

Subject: Building Construction and Technology-V

Topic: Walls, Ceiling and floors

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Walls, Ceilings and Floors

Types of Walls

- **Load Bearing** walls support floors above and the roof.
- **Partition** or curtain walls are non-load bearing and do not support anything. They act as space dividers
- **Moveable walls:** accordion walls and modular panels. If space needs change often, you should consider using moveable walls. Conference centers, office spaces, etc.
- **Partial Walls:** walls that are less than ceiling height, offer visual privacy but not acoustical privacy. Provide ventilation.
- **Spur/freestanding:** walls that do not join adjacent wall at both ends. IE: fireplaces in the center of rooms, walls behind reception desks.

Types of Walls



Moveable Walls



Spur or Freestanding wall

Factors to consider when planning walls:

- **Aesthetics:** formal walls have smooth surfaces and are symmetrical in the window and door placements. They are also more closed with more of a vertical emphasis. Informal walls are rough, asymmetrical, and are more open with a horizontal feel
- **Function and Flexibility:** why use moveable walls? They offer flexibility for tenants that experience change. Moveable walls provide electrical and data lines (some even offer plumbing) built into the wall system. The flooring is installed continuous so that the walls can be moved and not require the flooring to be changed.

Factors to consider when planning walls:

- **Degree of enclosure and privacy:** opaque walls mean that you can't see thru them. Translucent means that you can see thru the windows.
- **Light qualities:** Psychology of light. White reflects up to 89% of light and black reflect about 2%. Texture also plays a role. Smooth surfaces reflect more light than rough textures.
- **Durability:** the amount of time and money needed to maintain the walls must be considered. This is your responsibility when specifying a wall treatment to understand your clients needs.
- **Acoustics:** smooth, hard surfaces reflect sound while soft, porous surfaces absorb sound. Insulate wall cavities when sound transmission is an issue.
- **Thermal qualities:** comfort and energy efficiency.

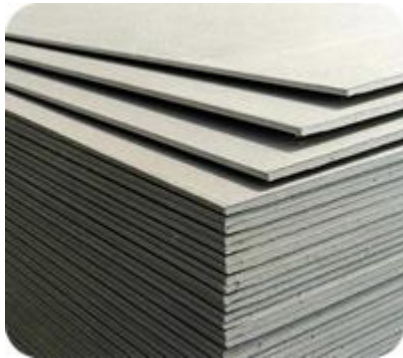
TYPES OF WALL MATERIALS

Plaster:



An old technique in which plaster is applied over the wallboard or concrete block using a lath. Textures range from smooth to stucco. This technique is almost a lost trade and is not used in new homes. It often chips and cracks as a house settles over the years.

Gypsum Wallboard - Drywall



Gypsum wallboard is the most commonly used material to cover walls in interior projects. It has evolved into a versatile, dependable material that is quick to install and easy to repair. Made from a natural crystallized mineral, wallboard is naturally fire resistant and can also act as a sound barrier. Gypsum board of 4' wide sheets x 8', 9', or 10' high is attached directly to the stud walls. The joints are taped, spackled and sanded so the seams do not show. Texture may be applied or various other finish techniques. Note: Sheetrock is brand name but used as a generic term.

Wood



Wood comes in the form of paneling, plank (such as flooring), and veneer, etc. It provides warmth and is a good insulator but it tends to fade and is flammable. As a designer, you must verify code compliance before installing it in commercial applications.

Concrete Block

Also known as **Concrete Masonry Unit (CMU)**, concrete block is a very common building material for the load-bearing walls of buildings, in what is termed "concrete block structure" (CBS) This type of construction is very affordable and often found in commercial and institutional applications or as part of a residential foundation.



Tile

Can be installed one tile at a time or in sheets held together with a mesh like backing. Tile provides easy maintenance, they are water impervious (required in public restrooms), but can create noisy interiors. They also can crack and chip.



Other wall finishes:

Stone, Brick, glass, and resin



Other wall finishes:

Paint, Wallpaper, Vinyl Wallcoverings



What is the difference?

- **Wallpaper:** Has been used since the Colonial days in the US and for about 5 centuries in Europe. Known as the “poor mans tapestry” because only the wealthy could afford the real thing. Paper is not easily cleaned, cannot be scrubbed unless vinyl coated. It is priced by the single roll, although it is sold in a double roll. It is typically 27” wide.
- **Vinyl Wallcovering:** More durable, usually fabric backed, does not stretch and tear during installation and is 54” wide. It can be purchased by the yard on a bolt. Typically used in commercial use and is more expensive than paper. It is categorized into two types: Type 1 and Type 11. (there is even a type III) Type one is lighter in weight (12 -15 ozs per yard) and Type II is heavier, usually 20 - 24 oz per yard and up. Type II is used in clinical areas of hospitals.

Three Classifications of Ceilings

- Suspended from the structure
 - Acoustical tiles
 - tin
- Attached directly to the structure
 - Gypsum board
 - Plaster
 - Tongue and groove wood
- Structure and ceiling finish are the same thing.
 - Concrete sub floor
 - Exposed ducts
 - Exposed wood beams, joists