Building Construction Engineering II

Dr. Shaher Zyoud

➢ Finishes;

Treatments put on the internal and external walls and on internal floors, include:

- ✓ **Plastering**
- ✓ **Painting**
- ✓ **Wall tiling**
- ✓ **Floor tiling**

➢ Finishes serve as;

- ✓ **Decorative**
- ✓ **Practical functions**
- ✓ **Improve the appearance of the structure**
- ✓ **Prolong the life span of the structure**

✓ PLASTERING

- The application of a smooth coat of materials to walls and ceilings.
- It refers to a various of mixtures applied in a pasty form to the surfaces of walls and ceilings in a plastic state and allow to harden and dry,
- applied in layers to achieve a smooth and durable finish
- suitable for decorative treatment such as paint and wall paper.

❖ **Plastering is applied to wall or other surfaces as a wet mixture of binding material (lime, cement or gypsum), aggregate (usually sand) and water**

❖ **Most used (according to used materials);**
Cement plaster

- includes cement as a basic binding material.
- includes small amounts (25 %) of lime to: prevent cracks and increase workability by increasing the setting time

Gypsum plaster,

- which is made by mixing calcined gypsum with water, fine sand or light weight aggregate, and various additives to control its setting and working qualities.
- Gypsum plaster is a durable, relatively light weight, and fire resistant material that can be used on any wall or ceiling surface that is not subject to moist or wet conditions.

- **Major purposes of plastering (protective and/or decorative)**

- **External plastering;** to enable structure to resist the effects of weather conditions. Stone masonry walls does not require external plastering.
- **Internal plastering;** to provide smooth surfaces, for applying painting, easily to wash.
- To provide a joint less, hygienic, easily decorated smooth finish to walls.
- Plastering covers up the unevenness of bricks , blocks or concrete.

➢ Layers of plastering

❑ Plastering is applied in layers, the number of which depends on the types and strength of base use:

- **Two – coats plastering**

Plastering is applied in two coats: a base coat, followed by a finish coat.

- **Three – coats plastering**

Plastering is applied in three successive coats: a scratch coat, followed by a brown coat (base coat) and a finish coat.

- **Scratch coat:** the first coat in the three- coats plastering, to provide a better bond for the second or brown coat.

- **Base coat** refers to any plaster coat applied before the finish coat.

- **Brown coat** is a roughly finished, leveling coat of plastering, either the second coat in three-coat plastering or the base coat in two – coat plastering applied over a masonry wall.

- **Finish coat** is the final coat of plastering, serving either as finished surface or as a base for decoration.

❑ Preparing surfaces for plastering

- Most bricks and block work provide a good surface for plastering because they have enough of natural key (a key is a rough surface that plaster will stick to).
- Before plastering brick work you need to remove any projections and clean the surface with a stiff brush. When you put wet plaster on the wall, the water from the mix is absorbed by the brickwork, so check that this does not cause the plaster to dry too rapidly so that it becomes unworkable, so we need to wet the brick work before plastering.

- The concrete may be quite smooth from the form work unless a chemical was applied before the concrete was poured.

- To prepare concrete, we need to wash off all traces of oil and hack the surface to provide enough key for the plaster.

❑How to plaster a wall

1- Preparation

-The surface well brushed with hard broom to remove loose material and dust.

- any metal fixings to be painted or galvanized to prevent staining
- fixing plugs inserted before plaster is applied

- scratch coat is the first coat applied which must adhere firmly and raked to provide a better bond for the second coat. Thickness: 5 mm, watering for 3 days

- طبقة طرطشة-مسمار-بزرة

ترش بالقلاية (المغرفة) عكس الجاذبية

تعمل كسطح خشن لتماسك القصارة (الطبقات اللاحقة)

سمك 5 ملم

2- **Put mounds of cement and sand or gypsum** (mortar dabs) mortar across the wall in columns of three about 120 cm apart up to 150 cm a part.

3- Apply 75mm vertical strips of plaster (called screeds) over the mounds and leave them to set.

4- Mix the plaster by hand or with a small mixer.

5- Apply a rough plaster coat to the wall between the screeds by putting it on with an upward sweeping movement.

- Thickness: 15 mm

> 15 mm (at more than one layer)

6- Move the screed board from the bottom to the top of the wall in a sawing motion to smooth and level the plaster.

7- Scratch the first coat before it sets to provide a key for the second coat and leave it to dry.

8- Apply a finishing coat of 3-5 mm neat plaster to produce smooth finish.

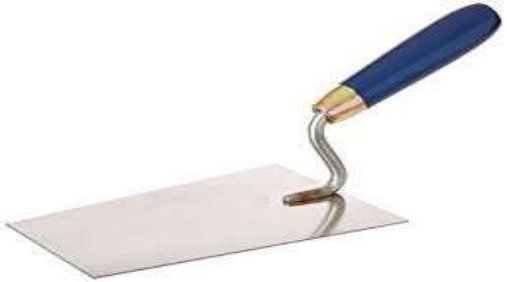
- If the block wall is 10 cm, then the frame of doors should be 14 cm to 15 cm

➢Most used tools in plastering

Hand level

Plastic float

Finishing trowel



Bucket trowel

Gauging trowel

Plastering hawks

Bucket

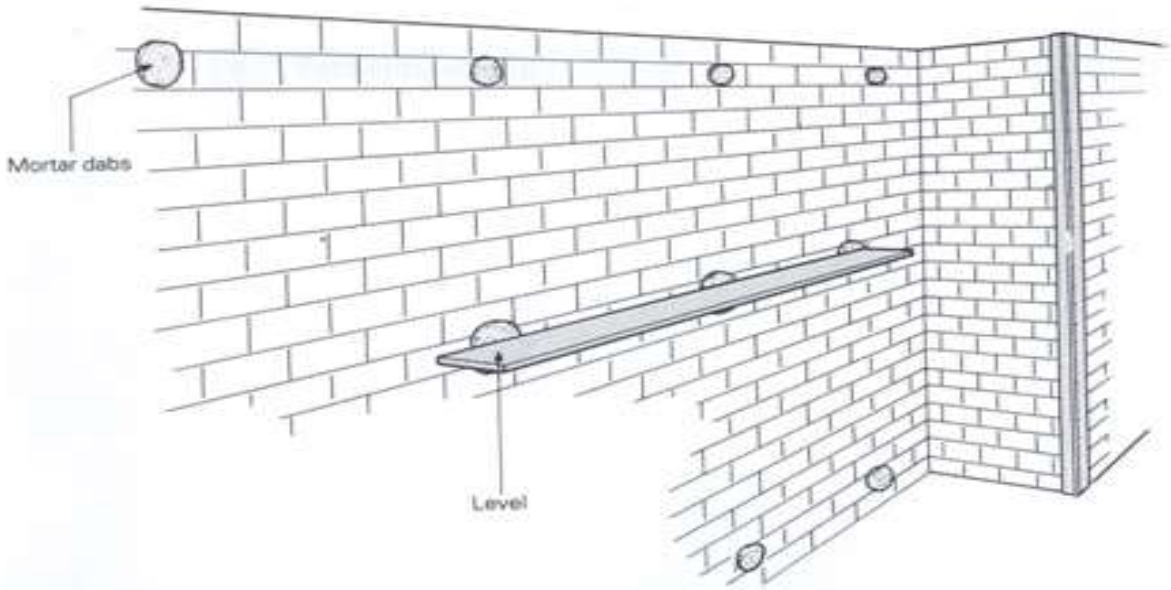


Figure 20.1 Applying mortar to make a screed for plastering.

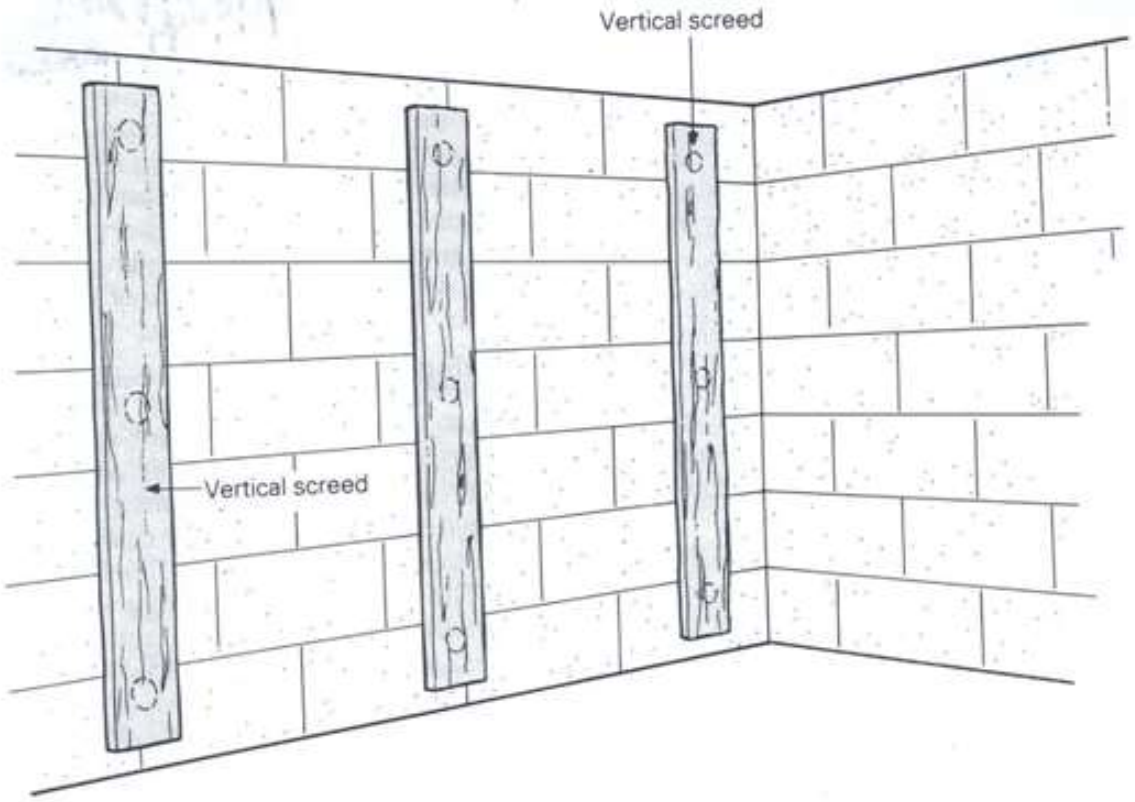


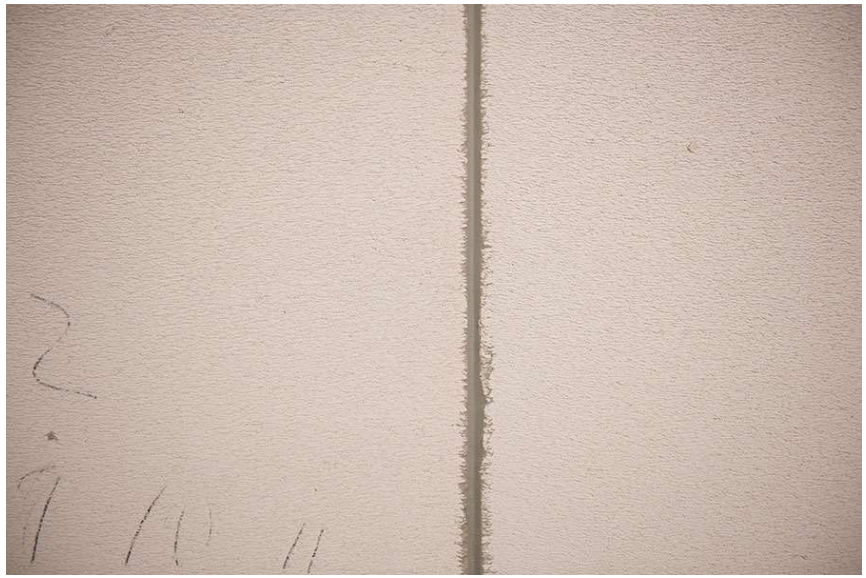
Figure 20.2 Fixing the vertical screeds for plastering.

Sponge float

- **Control joints for plaster (to control expansion and shrinkage)**

-Each 15 meters, make a joint in wet plaster

-Fill the joints by suitable materials.



❑ Defects of plastering

- **Cracking:**

-Structural defects in the construction

-Base surfaces not being properly prepared.

-Excessive shrinkage of plaster due to the application of mortar in thick coats.

-Movement in the backing (drying of the backing materials)

- **Efflorescence**

-Solvable salts are present in bricks or the mortar, building materials (sand, cement, etc.) or even water.

- They absorb moisture from atmosphere and go in to solution which appears on the surface in the form of whitish substance as the moisture dries out and the salts crystallize.
- Very bad appearance
- Affects the adhesion of paints

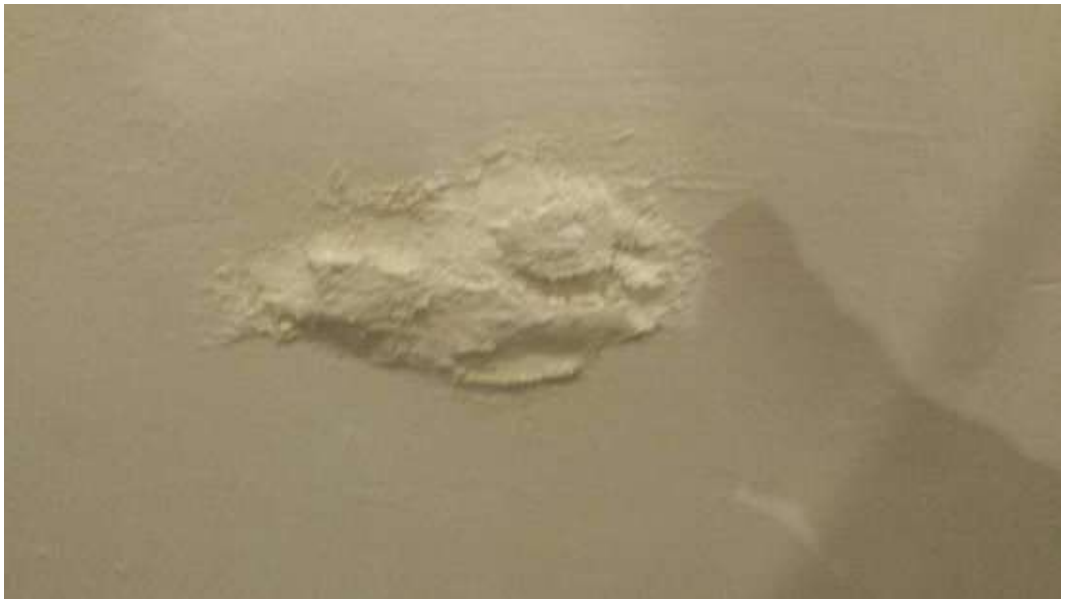
- **Filling out of plastering**

- The adhesion of the plaster to the back ground may not be perfect.

- Excessive thermal changes in plaster.

- **Blowing of plaster**

  Consists of formation of small patches of plaster swelling out beyond the plastered surface



❑ Walls Tiling

For centuries , tiles have been a good material to:

- **make smooth,**
- **hygienic and**
- **decorative surfaces**
- **easy to clean and**
- **last indefinitely with normal use**

- **A tile is a manufactured piece of hard-wearing material such as ceramic, stone, or even glass.**

- **Ceramic : Ceramic means “fired clay” and tile means “covering.”**

- **Common raw materials are sand, clay, talc (مسحوق معدني), feldspar (سيليكات الالمنيوم)**

- **Glazing Process:**

  - Glaze is a layer or coating of a vitreous substance which has been fired to fuse to a ceramic object to color, decorate, strengthen or waterproof it. زجاجي تدمج

  - Without glazing, ceramics would remain porous and would remain unsuitable for holding liquids.

- **Glazing Process Composition**:

  Ceramic glazes generally contain silica to form glass, in combination with a mixture of metal oxides such as:

  sodium, potassium and calcium which act as a **flux** (سائل-وسط)and allow the glaze to melt at a particular temperature, **alumina** (usually from added clay) to stiffen the glaze and prevent it from running off the piece.

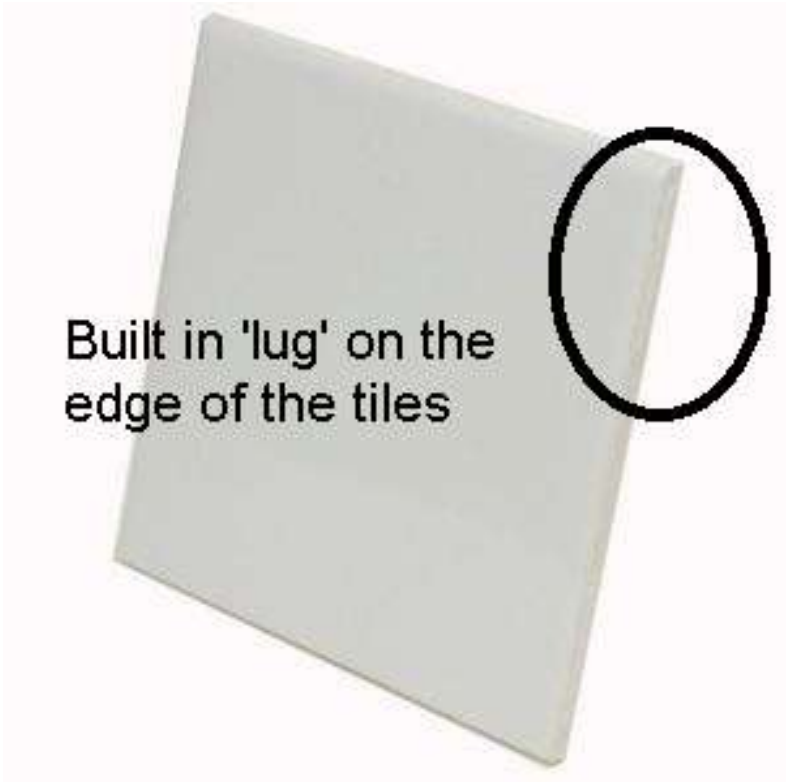
- **Modern tiles come in exact measurements so that it is easy to set them out on a wall.**

- **They may have small lugs or projections on the edges to space them accurately so that a 2 mm gap is left for filling with white cement, called grout.**

- **A lugged tile is simply a tile that is: self-spacing**

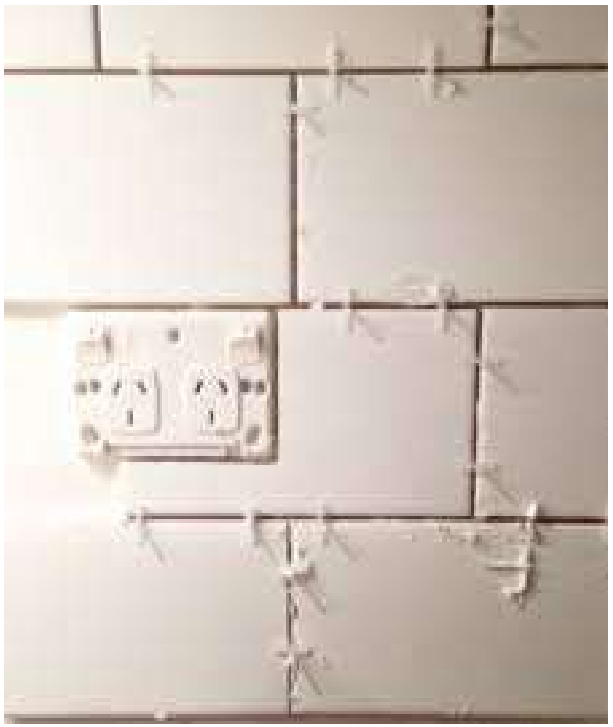
-Lugged tiles are easier to install because they eliminate the need for spacers

-Lugged tiles are most commonly found in the form of 10 cm x 10 cm or 15 cm x 15 cm wall tiles commonly used in bathtub surrounds, small showers, and kitchen



Close up of the lugs on lugged tiles

- **You can use matches to space tiles that do not have lugs (spacers).**



- **Common sizes for wall tiles are :**

150*150* 5-6mm

100*100*4-5mm

- **Their shapes and sizes may vary, but the methods of fixing and pointing are the same for all tiles.**

- **Wall Tiling,**

suitable for: Kitchens and bathrooms and bathtubs

- **To control,**

oils in kitchens, water, humidity, which decay the plastering

- Good ventilation is required in these wet places

- Tiles are not suitable for ceilings of kitchens or baths;

- There is a need for porous materials to absorb vapors

- Tiles make vapors to condense (يتكثف) and to fall down

- Alternative: painting with cheap, porous, light weight and bright color paints (بوليسيد)

Fixing tiles to even surfaces:

- **The thin bed method** for fixing tiles uses a special adhesive 1-2mm thick to fix thin tiles to a smooth surface such plaster.

- It can only be used on very smooth surfaces since the adhesive is the only anchor for the tiles.

Fixing tiles to uneven surfaces:

- If the tiles has to be fixed to an uneven surface, then you may want to use **the thick bed method**.

- You prepare a 1:4 cement and sand mortar and spread it over a wall as a wet bed to push the tiles into.

Tiling techniques:

To produce good tiling you need to know how to:

- **Level**
- **Cut tiles**
- **Set out and measure**
- **Filling of joints**
- **Cleaning**

Leveling

Opening in wall tiles

For angles

Preparation of walls for tile works

1.1. Damp screed surface to reduce suction.

- Water is important to proper hydration of mortar and it should not be absorbed by the substrate.

1.2. Soak porous tiles in clean water for a minimum of 30 minutes and thereafter drain off excess water.

- Soaking of porous tiles prevents the tiles from drawing water from the cement mortar.
- Test should be carried out on glazed wall tiles to confirm that soaking would not lead to crazing.

2.1. Follow manufacturer's instructions on preparing the substrate.

- To observe the open time and pot life of the adhesive used.

- Damping the substrate may still be required by some cement-based adhesives. However, the substrate should not be damped when using resin-based adhesive.

2.2. Clean back of tile with a damp cloth if it is dusty.

- The dust may become a barrier against proper adhesion between the tile and adhesive if not properly removed.

1. Tapping tile onto uniform position

2. Checking level of tiles using spirit level

3. Use plastic spacers

4. Restrict access when tiles are freshly laid

1. Spreading grout by using a soft trowel

2. Removing excess grout

3. Cleaning tile surface

Joints aligned with wall tiles

- Assessments

No hollow sound when tapped with a hard object.

Uniform of colors

Lippage between 2 tiles should not be more than 1 mm

Wall Tiling Techniques

- Leveling
- Cutting of tiles
- Setting out and measure
- Filling of joints.

Leveling:

- Tiling joints should be perfectly horizontal and vertical.
- You begin by drawing a line on the wall
- You fix the first raw of tiles so that their bottom edges are level with this line
- You should continue to check the horizontal levels as you work.

Cutting tiles:

- You need a glass cutting tool or special tile cutters to cut through a glazed tile surface. If you need a piece of tile to finish off a row:
- Measure the space and deduct to allow for the joints.
- Using a straight edge as a guide to the correct measurement.




Setting out and measuring:

- You use this technique to decide where to put a piece of tile if the row is not an exact multiple of the number of tiles

- Example → an area of tiles looks better if cut tiles are in the bottom row and full tiles are above

Making joints:

- All joints have to be filled when you complete the tiling. You use a special white grouting material which is moisture – resistant and flexible enough to allow small movement in the tiles.
- You spread the grout over the tile surface and work it into the joints with a damp sponge.
- You finish by wiping of the surplus (فائض) and polishing the tiles with a dry cloth when the grout is hard.

- **Classification of ceramic tiles according to absorption**

- Full glazing ceramic, not more than 0.3% (absorption)--- very smooth and bright

- Normal glazing ceramic, 6% absorption

- Matt (مطفي), without brightness with the highest value of absorption, 10%, difficult in cleaning

- **For too long walls;**

- Tile screeds are required to control the horizontal and vertical alignment of wall tiles.

- Executed by using: spirit level, screed, building thread-string.

- Tile screeds can be performed every 2 meters.

Floor Finishes

- Marble,
- PVC,
- Rubber,
- Stone,
- Bricks,
- Asphalt,
- Wood,
- Ceramic and porcelain ,
- Carpets,
- Cork

The factors that may influence your choice depend on:

- the use of the floor space and

- limits to the cost

Factors affecting the selection of tiling:

- **Resistance to wear (الاهتراء):**

Some parts of a building receive more use than others or are in closer contact with the dust or mud outside.

The floor finish should match the type of wear so that it lasts many years without replacement.

- **Resistance to grease and oil**

The floor should not be damaged by grease and oil spills and they should be easily wiped up from the surface. Spills are a particular problem in kitchens. (Ceramic, porcelain tiles)

- **Resistance to water spills**.

The flooring in bathrooms and kitchens needs to stand water spills from washing or plumbing leaks.

- **Ease of cleaning (dirt resistance)**

Surfaces that allow dirt to easily penetrate are harder to keep clean. If ease of cleaning is a priority, then a hard, smooth finish is better than a soft open texture.

- **Warmth or coolness (Thermal comfort)**

- Hard, smooth surfaces are cool to walk on because they conduct heat a way.

- Soft, textured finished like carpet give a room a warmer feeling, which may be suitable for cooler climates.

-depends on the environmental conditions and material properties including: **its microstructure and surface**

- **Noise**:

Hard surface do not absorb sound so they are more noisy than soft surfaces. **In sport halls (PVC or rubber), In libraries (PVC).**

- **Resistant to fire, doesn't emit toxic fumes**

- **Resistant to odors (الروائح)**

- **Resistant to stains (البقع)**

- **Little maintenance and easy maintained**
- **Quiet underfoot**
- **Adaptability:** versatile (متعدد الاستخدام) and highly adaptable to many areas

- **Frost resistance**

- Defined as the ability of tiles to withstand freeze/thaw conditions with minimal effect.

- The frost resistance is dependent on the tile's porosity and water absorption levels.

- Frost damage can occur when tiles absorb moisture through their pores, causing the water to freeze internally when temperatures drop.

- Since water expands when it freezes, tension is then exerted inside the body of the tile.

- This internal pressure may become high enough to cause cracks in the tile.

- **Cost**

- The costs vary enormously for the huge range of finishes.

- The cheapest finish is a cement screed.

- The most expensive can be carpet, wood block or special floor tiles.

- **Resistance to Slipping –Skid resistance (الانزلاق)**

- Tiles with smooth surfaces, users are more vulnerable to slipping.

- While, tiles with soft surfaces are more safe.

- The more textured a tile is --- the less slippery it is.

- polished or highly polished tiles are not recommended for high traffic areas or for residential sites with children and elderly people.

- the greater the anti-slip finish on the tile, the harder it is to keep clean

- tile size, grout joint spacing, and slope of the floor will affect the slip resistance

- **Hygienic factors**

- Anti microbial

- The surface of ceramic and porcelain tile does not easily retain antigens or allergens (مسببات الحساسية), nor do they absorb fumes, odors or smoke.

- This feature enables good hygiene and makes these tiles a suitable flooring material for any environment where hygiene is essential.

- **Preparation of sub floors for tiling works:**

- The subfloor for a floor finish will be:

  concrete or timbers depending on the type of floor construction,

- Most subfloors need to be prepared before you apply a finish.

- one alternative is to leave a subfloor as it is.
- If a concrete subfloor in a garage or storeroom is the finished floor, then it can be left rough or troweled smooth.
- After pouring concrete (2-4 hrs), using Helicopter (**Concrete Smoothing Machine**)… common for last floor and ground floors.. Good for insulation works.

- **Preparation of sub floors for tiling works:**

- **For Ground floors/ slab on hard core:**

- A base course layer, compacted to the required density (98% - rate of compaction)
- An insulation sheets (1 mm or less)
- Shrinkage reinforcement net
- Concrete layer (10 cm thickness)

- **For flooring works**

- Bedding materials with a depth of at least 3 cm;
- Sanitary, mechanical and electrical extensions control the levels and the required depth of bedding materials.
- Bedding materials are required to control the finishing levels and the slopes (in case it is required)

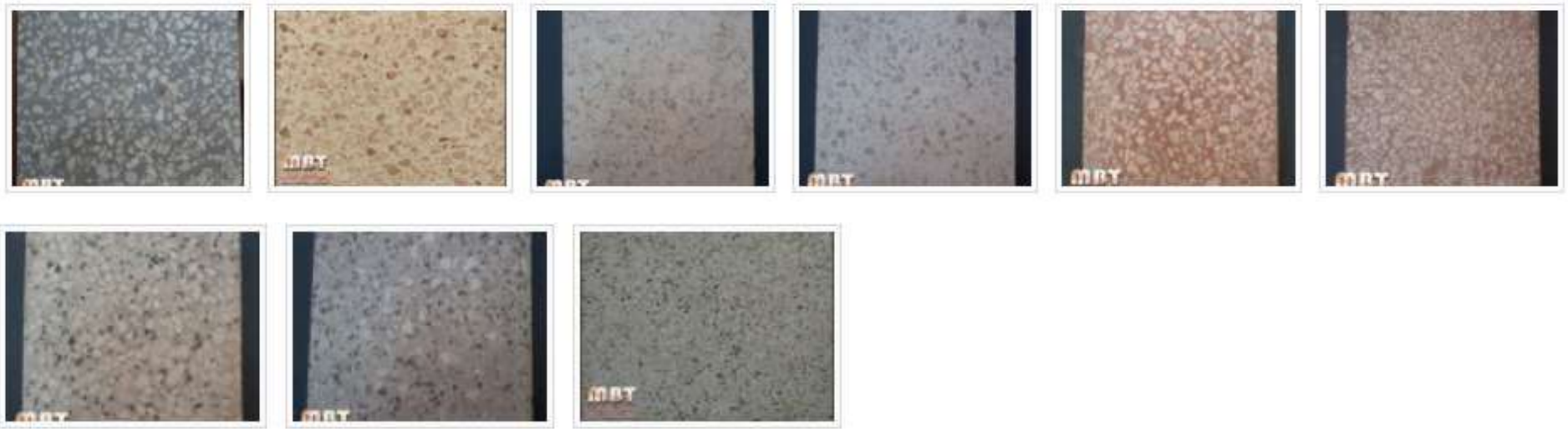
- **Terrazzo tiling;**
- **Terrazzo Finishing**

- Terrazzo floor finishes came from Italy where marble was abundant (متوفر) and used as a general building material.

-White cement is the basis for the finish in the 1:2 cement and marble mix.

- **Terrazzo** is a composite material, poured in place or precast

- **Terrazzo** was created as a low cost flooring material consisting originally of scrap marble chips



- **Terrazzo consists of two layers:**

- The face; **marble, white cement**, lime, quartz, coloring oxides.

- The back; cement, sand and aggregate.

- The cost depends mainly on the used marble chips (The harder is more expensive) and the volume of marble chips and the size of the tile.

- **For terrazzo finishes –Poured in place**

- The marble chips in a floor should all be about the same size.

- A typical floor will have marble chips that are 3-6 mm.

- if you use the smaller marble chips, then the cement and marble are mixed together and laid as one finish

- The alternative is to mix the cement and marble dust,

- and then place larger pieces of marble one by one into the mixture.

- The thickness of terrazzo depends on the size of the aggregate.

- The standard thickness is about 15mm.

- You lay a terrazzo floor by applying a 25mm cement and sand screed,

- which is followed by the cement and marble mixture while the screed is still fresh

- **Steps for laying a terrazzo finish:**

1- Pour the terrazzo into bays separated by metal strips.

2- Consolidate and compact the mixture with a roller.

3- Smooth the mixture with a steel trowel and leave it to harden.

4- Grind (صقل) the surface to make a smooth finish.

5- Wash and buff (تلميع) with a polisher.

- An important feature of a terrazzo finish is the use of metal, hard rubber(مطاط قاسي) or plastic strip which goes through the screed to the subfloor to divide it into bays.

- The purpose of the strip is to limit the bays to $1m^2$.

- This:
  - prevents shrinkage cracks and
  - makes the floor finish particularly decorative if different colors of terrazzo are used.

- **Raw materials**
- **Terrazzo tiles** are composed by two different and separated layers.
  -The first layer (*Face layer*) mix together with water the following products: white cement, marble powder and marble chips.
  -The second layer (*Back layer*) mix with a very little quantity of water these products: grey cement, crushed stone powder and sand.

http://www.omccaprella.it/en/terrazzo-tiles-processing-technology

- **Batching process**

- The first step of production process is the batching on conveyor belt (حزام ناقل) of the inert materials (المواد الخام) and the weighing by electronic compressed loading cells.
- Then the raw materials are conveyed to the **Planetary Mixing Device mod. KM270** that prepare first and second layer mixing using automatic water batching system with an electronic liter-counter.

- **Pressing process**

- The mixing of the first layer is conveyed to the **Automatic Batcher Distributor Mod. KM200**
- while the mixing of the second layer is conveyed to the **Automatic Charger Mod. DC200** of **Automatic Press Mod. OM600-300T**.

- In the press the second layer is pressed against the first layer in the mould.

- The moulding pressure is in a range of 110 – 160kg./sqm. and then the tiles are conveyed by **Automatic Drawing Conveyor Mod. OM50/F** on metal containers and sent in the natural curing area.

- All operations are controlled by an Electric Control Panel with programmable PLC Logic.

- **Curing and honing (جلخ) process**

- After only 2 or 3 days of natural curing (*the natural curing takes about 3 days, but the time decreases when temperature and humidity increase so if you want you may spray some water on stored tiles*) the tiles are sent to the **Linear Polishing/Honing Machine Mod. OM800/6**.

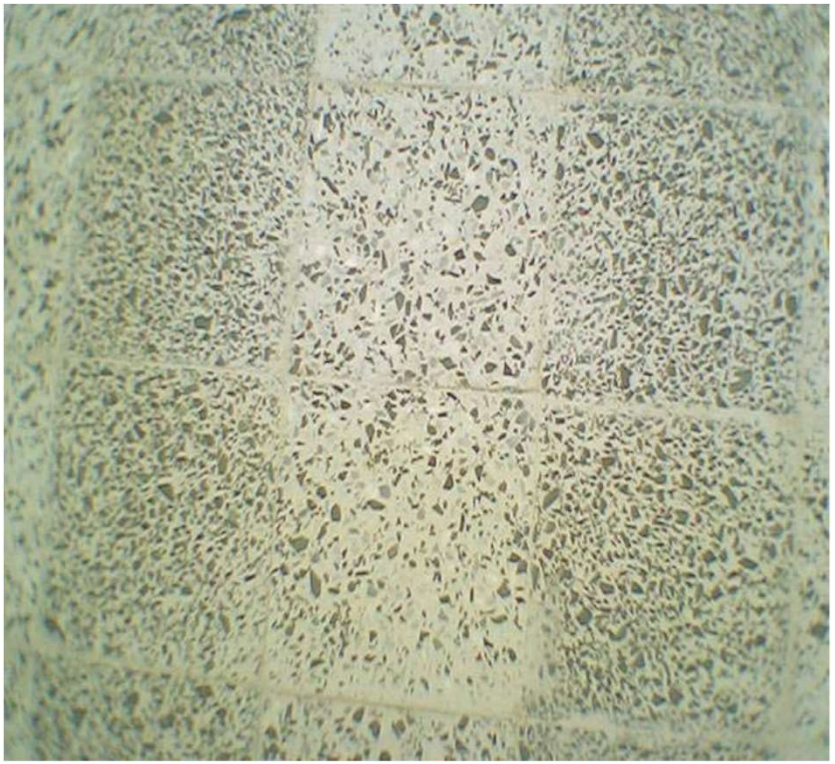
- All honing machines use Carborundum grinding wheels and the honing is carried out with an automatically compensated pneumatic system.

- Each single head has independent electric and pneumatic (هوائي) controls that prevent improper operations and control wear of the grinding wheels.

- **Installation procedure of Terrazzo Tiles**

- Import the tiles to the site after 28 days or more from the date of manufacture,
- Unless a special treatment provided like (steam curing), then it is imported after a period of less than 28 days
- Tiles immersed in water for at least 2 hrs, after that it is possible to install them directly.

- Determine the levels of the final floor surfaces for the entire area to be tiled.
- Fix tiles using mortar cement composed of cement and fine aggregate with ratio of 1:3 ,so that the thickness of mortar layer under the tiles not less than of 20 mm and not more than 40 mm, and placed a layer of fine aggregates under mortar with a thickness of not less than 30 mm.



- make strips of tiles called screeds depending on elevations of tiles required,
- the distance between screed should be less than 2m.
- this must be done using the string, screed board and builder level and balance the surface

- the width of joints between tiles 2 mm and the joints are straight per raw ,In adjacent rows parallel and perpendicular in both directions
- not permitted to use tiles of broken corners or containing defects as a difference of color and others.
- not allowed at all to break tiles for the purpose of closing or openings but must cut tiles with the chainsaw

- It is not allowed to pass over the newly installed tile, or loading it only after at least a week after installing it.

- The continuation of joints require to the flooring when related to the doors or openings, this is in the absence of separating sills

- skirts installed so that they form a right angle with the floor, and stuffed (تبطن) behind with mortar of thickness of not less than 10 mm so that the standout of those skirts from the plastered walls only 5 mm. The joints of floor tiles must converge with joints of skirting

- After finishing the installation process , the tile cleaned and the joints filled with cement grout, by matching the color of mortar to the tiles, and this is after spraying with water so that the grout fills the entire solution, then wipe the excess grout still on the tiles

- After the completion of the process of grouting, floors are treated under wet conditions for three days, then after that smoothing process is taken using Carborundum

Wood finishes on concrete subfloors:

Wood Floor Finishes:

Natural wood floor finishes such as:

- Boards

- Strips

- Blocks

Are used for the advantage of:

-The variety of colors

- Grain and Texture (السطح والملمس مفضل)
- A warm natural material
- Resilient flooring (يوفر أرضية بمرونة عالية) and
- Comparatively quiet underfoot

The disadvantages of wood finishes:

- They are difficult to clean and

- At the same time maintain their original attractive appearance

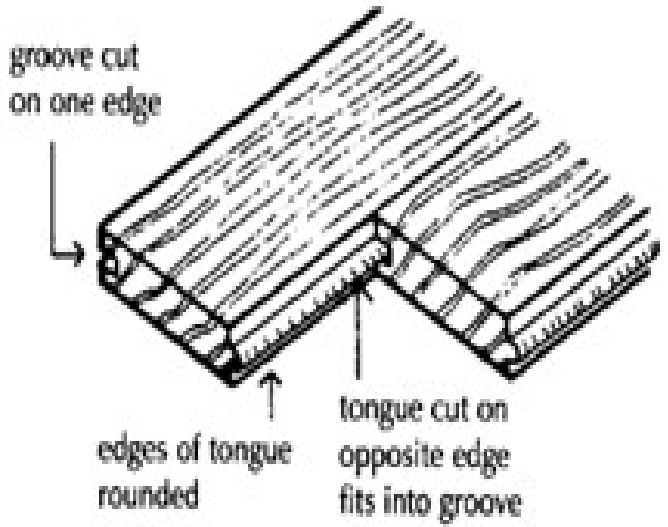
- In those countries where wood is much used, as a floor finish, it is common for the visitor to be firmly invited to change outdoor shoes for slippers to avoid damage to polished wood floors.

- **Wood Strip Flooring**

- Cutting narrow strips of board to minimize the loss shape due to shrinkage
- Strips of hardwood or softwood of good quality (free of knots)
- With width of 90 mm or less
- 19, 21, or 28 mm thickness
- Edges of strips :

One edge is grooved

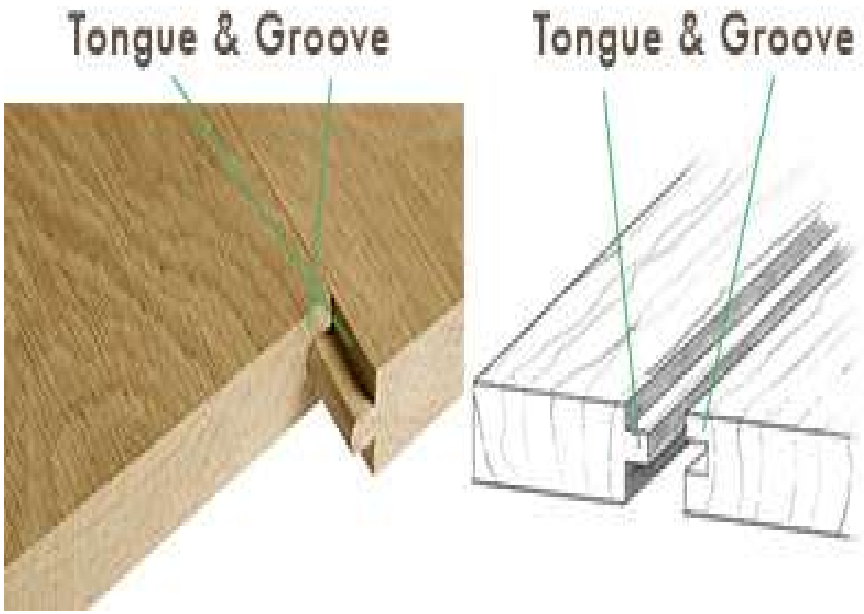
The other is tongued

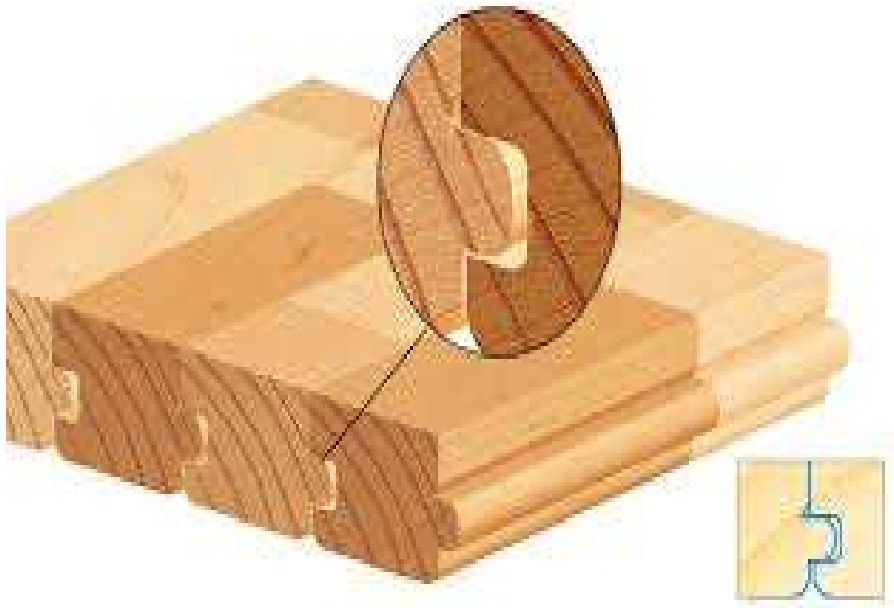


- When they are put together (two strips), the tongue on one strip fits tightly into the groove in its neighbor.

- The main purpose of the tongue and the groove is to:

cause the strips to interlock so that any slight twisting of one strip is resisted by its neighbor.

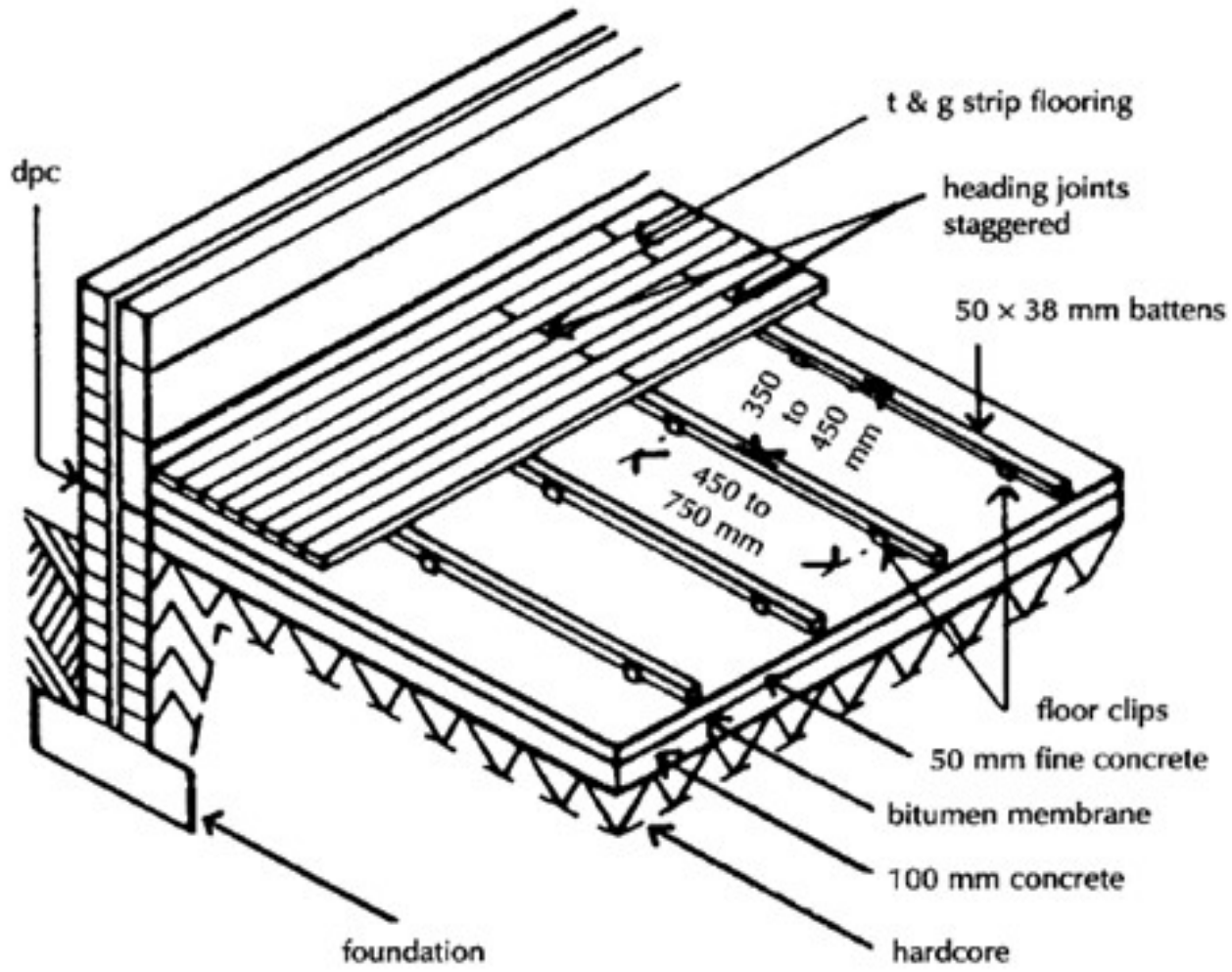

Tongue & Groove
Tongue & Groove



- For the tendency of wood strips to twist out of flat (due to the wood drying out), and to resist this;

- The strips have to be securely nailed to wood battens.

- The wood battens are secured to the concrete floors by means of galvanized metal clips.


t & g strip flooring
dpc
heading joints staggered
50 × 38 mm battens
350 to 450 mm
450 to 750 mm
floor clips
50 mm fine concrete
bitumen membrane
100 mm concrete
hardcore
foundation

-The floor clips are of galvanized sheet steel.

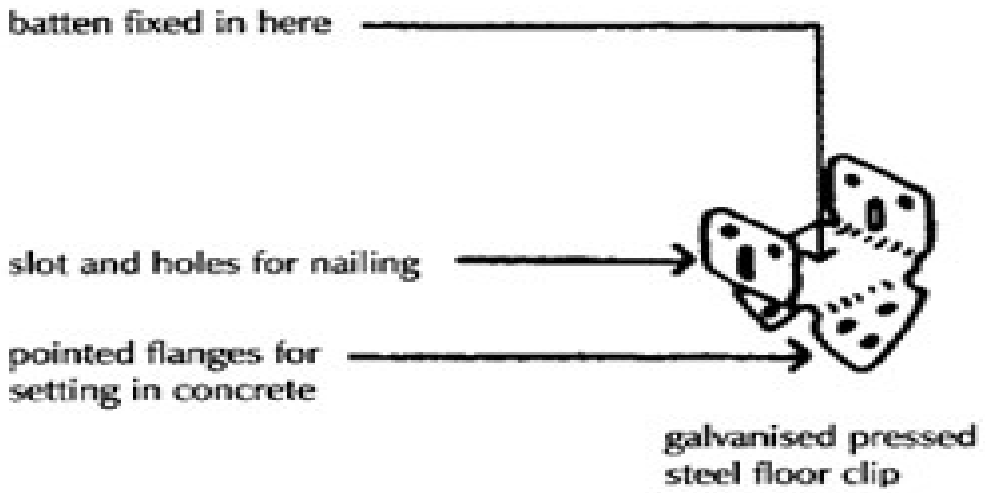
- Usually set into the concrete while it is still wet

- Placed in rows 350 to 450 mm apart

- The clips in each row are spaced 450 to 750 mm

- The advantage of floor clips is that;

The battens may be wedged up to a true finished levels and as the strips are fixed across battens there will be some resilience (مرونة) of the surface to provide the feeling of some springy softness underfoot.



- Because wood strips are:

Expensive and
Decorative floor finish

- The strips of wood are nailed to the battens
- The heads of the nails do not show on the finished surface of the floor (secret nailing)
- The nails are driven through the tongue into the battens below.

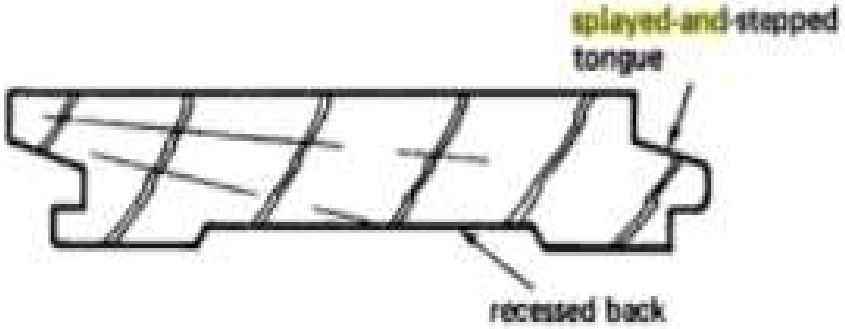
- This may:

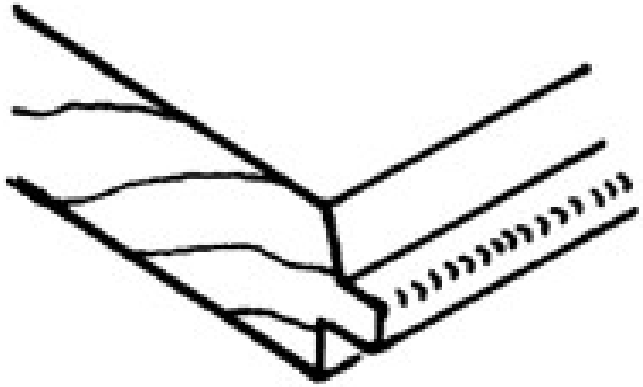
- Split the narrow tongue off the edge of the strip
- And obstruct (يعيق) the close fit of tongue to grooves
- There may be a poor fixing


Makita
LXT

- Alternative:

Cutting the edges of the strip with splayed tongued and grooved joints





- It is possible to fix the wood strip flooring by a thin bed adhesive method.

- The strips are bedded on an epoxy resin adhesive spread over a true level screed.

- The strips are pressed or rolled to make adhesive contact.

- Strips are of narrow width and short length (are unlikely to suffer drying deformation)

- If timber is in contact with damp (رطب) surfaces,,, It may rot (يتعفن)

- It is important to protect the battens and strip flooring from damp which may rise from or through the concrete subfloor.

- The concrete subfloor should be covered with a coat of bitumen or a waterproof membrane.

- After the finish is laid, the wood strip flooring is usually sanded (صقل) to remove the top thin surface.
- Using three types of sanders:

1- a heavy-duty drum sander (a drum wrapped in sandpaper that rotates at high speed)

2- a heavy-duty edging sander

3- and a corner sander.

* The paper is expensive and will tear (يتمزق) if it is not correctly fitted

- **Finish the Floor**

- Sweep (مسح) and then vacuum (شفط) the floor to remove any debris not held by the sanders' dust bags, and wipe with a damp sponge.
- If you find any rough areas, sand them by hand.

- Apply your chosen finish:

Two coats of water-based varnish (طلاء) can be applied in a day (it dries quickly), but some light hand-sanding is needed between coats.

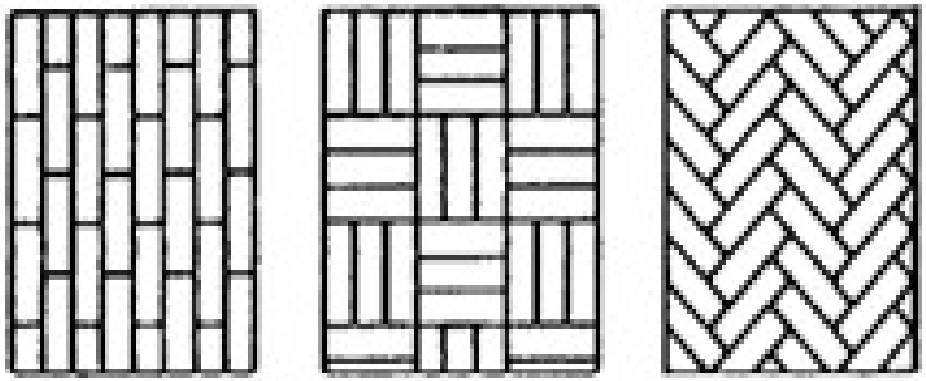
Wood Block Floor Finish

- Block of wood are used as a floor finish where resistance **to heavy wear is required;**
- As in halls, corridors and schools.
- To provide a surface which is moderately resilient, warm and quiet underfoot.
- An advantage of thick blocks is that after wear the top surface may be sanded to reduce the block to a level surface.

- **Sanded**

Describes the operation of running a power driven sanding machine over the surface. The sanding machine has a rotating plate surfaced with carborundum or sand paper which removes the top surface.

- Block of some: hardwood or softwood with good resistance to wear are cut.
- The blocks are usually: 229 mm to 305 mm long by 75 mm wide by from 21 mm to 40 mm thick.
- Usual patterns of block which are lading on the floors



- Wood blocks are laid on a thoroughly dry, clean, level cement and sand screed surface which has been finished with a wood float

- The traditional method of laying blocks is to spread a thin layer over the surface of the screed into which the blocks are pressed.

- The lower edges of the blocks of wood are usually cut with a half dovetail incision (شق)

- When the blocks are pressed into the bitumen, some bitumen squeezes up and fills the dovetails cuts;

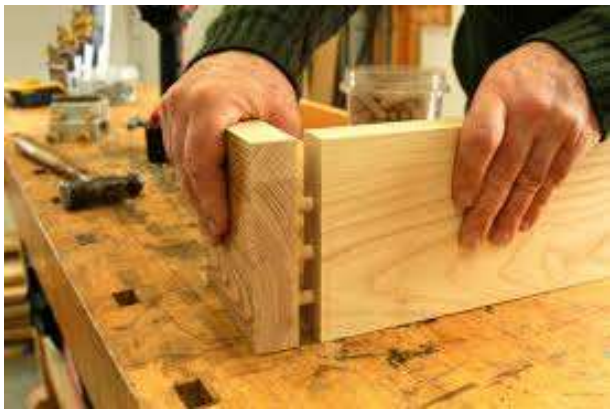
- This assists in binding the blocks to the bitumen.

- If the wood blocks have been thoroughly dried and firmly pressed into the bitumen they will usually be securely fixed to the floor.

- It is possible that one ore more blocks may not be firmly fixed and will come up.

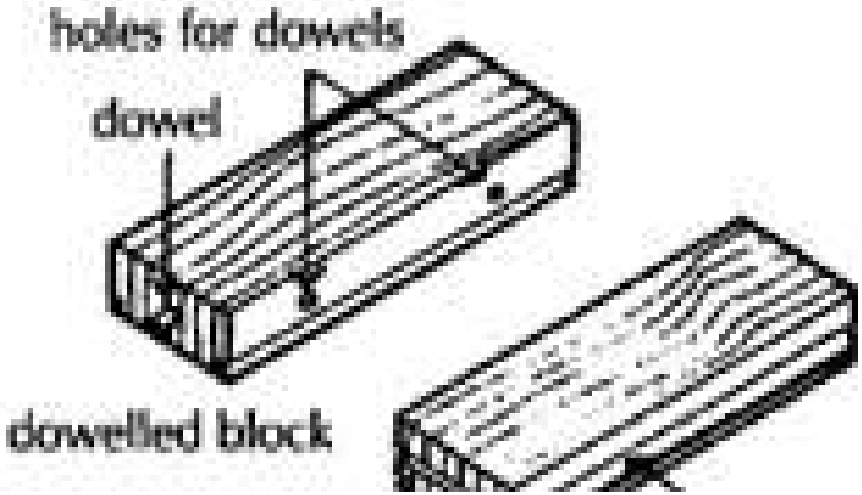
- To prevent this happening good quality wood blocks 25 mm thickness and over have either tongues and grooves cut on their edges

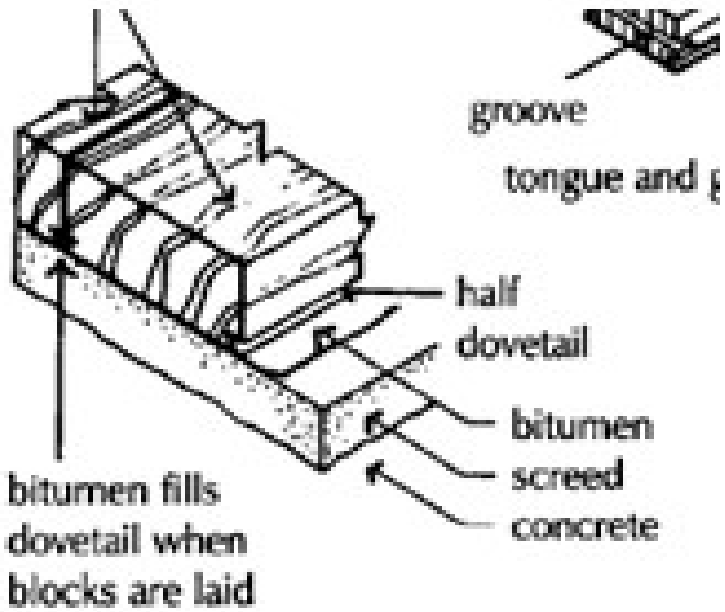
- Or wood dowels to joint them.



- After the surface has been sanded to provide a level finish a seal is applied to provide an easily cleaned finish– A wax polish is used.


Have a good time


holes for dowels
dowel
dowelled block


groove
tongue and
half
dovetail
bitumen
screed
concrete
bitumen fills
dovetail when
blocks are laid