

Lecture
Wall Finishes

Wallpaper

Wallpaper is a material used in interior decoration to decorate the interior walls of domestic and public buildings. It is usually sold in rolls and is applied onto a wall using wallpaper paste. Wallpapers can come plain as "lining paper" (so that it can be painted or used to help cover uneven surfaces and minor wall defects thus giving a better surface), textured, with a regular repeating pattern design, or, much less commonly today, with a single non-repeating large design carried over a set of sheets.

Wallpaper printing techniques include surface printing, gravure printing, silk screen-printing, rotary printing, and digital printing. Wallpaper is made in long rolls which are hung vertically on a wall. Patterned wallpapers are designed so that the pattern "repeats", and thus pieces cut from the same roll can be hung next to each other so as to continue the pattern without it being easy to see where the join between two pieces occurs. In the case of large complex patterns of images this is normally achieved by starting the second piece halfway into the length of the repeat, so that if the pattern going down the roll repeats after 24 inches, the next piece sideways is cut from the roll to begin 12 inches down the pattern from the first. The number of times the pattern repeats horizontally across a roll does not matter for this purpose. A single pattern can be issued in several different colorways.

Types and sizes

In terms of methods of creation, wallpaper types include painted wallpaper, hand-printed blockwood wallpaper, hand-printed stencil wallpaper, machine-printed wallpaper, and flock wallpaper. Modern wall coverings are diverse, and what is described as wallpaper may no longer actually be made from paper. Two of the most common factory trimmed sizes of wallpaper are referred to as "American" and "European" rolled goods. American rolled goods are 27 inches (69 cm) by 27 feet (8.2 m) in length. European rolled goods are 52 centimetres (20 in) wide by 10 metres (33 ft) in length approximately 5.2 square metres (56 sq ft). Most wallpaper borders are sold by length and with a wide range of widths therefore surface area is not applicable, although some may require trimming. The most common wall covering for

residential use and generally the most economical is pre pasted vinyl coated paper, commonly called "strippable" which can be misleading. Cloth backed vinyl is fairly common and durable. Lighter vinyl's are easier to handle and hang. Paper backed vinyls are generally more expensive, significantly more difficult to hang, and can be found in wider untrimmed widths. Foil wallpaper generally has paper backing and can (exceptionally) be up to 36 inches (91 cm) wide, and be very difficult to handle and hang. Textile wallpapers include silks, linens, grass cloths, strings, rattan, and actual impressed leaves. There are acoustical wall carpets to reduce sound. Customized wall coverings are available at high prices and most often have minimum roll orders. Solid vinyl with a cloth backing is the most common commercial wall covering and comes from the factory as untrimmed at 54 inches (140 cm) approximately, to be overlapped and double cut by the installer. This same type can be pre-trimmed at the factory to 27 inches (69 cm) approximately.

Non-woven wallpaper: Non-woven wallpaper is made from a mixture of chemical pulp and textile fibres, and is used on its own or as a backing for other types of wallpaper. When hanging this wallpaper, the paste is applied directly to the wall, after which the wallpaper will hang on without booking time.

Paper wallpaper: Made of recyclable paper. Is also used as backing material for other wallpapers. When using paper as wallpaper the booking time has to be considered.

Photo and metal wallpaper: These Wallpapers are applied on a backing material like non-woven or paper wallpaper. When producing photo wallpaper, the picture will be printed on a paper backing. To create a metallic optic wallpaper, the coating of the backing material consist of metal foil like aluminium

Wallpaper has been used since before the 18th century to cover walls and act as a decorative element for interior spaces. It has notably emerged during the Renaissance period as an affordable alternative for tapestries, which were used by the rich classes back then to cover the stone walls, keep away the heat, and give color to their rooms. The earlier wallpaper featured scenes, rather than patterns, and its biggest two manufacturers were England and France. China, also, started manufacturing high-quality wallpaper in the late 17th century. It was hand painted and costly, and that's why it was mostly used in palaces. By the arrival of the 20th century, patterned wallpaper had become an essential wall finishing material for homes; however, halfway through the century, it had lost its popularity to plain painting.

Wallpaper may not be what is trending now, but it is still a wall-finishing option worth considering. Manufacturers have recently been recreating wallpaper with some advantageous characteristics like blocking WiFi waves, protecting walls from falling during earthquakes, or for lighting purposes by incorporating LEDs. Also, the wallpaper techniques have evolved from woodblock printing and stenciling to digital printing.



Wallpaper is normally sold in rolls. American wallpaper is 27 inches (69 cm) in width and 27 feet (8.2 m) in length, while European wallpaper 21.5 inches wide and 33 feet (10 m) in length. Now, we will review all the reasons why choosing wallpaper as a finishing surface for your walls at home is a good idea, and why it may be not be. Then, we will list a selection of the many types of wallpapers, and briefly discuss their best uses.

Advantages of Wall Papers

Wall paper may be more expensive than paint but it has many types; some of which are quite affordable.

- It is available in a wide variety of designs, patterns, and surface finishes.
- There are many ways to attach wallpaper to your walls which include: paste the wall, paste the paper, and peel and stick.
- Wallpaper, and especially the peel-and-stick, can be easily removed and replaced.
- Some types can last for more than 15 years.
- Many wallpaper types are washable.
- Some types can be used for busy areas at home owing to its durability and easy maintenance.

- Wallpaper can, also, be used to personalize temporary homes, like dorms and rentals, since it can be easily installed and removed without leaving traces.
- It can cover uneven walls and hide the defects easily, with little initial preparations.
- Wallpaper can be considered an eco-friendly, since it can be purely manufactured from natural materials, and its adhesives do not contain harmful chemicals.

Disadvantages of Wall papers

1. It is more expensive than paint.
2. Traditional wallpaper is difficult to maintain and remove.
3. The edges may separate from the wall, especially in damp weather, and need to be reattached or pasted.
4. Patterns need to be matched and well-aligned together.
5. That requires a good deal of accuracy.
6. It can't be applied on raw concrete and textured walls. Wallpaper colors may be affected by light and shadow.
7. Parts that are exposed to sunlight daily could burn out.
8. The more fragile types of wallpaper may not last more than 5 years.

Types of Wallpaper

1. Liner Wallpaper

Also known as lining paper, this type of wallpaper is made from paper or fiberglass. It is effective for hiding wall defects and minimizing repairs, and it can be a base for more delicate wallpaper types. It can be used alone, and maybe even painted. Moreover, it is easy to apply and remove.



2. Printed Wallpaper

This type is commonly used and available in wide variety of colors and patterns. The digitally-printed wallpaper is normally cheaper than the hand-printed, and it can be mass-produced, but it could be torn easily. Also, the printing ink is water-based, so it'd better not be used in kitchens and bathrooms.



3. Vinyl Wallpaper

This type of wallpaper is composed printed paper coated with a layer vinyl. It is the most commonly used type of wallpaper, currently, because of its high durability. The thicker the vinyl coating layer is, the more durable the wallpaper will be. Vinyl paper can be used in kitchens and bathrooms, as it can withstand steam. It can also be washed, making for easy maintenance.



4. Foil Wallpaper

A polished metal foil is used as a base for this type to give the interior space a shiny metallic effect. Due to its high reflectivity, foil wallpaper highlights wall defects. So, the base wall needs to be repaired, treated, or covered with lining paper first. The lining and adhering process needs to be neat enough, not to ruin the foil's reflectivity and shine.



5. Flock Wallpaper

Flock wallpaper is distinct for its fuzzy three-dimensional patterns, created from a velvet-like fiber that is printed on a base of paper. It is one of the most expensive wallpaper types, yet it is hard to maintain. Its velvety texture reflects a sense of luxury; however, it is not washable and could be hard to remove. Accordingly, it is best used for rooms with lower traffic, like the master bedroom or guest room.



6. Mylar Wallpaper

Mylar wallpaper comprises a printed paper base and a polyester film applied on top of it. It has a wet or shiny appearance, kind of similar to foil wallpaper, and likewise, it highlights wall defects, so prior paper lining is recommended. The polyester film makes it possible to wash Mylar wallpaper, and it is also easy to remove. However, further care should be given to the installation process to avoid creasing the paper. It is most commonly used for kitchens and bathrooms.



7. Bamboo Wallpaper

This type is handcrafted from natural bamboo and glued to paper. It is environmentally friendly, and its hue varies from one roll to another owing to its natural base. However, it requires delicate treatment when gluing and installing as the adhesives can ruin its appearance, and it is not washable.



Thermocol

Thermocol is produced by complex material called polystyrene. Hundreds of processes are done on Polystyrene for making thermocol. Polystyrene is a complex material by which thermocol, glass, plastic is also made. Polystyrene is a hydrocarbon polymer by which we can create materials like thermocol.

It is the trade name of a very light and cellular plastic material. Initially it is obtained in liquid form and then molded into desired forms. it is an excellent insulating material of heat, sound and electricity. This substance was named Thermocol, which nowadays is manufactured through a simple process. Thermoplastic granules are expanded through application of steam and air. Expanded granules become much larger in size but remain very light.

Properties of Thermocol

1. It is very light, strong and durable.
2. It resists dampness.
3. Its compressive strength is 117 to 144 kg/cm².
4. It can be manufactured in any color, though it is mostly white in color.
5. It is very soft, can be easily swan, cut, broken and scratched with nails.

Uses.

1. It is used for heat and sound insulation in refrigeration and air conditioning buildings.
2. It is used in acoustic treatment and lining of ceiling and walls.
3. Thermocol is available in slabs 50×50, 60×60, 100×100, 50×100 cm and 15 to 25 mm thick.
4. Thermocol is a type of plastic and has good thermal insulation properties.
5. It can also be molded to any desired shape in Plastic molding machine.
6. Thermocol tiles are used in false ceiling and as face tiles.
7. Thermocol is very light and is not adequately strong. It gets abraded with slight friction. Hence for thermally insulated partitions, it is only a filling material and not a surface material.
8. Thermocol has a good sound insulation properties from sound transfer point of view and from acoustic effects.

Please see: <https://www.youtube.com/watch?v=sT3-b39q1V0>

for understanding how thermocol is made.

Images showing the use of thermocol sheets in walls

