

Building Constructions 3. Lecturer: Takács, Lajos Gábor PhD Workshop instructors: Bándi, Keve Kund Kovács, Botond Toldi, Katalin 2020/21 2nd semester

TUTORIAL OUTLINE

to the 1st workshop exercise of the Building Construction 3. class Traditional Doors (Plank frame, jamb frame, double sash frame, cold pressed steel frame)

On this practical we learn about doors that are positioned at the same time the partition wall around them is built. The only exception is the solid timber frame. These doors do not have a finalized, factory-prepared surface finish due to the technological circumstances; rather they are painted on the construction site (correction of stains and damages that occur during construction, possibility of custom size adjustment of elements etc).

These frames are continuous, meaning they always have bottom frame connectors (transportation, placement, rigidity and retaining of shape). They may or may not have thresholds. The door leaves may be framed or solid.



Plank frames are really simple: the edge of the opening in the partition wall is covered by a plank. The gap between them is covered by the groove trim on the side of the door leaf and the edge trim one the other side. In order to unify connection depths required to place the fittings, the groove is cut into the plank, as well. The frame is assembled on site: the partition is built around the frame core, followed by trim placement (trim placement: staking out, fine adjustments, temporary support, wedging). Fixing to wall by frame protrusions and wedge-shaped battens are wedged into the wall. The threshold is

Class Outline - 1st Workshop Exercise - Building Construction 3.

positioned above the frame connectors, on pairs of wedges. The double leaf-to-frame connections along the upper and vertical edges allow good sealing and cover the gap from both sides. Plank frames are traditional, almost historic constructions still applied today. If built to high standard, they come with a ready-made factory surface finish and is built onto a dummy cased frame. For example: the hallway doors of the Dept. Of Building Constructions have edgeless plank frames. Presently they are constructed in a similar manner as the folding frames, but are made of solid wood.



Glued **jamb frames** are the most common constructions of the last 50-70 years. It is still the most popular interior door type today, manufactured to fulfill common, regular demands. Two boards are glued onto the sides of the wooden frame core in the factory. Similarly, to the plank frame, the second leaf-to-frame connection extends into the frame core, providing size adjustment possibility. By altering the position of the frame core, it is fitted to 6, 10 or 12 cm wide (+plaster on both sides) partitions. The trims are positioned after plastering, wall painting (or wallpaper work), and even base painting the surfaces. The concave inner surface of the trims allow for accurate connections along the trim edges, which is important if surface level differences need to be covered up.

In case of in-situ painted structures, lacquering and chemical timber protection must be mentioned. Doors are always treated with wood preserving and fungicide agents and often they receive a ground paint coat, as well. After surface rendering, a ground paint coat is applied, which is followed by surface rendering, again. Subsequently, two further paint coats are applied before the eventual surface lacquering. Alternative surface treatment solutions are also available for doors, such as scumble glazing or alternative lacquering methods. Both exist in colored our transparent versions. In case of transparent surface finishes, the protection of door surfaces during construction becomes even more important (e.g. if lime is sprayed onto the door surface during plastering, it attacks the timber material, and as a result, the eventual color of the wood becomes different on those spots.



Cold-pressed steel frame: suitable primarily for places of higher mechanical impact while it is often cheaper than wood. The partition wall is built around the hot dipped galvanized or ground coated frame. The wires of the partitions are tied to the frame. Cold-pressed steel door frames have frame connectors just like all other doors that are installed the same time the wall is built. Threshold application is optional. The finishing surface treatment is painting on the construction site. Spray painting results in a more even surface finish. The double leaf-to-frame connection is usually combined with a sealing strip which provides silent closure and tolerance for the uneven width of the gap between the leaf and the frame. Subsequent size alterations may only be executed on the timber door leaf.



Solid timber frame entrance door. The simplest frame type, here with trims and a core made of two pieces of wood glued together. This external door type has a weather-resistant hardwood veneer on both the external surface of the leaf and the frame. The internal and invisible parts of the frame is made of pinewood, the external parts are made of oak or some other hardwood. Due to its external nature, the gaps between the frame and the wall must be carefully sealed with damp-proof and thermal insulating materials. In order to fight back driving rain, a decompression groove is formed in the frame. Drops of moisture that accumulate here must be channeled out at the threshold. The threshold detail containing the water weep-hole should be covered with a metal sheet. Additional sealing is advised at the threshold detail due to the single leaf-to-frame connection. Sufficient difference is needed for proper door installation between the external and internal floor levels. This door type can be installed the same time the wall is built. Traditionally frame protrusions and connecting frame projections were applied for the fixing of the frame. Presently, this frame type is fixed to the wall by the subsequent placement of wall plugs, as show in the workshop exercise. Specially shaped trims are placed to cover up the internal side of the frame-to-wall gap.

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