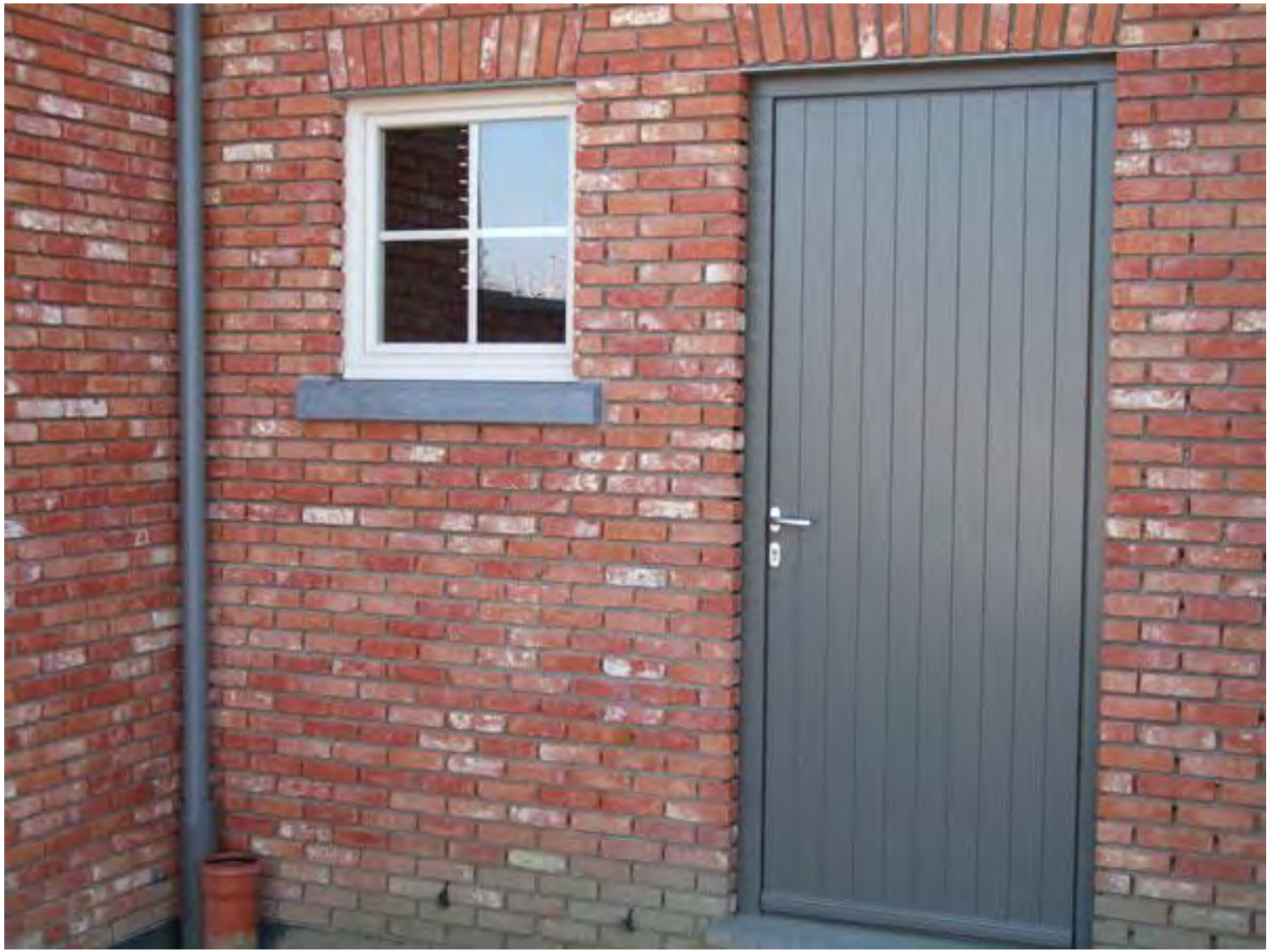
Wooden or Timber Doors

- Wooden doors or timber doors are primarily used for interior door applications.
- Timber is the oldest material used for doors and is always in fashion.
- Some reasons for using wooden doors are to provide soundproofing, insulation and security.
- They are easy to install and clean. They also are very durable, although more expensive than some other materials.



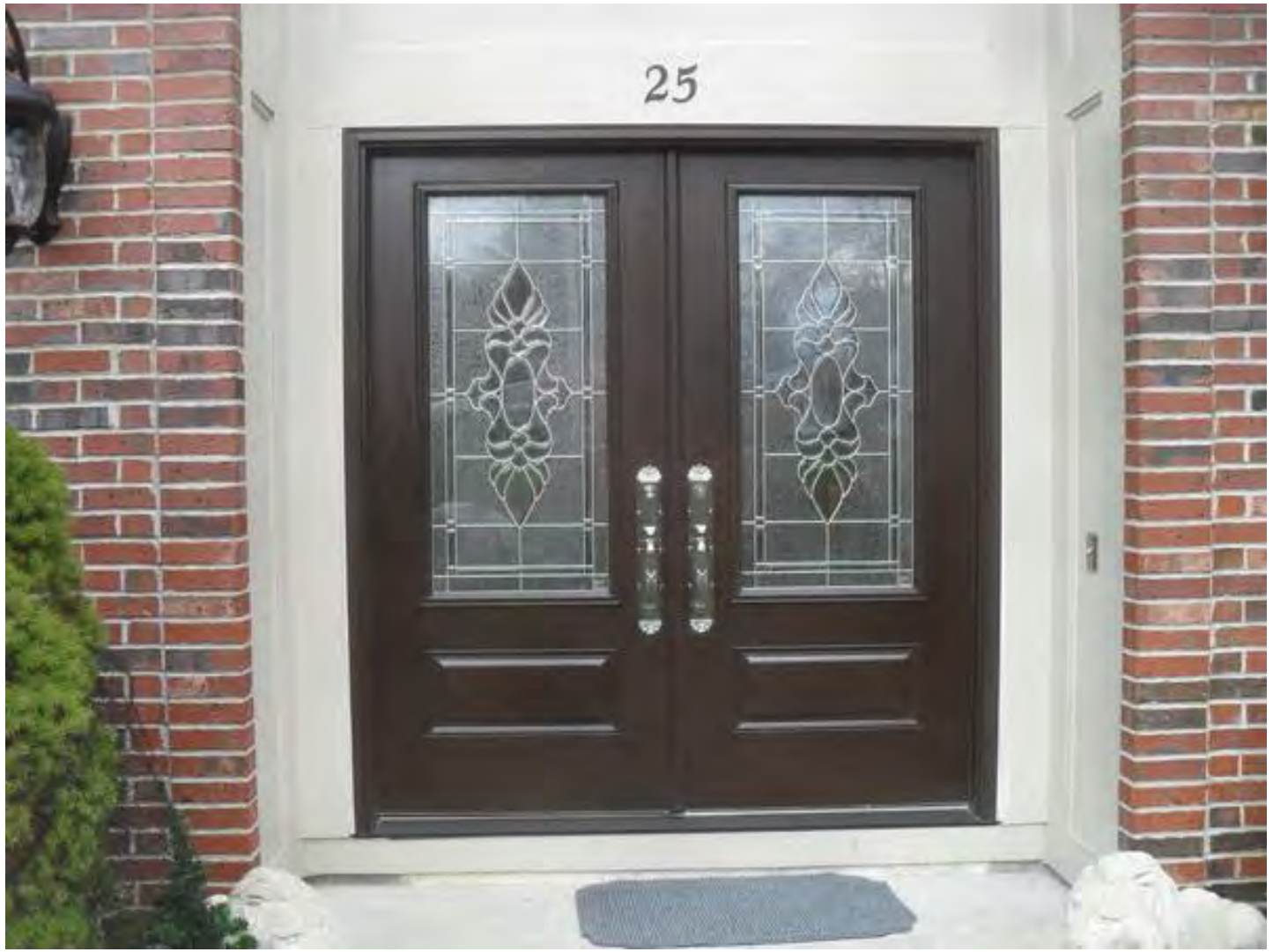
PVC Doors

- PVC doors are light in weight and easy to use.
- They come in a variety of designs and colors and do not need much maintenance.
- These can be used for front doors but they are also often used for basement doors.
- These doors do not corrode and do not need much maintenance, although they are not scratch proof.



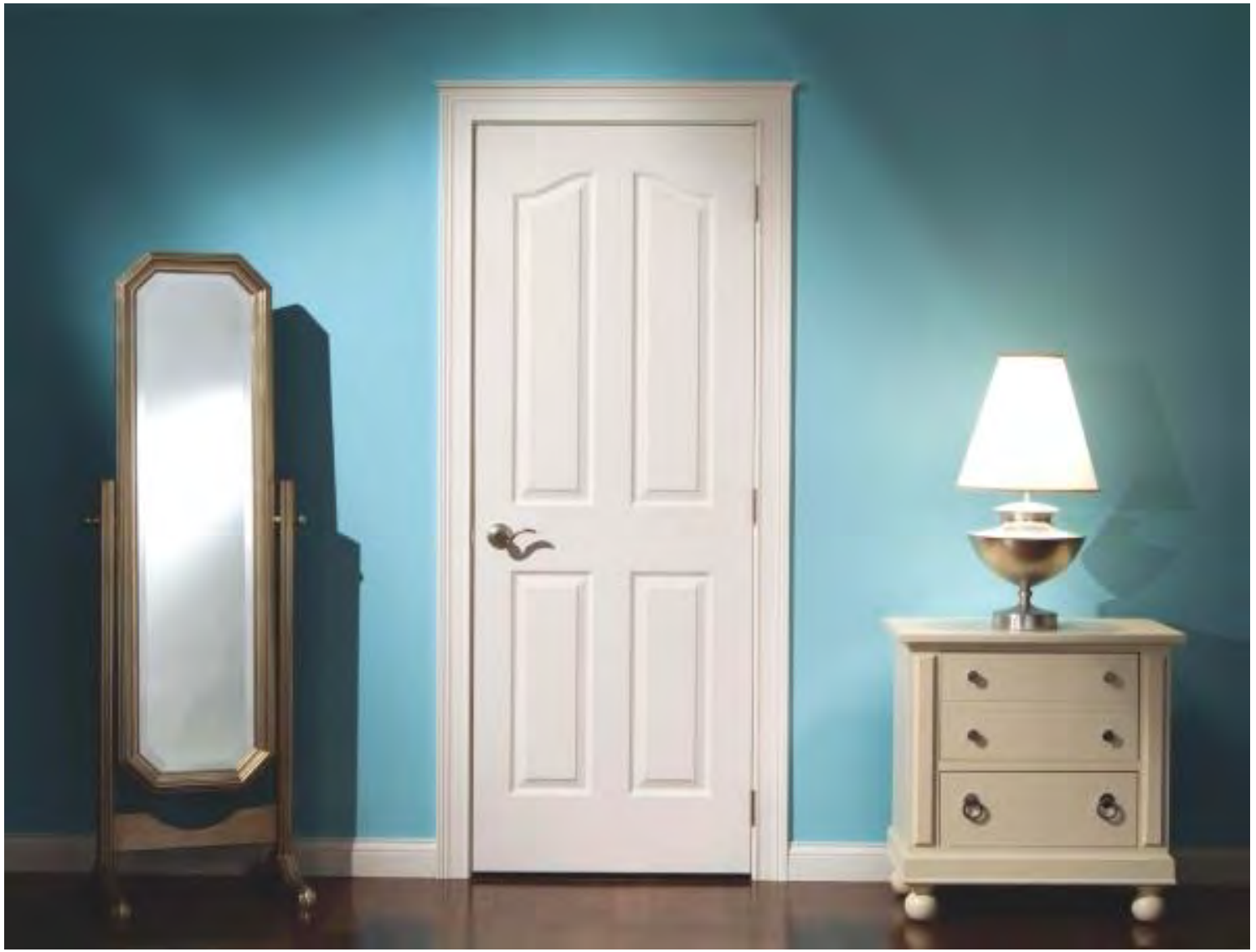
Fiberglass Doors

- Fiberglass doors are most commonly used for entrances to homes and are not typically used inside.
- These doors can be easily molded into different shapes and styles yet they are durable and hard.
- They are also less expensive than wood doors.



Fiber Reinforced Plastic Door or FRP Door

- Fiber reinforced plastic doors are also known as FRP doors.
- They are available in various colors and finishes.
- Fiber reinforced plastic doors have numerous advantages such as greater strength, low maintenance, all-weather resistance, easy fabrication, lightweight, and corrosion-free.



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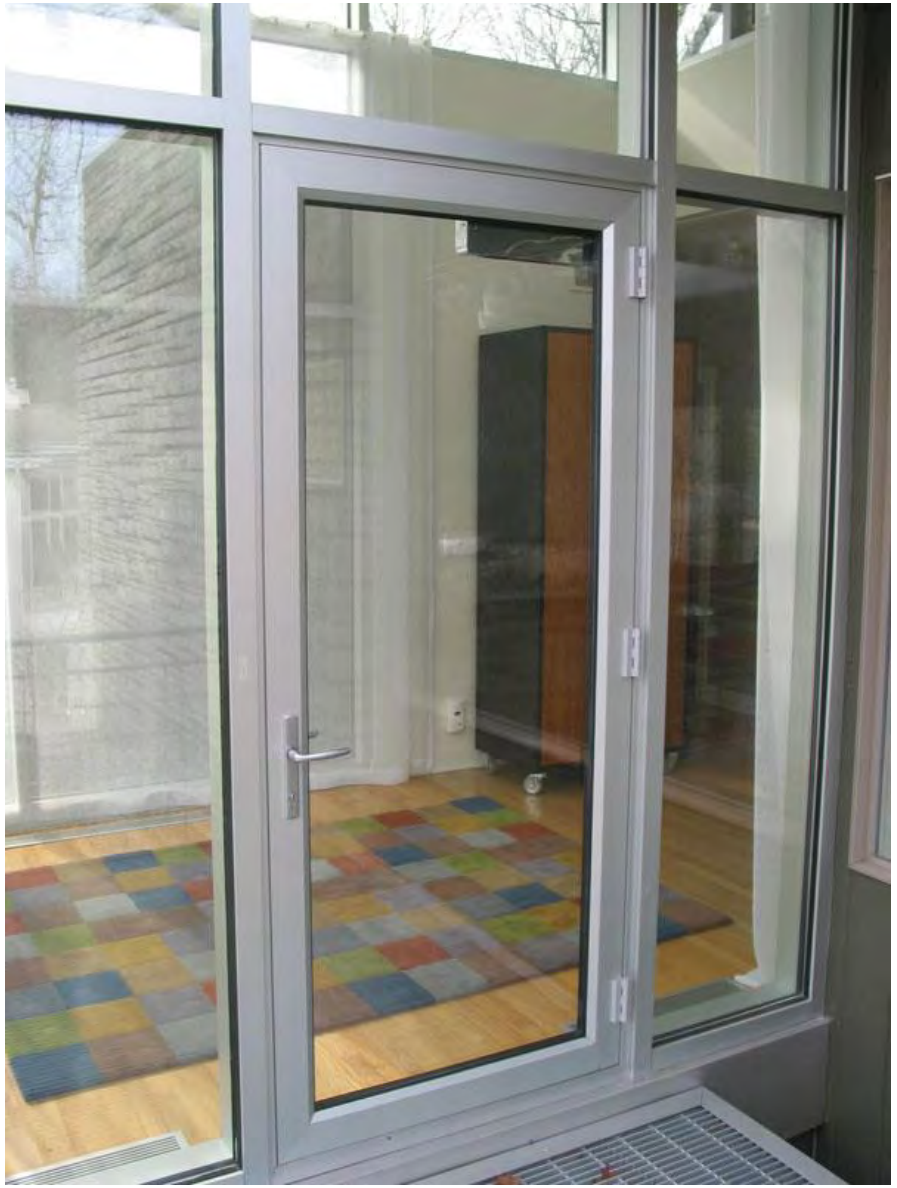
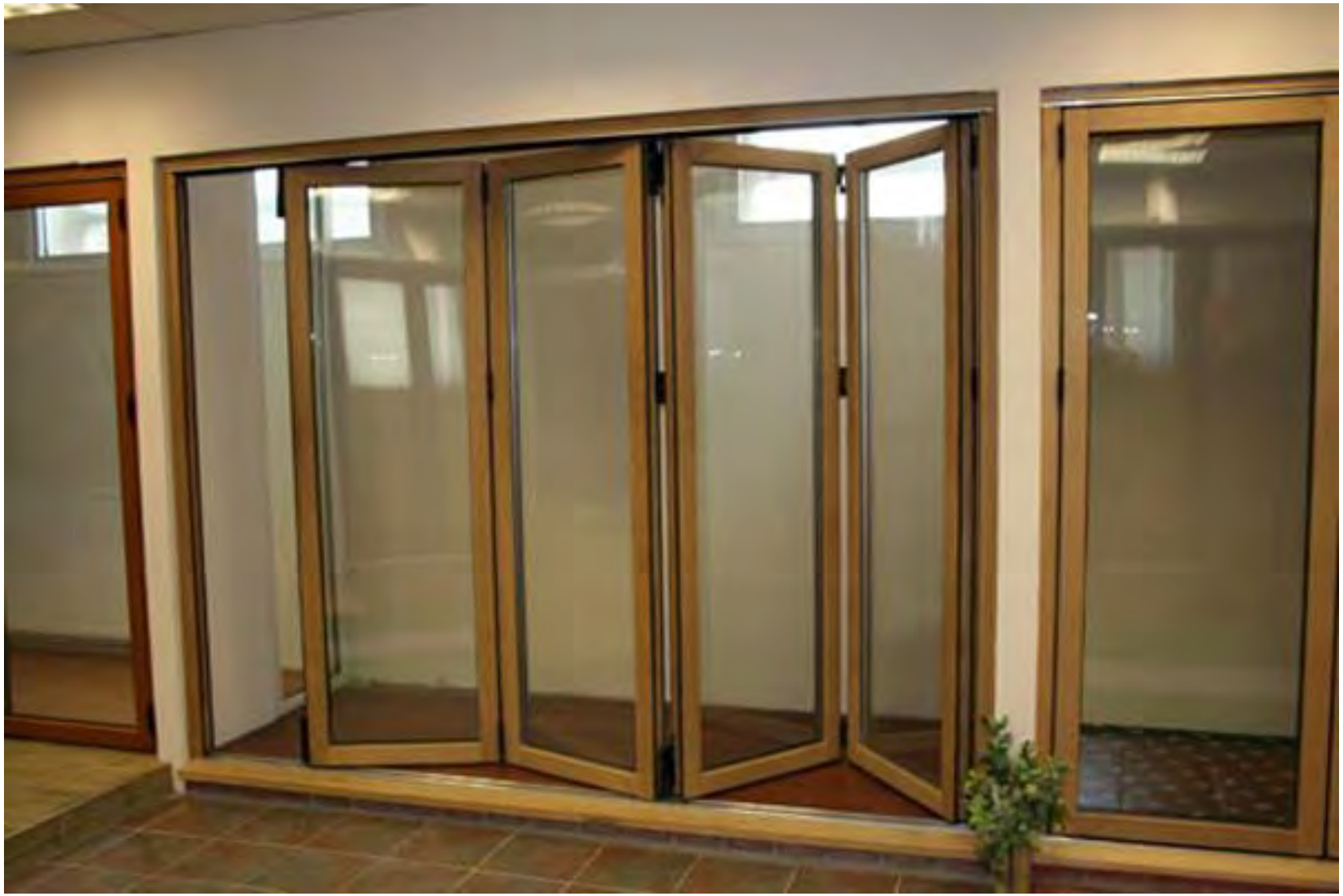
Aluminum Glazed Door

- Aluminum doors with glass panels are most commonly used for commercial buildings.
- They are strong, durable and hence, often used as security doors.
- However, with the full aluminum panel, they may not look as appealing as other types of doors.



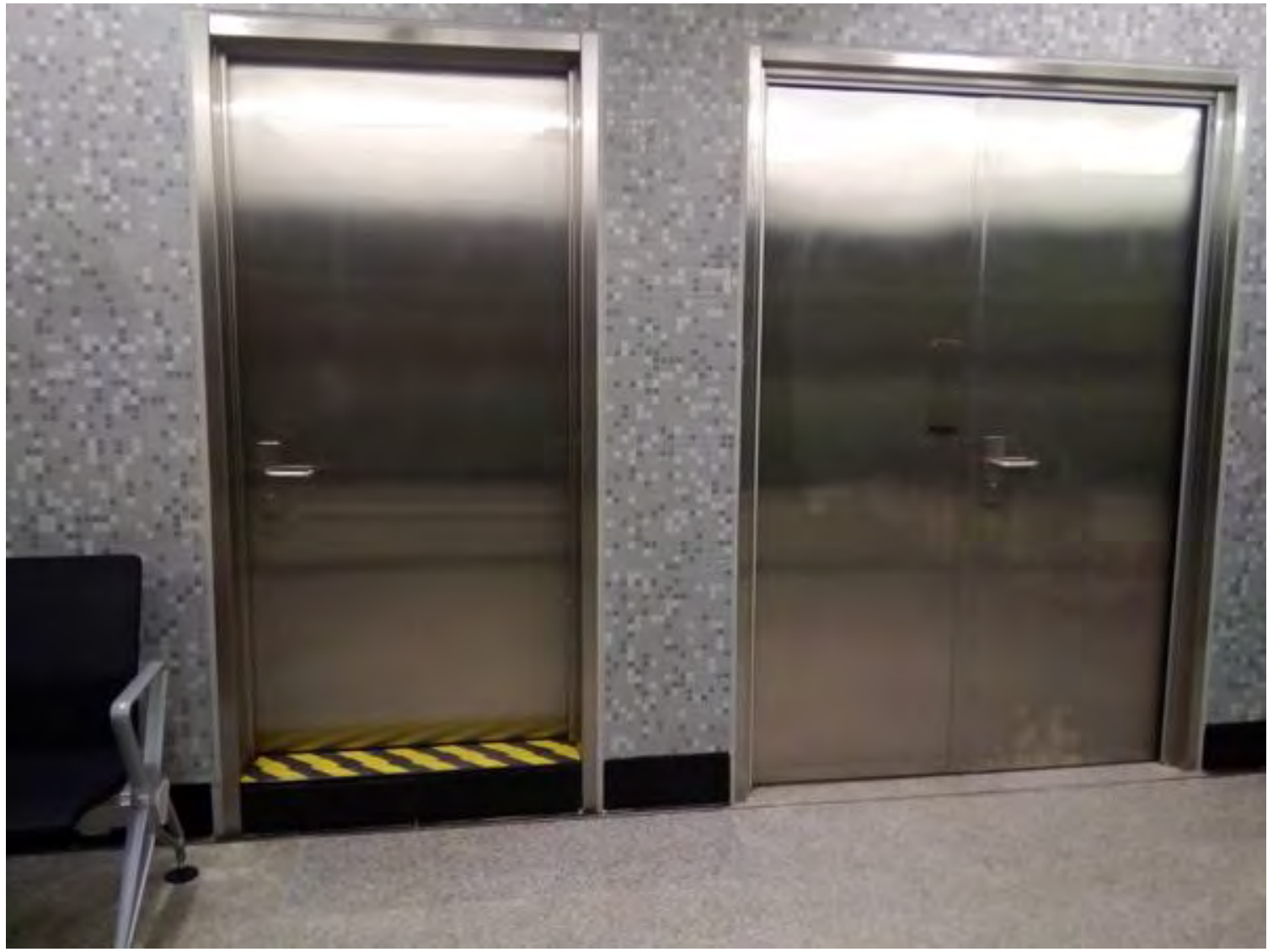
Folding Doors

- Folding doors are used singly or as folding partitions so that two rooms can be joined together as a single room or used to separate spaces into two rooms.
- They are often used in rooms opening to gardens or patios, for instance.



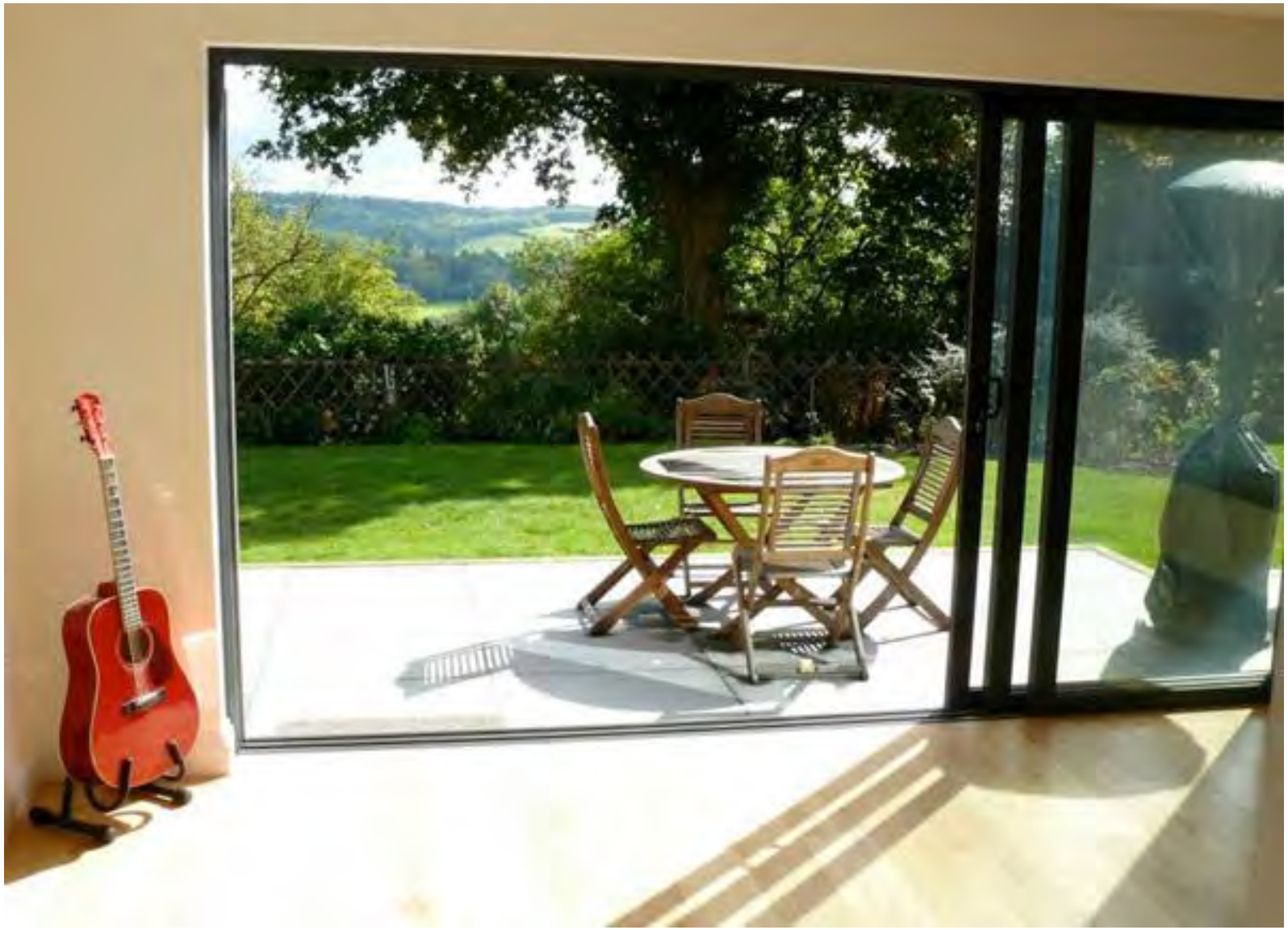
Steel Doors

- Steel doors can be used both as interior and exterior doors and are generally used for commercial properties not homes.
- These doors have a steel face with a foam core for insulation.
- They are very strong as compared to other doors but are not as attractive as wooden or glass doors.



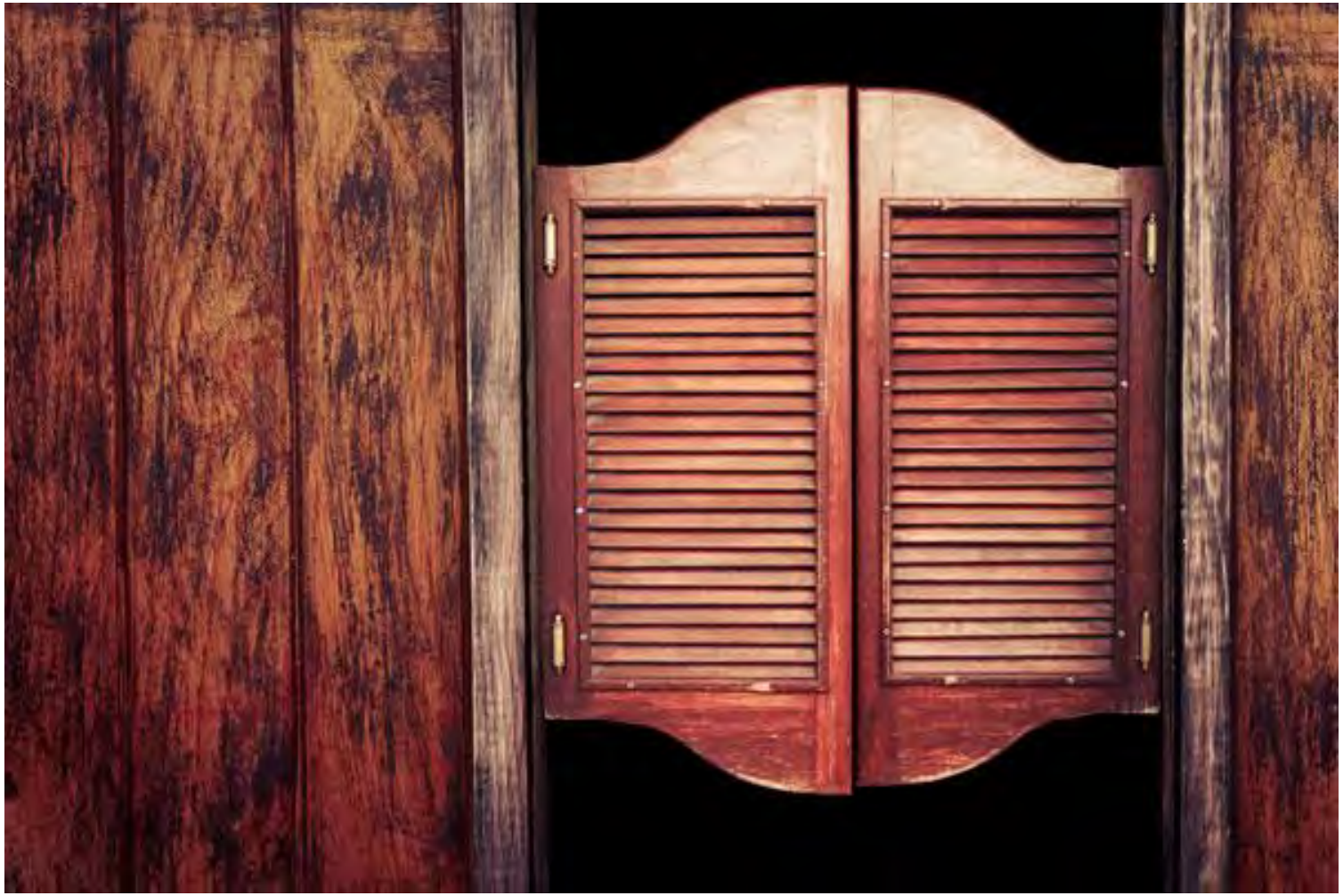
Sliding Doors

- Sliding doors consist of steel, wooden and glass shutters in which steel rollers are affixed.
- These steel rollers move along a track provided at the top and bottom of the door.
- There may be one or more sliding shutters depending on the opening.



Swinging Door

- Swinging doors are hinged near one edge to rotate on a vertical axis. They are hung hinges on the door frame.
- These doors have its shutter attached to the frame by means of double action springs. Hence the shutter can move both inward and outward.

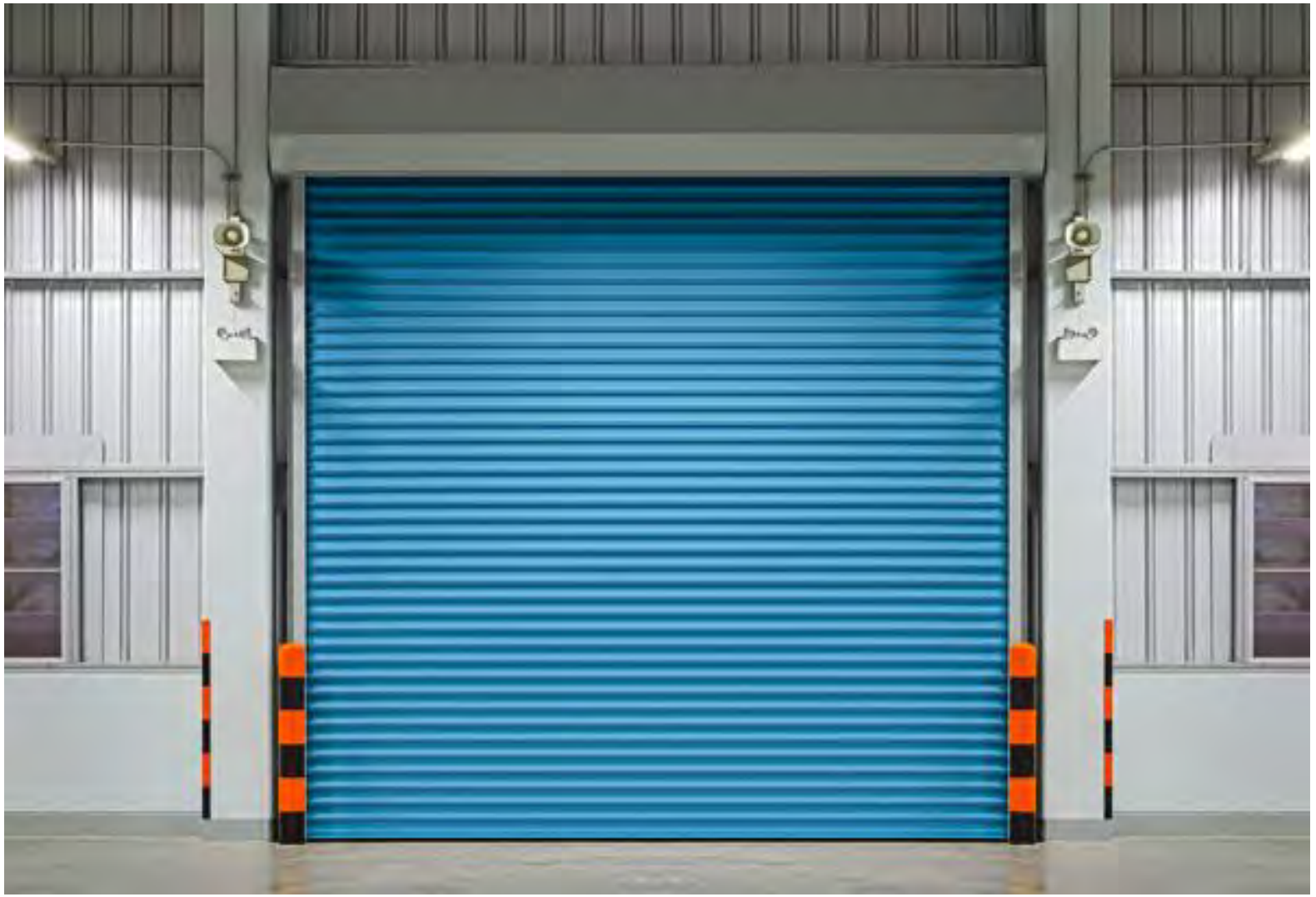


Revolving Doors

- These doors revolve around one side of the shutter and close automatically.
- Revolving doors are desirable to exclude wind, minimize street noise and avoid heat loss from the building.
- Revolving doors are mostly used in heavy traffic areas, such as high-rise buildings, public buildings, hospitals, etc. to regulate entry.

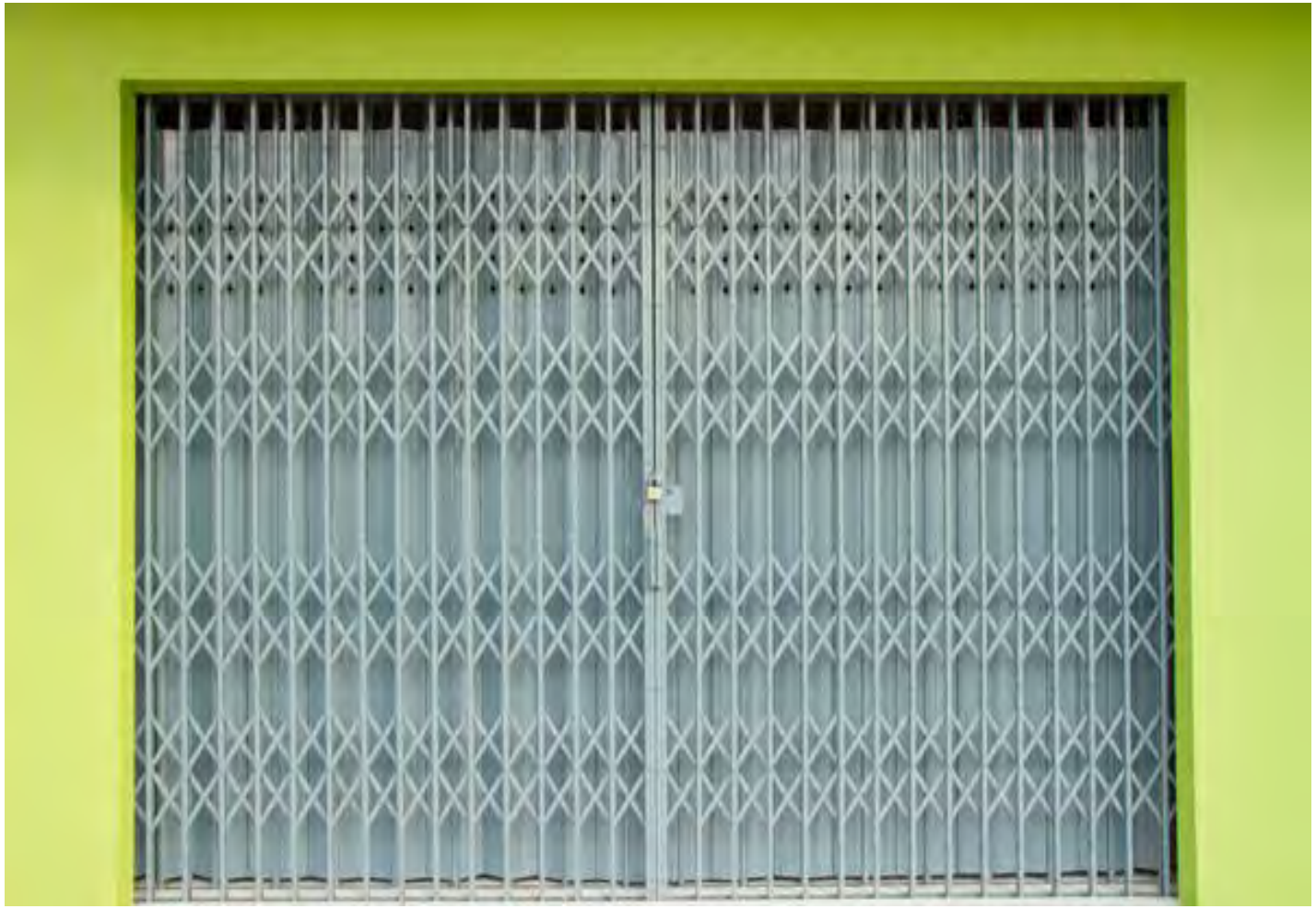
Rolling Shutter Doors

- Rolling shutter doors act like a steel curtain.
- These doors are very strong, durable and offer increased security.
- They do not require much space.
- They are mostly used in stores, workshops, factories, garages and shops, etc.



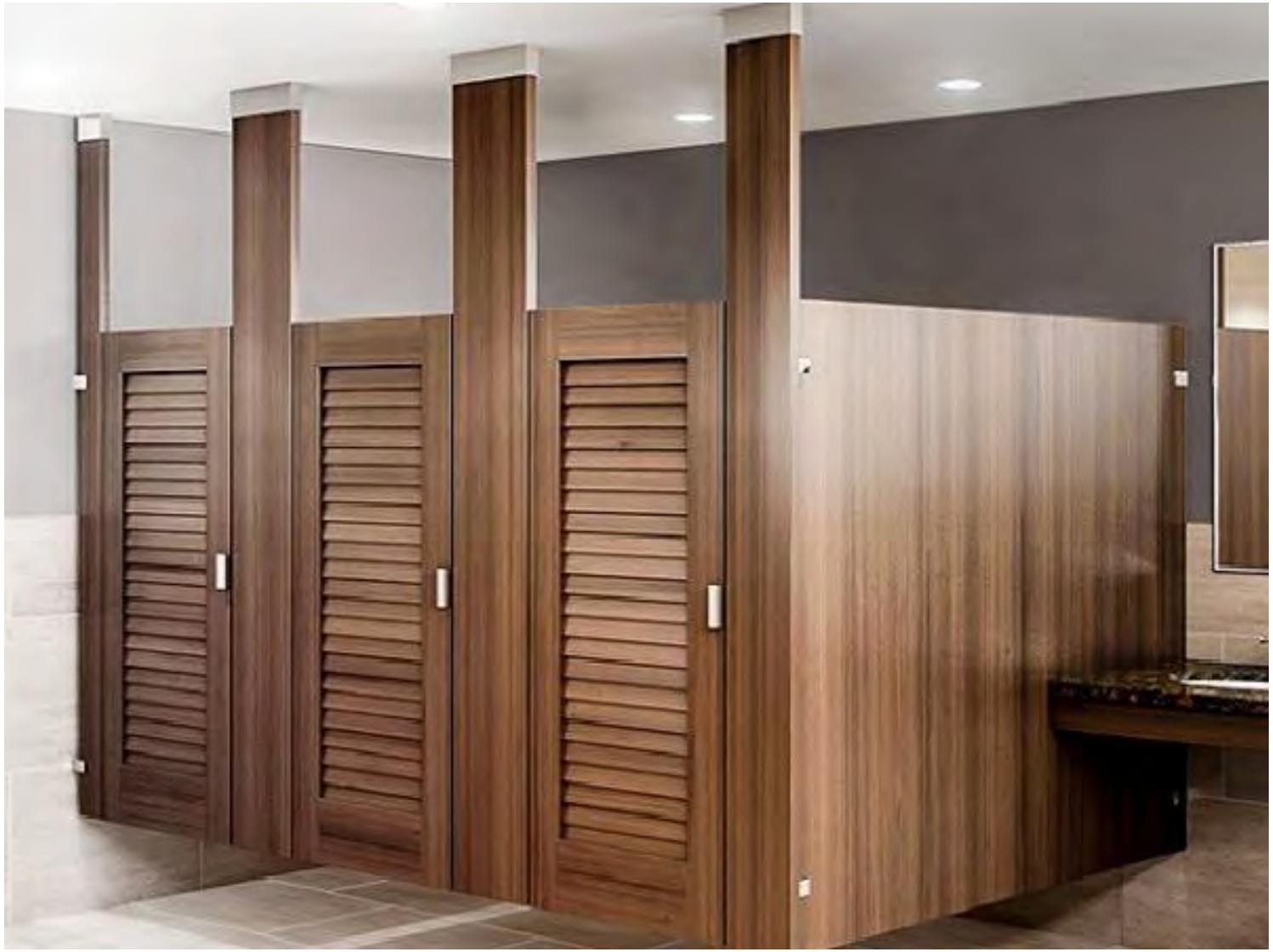
Collapsible Doors

- Collapsible doors are made from steel flats, or channels, and can be opened or closed by aslight pull or push.
- When being opened, all the strips are folded together and when closed, the strips are stretched.
- Collapsible doors are used for the main entrances of some residential homes, however they are mostly used for shops, warehouses, and other businesses, providing more security.



Louvered Doors

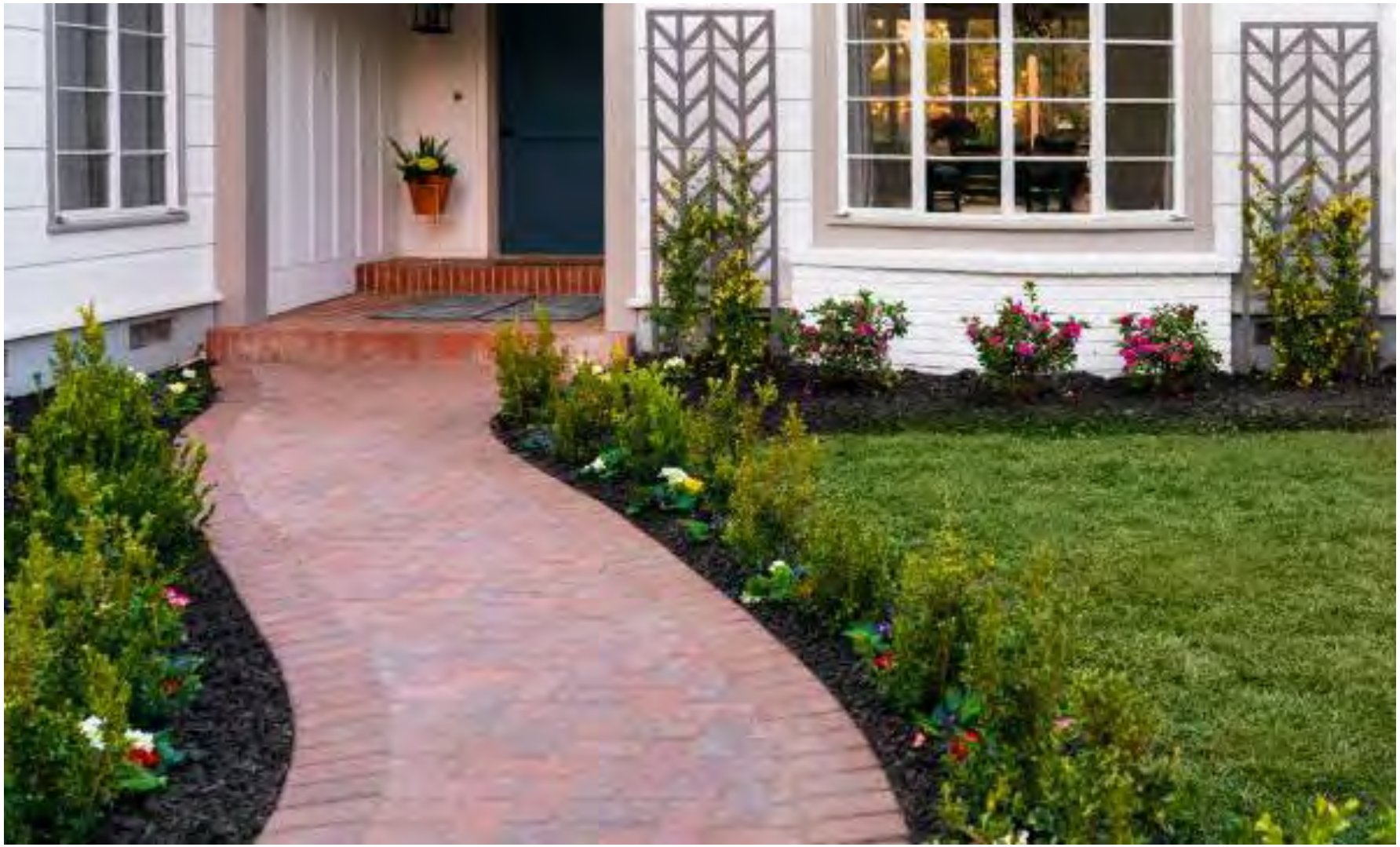
- The louvered door is one of the oldest types of door.
- The main advantages of this door are that even when closed, it will admit light and air yet keep the privacy of the room.
- Louvered doors are used when privacy, along with natural ventilation are desired.



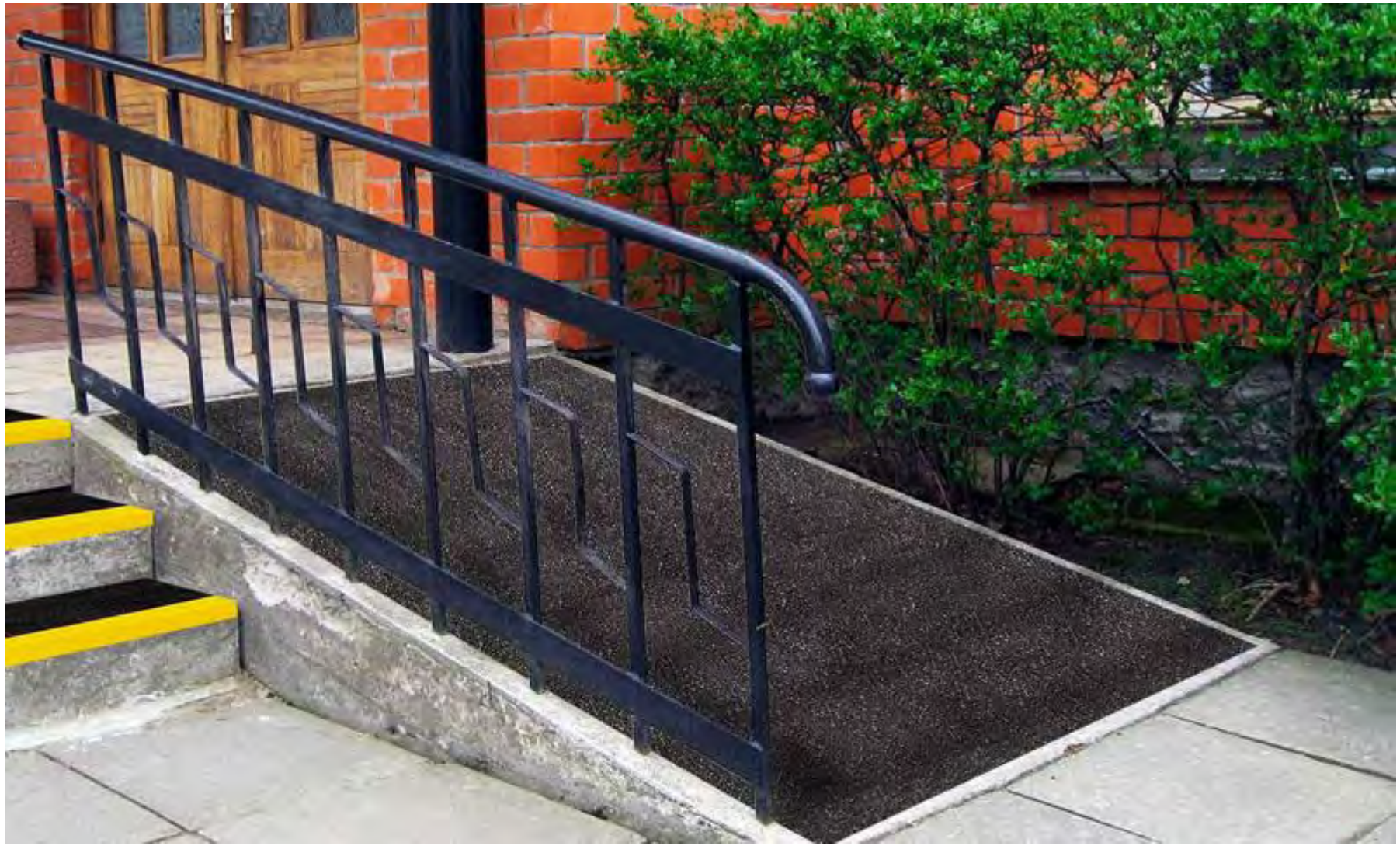
Other types of features that make buildings more accessible to people

These are just some of the features that engineers consider.

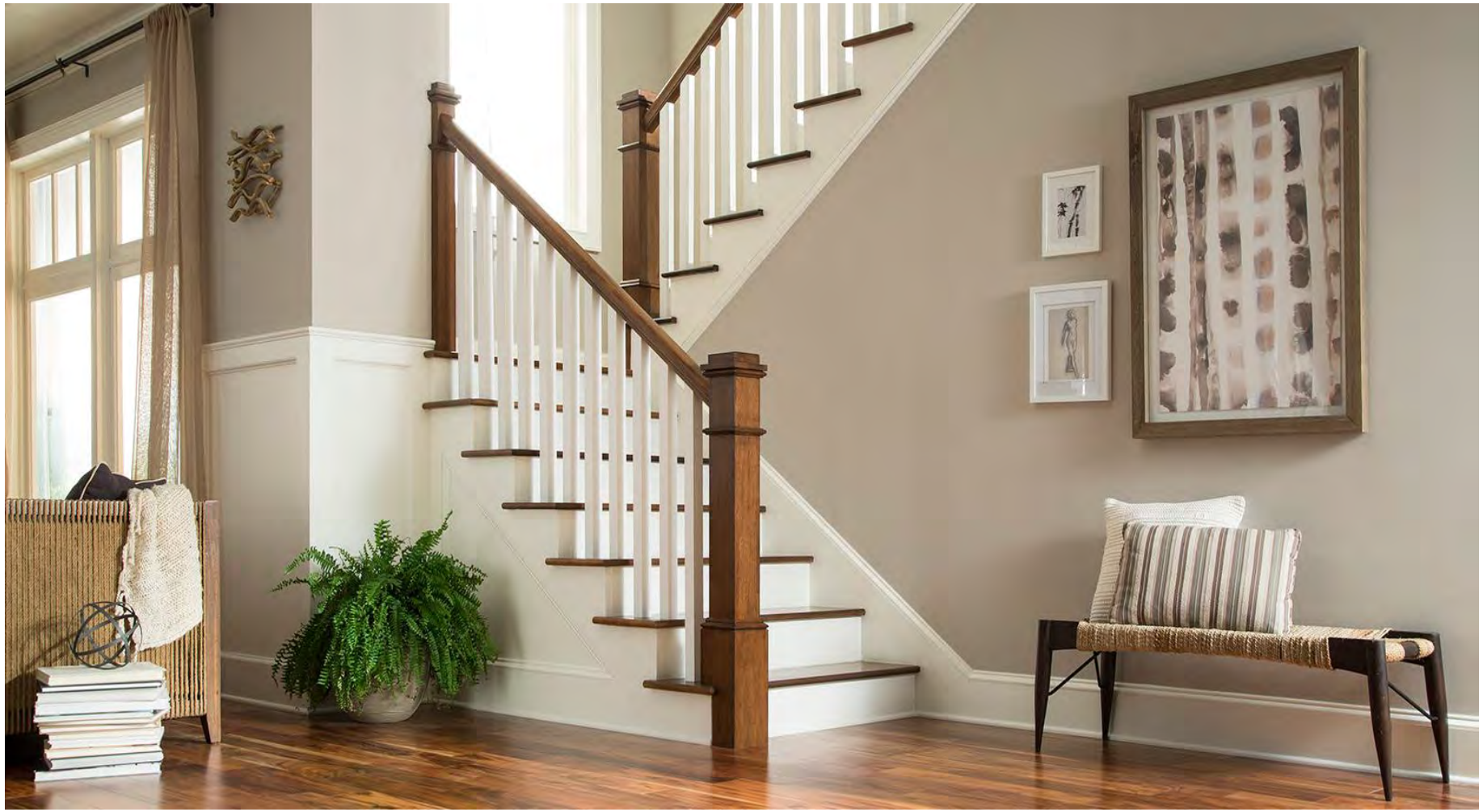
Designing Walkways



Including Ramps



How Stairs are Constructed



Escalators

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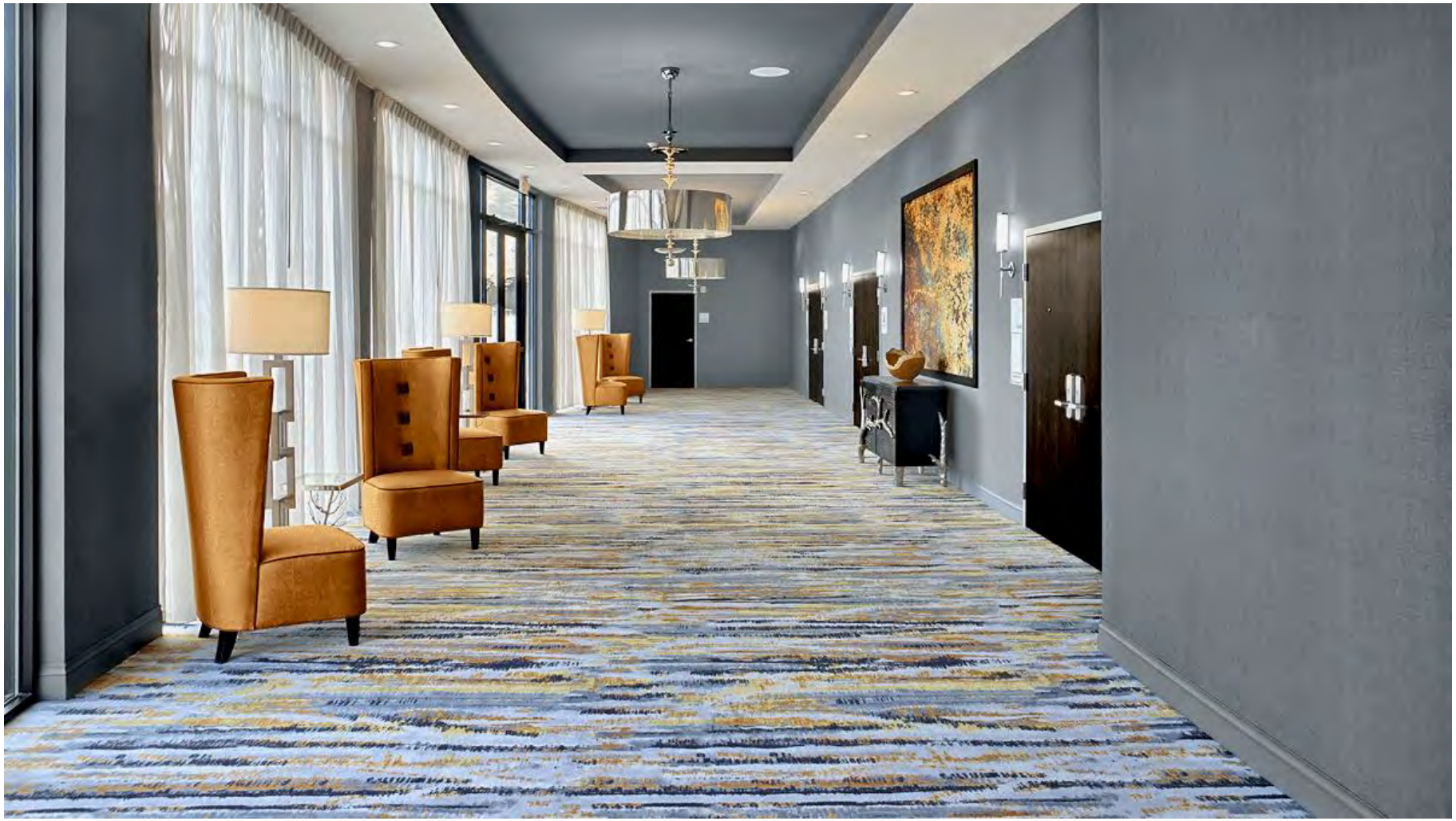
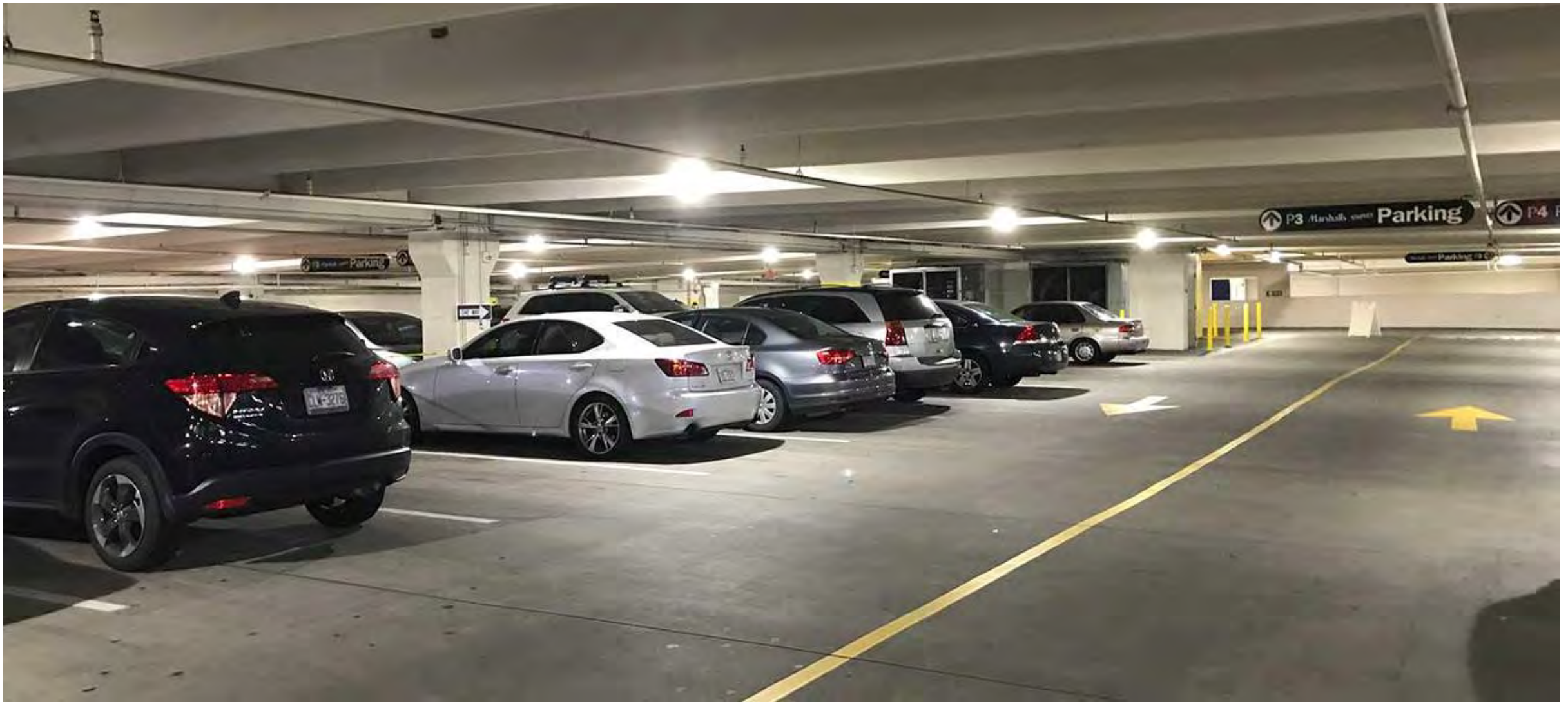
Elevators

Corridors



Places to Park Cars



Engineering Task

- **Design two** (2) accessibility structures using some of the design features you have seen in the presentation.
- You may **present** your design either by drawing it, creating a PowerPoint or other type of visual, or building it from materials at home.
- Be sure you add a **written description** about the accessibility features you used and why you chose them.