FINISHING CONSTRUCTION WORK

Level-II

Learning Guide-08

Unit of Competence: Prepare surface for plastering

Module Title: Preparing surface for plastering

LG Code: EIS FCW2 M08 LO2 LG 34

TTLM Code: EIS FCW2 08 1819v1

LO 1: Patch and fill holes and depressions

Instruction Sheet	Learning Guide #1

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

3.1 determining Patching method of hole

3.2 selecting, mixing and Patching materials.

3.3 using material appropriate for application method.

3.4 brushing, washing and scraping Surface.

3.5 sealing Patched areas

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, **upon completion of this Learning Guide, you will be able to**:

3.1 determining Patching method of hole

3.2 selecting, mixing and Patching materials.

3.3 applying using material appropriate application method.

3.4 brushing, washing and scraping Surface.

3.5 sealing Patched areas

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 6.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3 and Sheet 4”.
4. Accomplish the “Self-check 1, Self-check t 2, Self-check 3, Self-check 4 and self check” **in page -6, 11, 17, 25 and 30** respectively.
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1, and Operation Sheet 2 ” **in page -31.**
6. Do the “LAP test” **in page – 32** (if you are ready).

Information Sheet-1	determining Patching method of hole

1,1 How to Repair Plaster Walls

If you're an old-house person, you probably need no convincing that plaster is far superior to **drywall**. It feels more solid, it's better for soundproofing and it has a texture that's much more pleasing to the eye than generic sprayed-on drywall textures. But plaster isn't perfect. It tends to crack over time, and when you drill or hammer into it, you can end up with a much bigger hole than you wanted. Plaster also seems more complicated than drywall, since the material is hand-applied rather than screwed in place. As it turns out, that's another advantage of plaster, as repairing ordinary cracks and holes isn't much more difficult than icing a cake (which, for old-house enthusiasts, might just be the icing on the cake).

There's a simple fix for loose plaster, assuming the problem isn't significant:

1. Drill holes spaced about 3 inches apart on both sides of the crack or around the perimeter of the hole, using a 3/8-inch **masonry drill bit**. Drill just through the plaster, and stop when you hit the wood behind. If you don't hit any wood, circle the hole with a pencil to identify it as a "miss."
2. Squirt plaster adhesive (sold in tubes applied with caulk gun) into each hole, ignoring the circled holes.
3. Secure the plaster with evenly spaced drywall screws fitted with plaster washers. Drive the screws through the plaster and into the wood; don't drive them in the drilled holes. You will cover the screws and washers with drywall mud (as well as the "miss" holes) after you make the repair.

How to Repair Cracks in Plaster

Repairing cracks in plaster can be done with the same materials used in standard drywall finishing projects. For such small repairs, buy a small tub of premixed drywall joint compound rather than mixing up a large quantity.

Step 1 Clean Out the Crack

To make effective repairs to plaster cracks with drywall mud and fiberglass tape, the crack needs to be clean and free of loose material and debris.

1. Use a putty knife or a painter's 5-in-1 tool to scrape out loose plaster or old repair material from the crack. You don't have to dig out the solid plaster; just remove the loose stuff.
2. Sand along the edges of the crack and about 6 inches to either side of the crack with 100-grit sandpaper (a sanding sponge works well for this). The goal with sanding is to remove any loose paint or plaster flakes and to roughen the surrounding painted area so the repair materials will stick to the surface.
3. Remove all sanding dust from the area with a slightly damp rag, and let the surface dry.

Step 2 Tape and Mud the Crack

Plaster cracks can be effectively repaired with ordinary drywall compound and fiberglass tape, which is self-adhesive and readily sticks to the wall surfaces.

1. Apply self-adhesive mesh drywall joint tape over the crack. Press and smooth the tape onto the surface with a 6-inch drywall knife.
2. Apply a thin coat of premixed all-purpose drywall joint compound (mud) to the crack with the drywall knife.
3. Force the mud into the crack so it is completely filled, then make additional passes with the knife to smooth the mud layer over the tape. It's okay if the mesh shows through the initial coat; too thin is better than too thick.
4. Let the mud dry overnight.

Step 3 Apply the Second Mud Coat

Once the first coat of mud is dry, apply a second coat to raise the surface of the patch and completely cover the fiberglass tape.

1. Scrape the mudded area carefully with the 6-inch knife to remove any blobs or chunks of hardened mud.
2. Apply a second thin coat of mud over the entire repair area, spreading it out a little wider than the first coat to "feather" the mud into the surrounding surfaces. This coat should be just thick enough to cover the mesh tape.
3. Let the mud dry overnight.

Step 4 Finish the Repair

Finishing the crack repair requires a final coat of mud, then very light sanding to remove irregularities. Make sure not to over-sand, exposing the fiberglass tape.

1. Scrape the dried mud, as before, then apply a final thin coat of fresh mud, feathering it out at the edges so it is flush with the surrounding wall.
2. Let the mud dry overnight.
3. Sand the mudded area with 150-grit sandpaper (or a sanding sponge) to smooth out any imperfections.
4. Wipe off all sanding dust with a dry rag.
5. Prime and paint the patch to match the surrounding surface.

How to Repair Holes in Plaster

Repairing larger holes in plaster uses many of the same tools and materials as crack repair, but instead of drywall compound, you will use patching plaster. This repair also calls for a latex bonding agent that helps the patching plaster adhere to the lath.

Step 1 Prepare the Patch Area

Cleaning the patch area and removing loose debris is essential to a long-lasting patch.

1. Scrape along the edges of the hole to remove all loose plaster and peeling paint, using a putty knife or a painter's 5-in-1 tool. Also, remove any loose plaster from the interior of the hole.

2. Sand the painted surface in an area about 6 inches beyond the perimeter of the hole, using 100-grit sandpaper (a sanding sponge works well for this). The goal with sanding is to remove any loose paint or plaster flakes and to roughen the surrounding painted area so the repair materials will stick to the surface.
3. Remove all sanding dust from the area with a slightly damp rag, and let the surface dry.
4. Coat all surfaces inside and around the hole with liquid bonding agent, using a paintbrush. Let the agent set or dry as directed. This treatment acts as an adhesive and seals over the dry wood to prevent premature drying of the patching material.

For very small holes, you can simply remove loose plaster from the hole, then fill the hole with patching plaster or spackling compound, smoothing the surface with a putty knife. Let the patch dry, then touch up the area with paint.

Step 2 Apply the First Patch Coat

Effective patching of holes in plaster is best done with several layers of patching plaster. Avoid the temptation to complete the patch with a single application. Applied too thick, patching plaster can take a very long time to dry and may be weaker if not allowed to dry fully.

1. Apply a base layer of patching plaster to the hole, using a margin trowel. Press the plaster against the wood lath so it squeezes in between the gaps for a strong bond. Fill the hole to about half of its depth with this first layer.
2. If recommended by the manufacturer, *scarify* the surface of the plaster with a crosshatching of lines about 1/4 inch apart, using a nail or flat-blade screwdriver (or use a scarifying tool if you have one).
3. Let the plaster set as directed by the manufacturer.

A scarifier tool gives "tooth" so that the second plaster coat will bond to the first.

Step 3 Apply the Second Patch Coat

Once the first coat is fully dry, fill the remainder of the hole with patching plaster, using a 6-inch drywall knife. Smooth the plaster flush with the surrounding surface. Let the plaster dry as directed.

Step 4 Finish the Repair

A bit of artistry is required to finish the repair area, especially if you are trying to match a textured surface. The finishing is done with drywall compound, not patching plaster.

1. Scrape the dried patch area smooth with a 6-inch drywall knife to remove any blobs or chunks of hardened patching plaster.
2. Apply a thin coat of premixed all-purpose drywall compound ("mud") over the entire repair area, spreading it out a little wider than the plaster to "feather" the mud into the surrounding surfaces.
3. Let the mud dry overnight.
4. Sand the mudded area with 150-grit sandpaper (or a sanding sponge) to smooth out any imperfections.
5. Wipe off all sanding dust with a dry rag.
6. If desired, texturize the patch to blend it in with the rest of the wall or ceiling.
7. Prime and paint the patch to match the surrounding area.

How to Repair Plaster

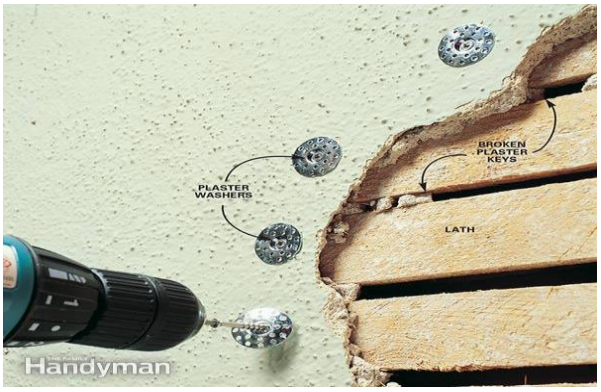

figure 1 repair sagging

Repair sagging, cracking plaster walls and avoid the mess of demolition. With plaster washers and wide fiberglass mesh, old plaster walls can be made smooth and solid again.

Reattaching loose plaster

Pull loose plaster tight to the lath with plaster washers. If the screw cracks the plaster as it goes in, predrill through the plaster. Finish by skim coating the washers.

Plaster sags from ceilings or bulges from walls when the plaster keys embedded around the wood lath break loose. You can break out all the loose stuff and replaster the are not a do-it-yourself project. Or, you can stabilize the sagging plaster by using plaster washers to pull it back up against the lath. Plaster washers don't always work, but they're cheap so it's worth a shot.

First, locate the joists or studs and mark their location in the loose area. Push up the loose plaster and place 2-in. screws and the perforated plaster washers into the joists or studs about every 6 or 8 in. The convex washer will flatten as the screw tightens. If the plaster has a rough surface, you may need to first scrape the surface to get the washer to lie flat. Next, secure the loosened field to the lath between joists with more washers. Finally,skim-coat over the washers with drywall joint compound. It may take several coats and extra effort to create a smooth finish or mimic the existing texture.

If you have solidly attached plaster with cracks spider-webbing through your walls and ceilings, you can stabilize and coat the entire surface with another product—wide sheets of fiberglass mat. Self-stick mats are available at home centers. Simply stick them to the wall or ceiling and then skim coat with two or three coats of joint compound. Another system, called Nu-Wal, uses a slightly different method. First, you roll on a latex-like base coat. Then embed the fiberglass mesh, and roll over it again. This method essentially gives your plaster walls a new flexible skin so non-structural cracks won't reappear. Plus, it acts like a vapor barrier, keeping moisture from migrating into the wall, and it's approved for lead paint encapsulation on interior walls

Self-Check 1	Written Test

Directions: **multiple choice**

I choice the correct answer from the given

1 what is the simple fix for loose plaster

A drill holes spaced C secure the plaster

B Squirt plaster adhesive D all

2 apply a second coat to raise the surface of the patch

A scrape the mudded area C mud dry overnight

B Apply a second thin coat D all

Satisfactory rating above 7 unsatisfactory below 7

Name: _____ Date: _____

Score = _____

Rating:_____

Answer key

1 ----------

2 ----------

Information Sheet-2	selecting, mixing and Patching materials

Long Lasting Concrete Patch

- Use cement and hydrated lime
- Cement paint is critical
- Pin patches with steel
- Cure the concrete
- The concrete that makes up your steps, driveway, sidewalk, etc. is usually comprised of four basic ingredients: water, sand, gravel, and Portland cement. The cement is the glue that holds the sand and gravel to gether.The concrete that makes up your steps, driveway, sidewalk, etc. is usually comprised of four basic ingredients: water, sand, gravel, and Portland cement. The cement is the glue that holds the sand and gravel together.
- It does this my reacting ***chemically*** with the water that you add to the mixture.
- Hydration As soon as you add water to cement powder, a chemical reaction begins to happen. It's called hydration. Very tiny crystals begin to form. These crystals interlock with one another and lock into and onto any irregularities of the sand and gravel particles.
- This chemical reaction is what's responsible for transforming the plastic mixture of concrete that resembles thick applesauce to solid rock hours later.
- The more crystals that form, the stronger the bond will be. This means you don't want to add the minimum amount of Portland cement to your concrete that you're mixing for your repair.
- It's very important to have a uniform amount of cement paste coating the old concrete. This is the primary reason for most concrete patch failures.
- The old method of securing a patch involves simply mixing up a cement paint. You take Portland cement, add water until you have a paint consistency.
- In the first three minutes of this video I show you how to mix up a batch of cement paint:
- This cement paint is then brushed onto the old concrete surfaces where the new concrete material will touch it.

Bonding Agents

If you chose not to use cement paint, you can use many of the acrylic bonding agents that are available. These chemicals are not much different than the resins used in paints.

figure 2.1 bonding agent

There are bonding agents that you add to the patching compound, and there are bonding agents that you paint onto the old concrete. You can actually use both, if you wish. These compounds work very well if you follow instructions to the letter.

Some of the bonding agents you paint on the old concrete must cure slightly before you add the patching compound. They are usually a milky white color when you paint them on.

Depending upon the temperature, wind, and humidity, they then become clear. When the agent turns clear you can then add the patching compound.

Pin the Patch

Large concrete patches such as a step, corner of a driveway, sidewalk, or patio must be attached to the old concrete with a mechanical pin. The cement glue or additives will not do the job on their own.

I've successfully employed standard reinforcing steel bars for years. They're inexpensive, easily obtainable, and the new concrete readily grabs onto the bumps and knobs on the reinforcing steel.

The rough profile of the bar also is an advantage when you drive it into the old concrete. As long as you drill the right sized hole for the rod it is virtually impossible to remove the rod. In fact, as you drive the rod into the old concrete it will feel tighter than when you drive a nail into wood.

Smaller galvanized nails can be used for pins as well for small repairs. Just size the pin for the amount of concrete you're installing. Best Repair Weather

Weather is also important. How many people think that hot or warm, dry, breezy weather is the best time to repair concrete.

This is the worst time to do these repairs! Hot sun and wind take the water out of concrete too fast. Water needs to be retained by the concrete for weeks so the magic crystals grow

and grow temperatures around 60 F with overcast skies and no rain forecast are the best conditions to do any concrete work.

Hydration Water , when I said the cement needs water to start the chemical reaction that starts the crystals growing. The cement also needs water to maintain the chemical reaction.

If you mix up a patching compound batch, install it in hot breezy weather, the water may leave the mix before enough crystal have grown. The patch will be very weak. It will crumble.

- **Dampen the Old Concrete**

Take the time to dampen the area to be patched. Concrete absorbs water. You want to pre-load the old concrete with water so it doesn't suck too much water out of the cement paint and the repair compound.

- **Cure the Concrete**

Take the time to cover your work with plastic after you are finished. You can also spray the patch with water after it has become stiff. Do this for 4 - 7 days and you will be amazed at how strong your patch will be!

If the patch is out in the open, try to shade it from the hot sun as well. You can do this by covering the patch with a piece of plywood.

- **Mixing**

Concrete patching material can be purchased two ways: premixed in bags or raw materials that you have to mix. The raw material route is almost always cheaper by a long shot. Plus, you'll have the necessary pure Portland cement on hand.

Hydrated Lime - Secret Ingredient

I always mix hydrated lime in my repair mixes to boost the holding power of the mix.

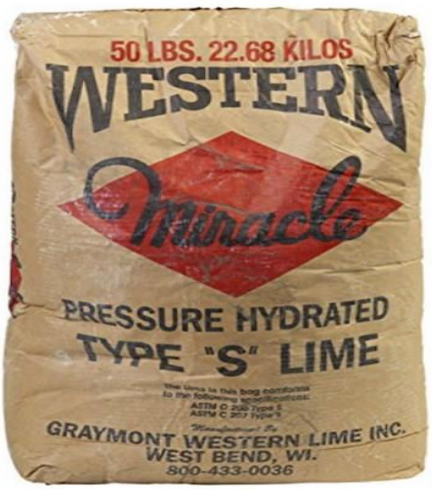

Figure 2.2 hydrated lime

No Added Water

never trowel back in bleed water which will in many cases appear at the surface. Bleed water is what makes the concrete look as if it is sweating.

Bleed water happens because water is the lightest of the four ingredients in concrete Leave this water alone! It will evaporate quickly in most cases. Troweling it into the surface will weaken the surface of the concrete. You're diluting the cement! This is the primary cause of concrete scaling! This is the same reason you don't want to add too much water to your concrete mix making it easy to install. Too much water weakens the concrete.

- Smooth Steel-Trowel Finish

If you desire a smooth steel trowel finish, you must first finish the surface and achieve a sand finish. This is done by gently swirling a wood float, block, or magnesium trowel over the stiffening concrete. Once a few more crystals grow, the concrete can be finished with a steel trowel. This trowel and skilled workmanship bring the cement paste to the surface. As this hardens, you can get a surface as slick as glass. It's truly and art form. Don't expect perfect results your first try.

Self-Check 2	**Written Test**

Directions: **multiple choice**

I choice the correct answer from the given alternatives on space provided

----------1concrete patching materials can be purchase

A premixed in bag C Port land cement

B Raw material D all

----------2 the first finish the of the surface and achieve----------?

A wood float B blocks C magnesium trowel D all

Satisfactory rating above 7 unsatisfactory below 7

Name: _____ Date: _____

Score = _____

Rating:_____

Information Sheet-3	using material appropriate for application method

Preparation background

All masonry joints should be raked 10 mm in case of brick masonry and 15 mm in case of stone masonry for providing key to the plaster before onset of plastering operation. All mortar drops, dusts and freshly laid concrete or laitance should be removed with the help of a stiff brush. (rendering is applied after any existing unevenness is removed. or a three coat finishes the local protection should not be more than 10mm and local depression should not exceed 10 mm. or two coat plaster these limitations are reduced to /and respectively. The surface should be kept damp for suction and it should be cleaned.
.The surface should not be kept soaked and neither it should be kept less wet so as to cause strong suction which withdraws the water from mortar and makes it weak and porous. curing the application of plaster on old surface, all dirt, oil, paint etc. should be removed along with complete removal of all loose and crumbling plaster to its full thickness. The back ground of the plaster should be exposed clearly before new plaster is applied. The surface should be kept damp to maintain optimum suction

- **How to Patch Up Plaster**

Plaster gives a smooth finish to walls and ceilings and is hard-wearing. Houses built up until the end of World War II are likely to feature lath and plaster non-load-bearing/dividing interior walls and ceilings. The laths are narrow strips of wood nailed to battens that provide a key for the plaster to attach to. Load-bearing walls had plaster applied directly to the brick or stone in a series of coats**.**

Plasterboard became popular in the post-War period. It is sometimes skimmed with a couple of coats of plaster to give a uniform finish, or simply fixed in place and the joints taped and filled (known as dry-lining).

In general, damage to traditionally plastered walls comes in the form of cracks, missing chunks or damaged corners, while plasterboard damage is normally limited to holes. Skimmed plasterboard can also develop hairline cracks.

One of the most common causes of damage is caused by stripping, In this case you re better off calling in a proto skim over the whole wall. Expect to pay around 12/m², more if you start adding other small plaster repairs you have about your house. For these you re much better off going. **Tools**

- Stanley-type knife
- Bucket for mixing plaster
- Pot or tray for mixing filler
- Small filler ‘knife
- Plastering float
- Hawk
- Hammer
- Chisel

Materials

- Plaster
- Powder-based filler
- Masking tape
- Builders' 'instant grab' -type adhesive
- Plasterboard offcuts
- Screws
- PVA

Repairing cracks

figure 4,1 repair crack

1. Before you start on any of the jobs below, put down a dust sheet.

2. Dig out cracks in plaster with a Stanley-type knife. You ll need to cut in until you can no longer see the original crack. By using the blade like this you end up with a V-shaped groove which is ideal for taking the filler.

3. When you've dug the cracks out, vacuum out any dust and debris so the groove is clean.

4. For vertical and overhead filling jobs (i.e. most of them), mix the filler powder with water until it becomes a stiff paste.

figure 4,2 joint filling

5. Lightly dampen the area to be filled with a plant sprayer. This helps the filler stick.

6. Spread the filler into the groove making sure that it has gone right to the bottom. Leave the filler a little proud over the groove but remove the excess either side before the filler dries.

Once dry, rub the area down with medium-grade sandpaper, then fine-grade before decorating.

Corner damage

figure 4,3 identify damage surface

7. Damage like this is pretty common. Just applying filler and hoping for the best rarely works because gravity just slops the filler downwards. Repaired corners are also vulnerable to people walking past.

8. Apply the filler to the corner and get the shape roughly correct. Then put some wide masking tape over both sides of the corner and leave the filler to dry. The tape protects the filler and keeps it in shape. A light sanding later on will deliver the perfect corner repair. Larger areas of missing corner can be repaired using a plastering corner bead which is fixed to the wall below the level of the existing plaster and then plastered (rather than filled) up to.

9. Chunks fall out of plaster walls for a number of reasons: household clumsiness is one contributory factor, but fitting or adjusting a door frame (as here) can create a real mess. This sort of damage is best repaired with a couple of coats of plaster rather than a hit it and quit filler approach.

10. First remove any loose chunks of plaster use a hammer and chisel if necessary then vacuum out the area to get rid of the dust and debris.

11. Brush in a PVA mix to give the plaster the best possible chance of bonding with the existing wall.

12. Mix up plaster according to the manufacturer's instructions. It should be smooth, lump free and not too runny. Next, apply a thin coat of plaster (2-3mm) onto the area to be repaired. Don't try to fill the whole thing at once or the plaster will just dribble out of the repair.

13. When the plaster starts to dry, lightly scratch the surface with the end of the trowel in this pattern.

14. Once the first coat is dry, mix up plaster as before and use a plastering coat to apply. Once the shape is correct, leave the job alone for ten minutes then wet the float and smooth the surface over

Holes in plasterboard

Holes like these are awkward to fix because there's often a void behind the board so any filler you put in just disappears. This hole came about when a plumber couldn't decide where to feed the pipes for a radiator. But fixing holes in plasterboard can be achieved easily…

16. Cut a piece of plasterboard that is the same width but around 25mm longer than the hole. Squeeze on some 'instant grab' around the edge of the board and then wind in a long screw to the centre of the repair piece.

figure 4.4 cut off surface for hole

17. Jiggle the plasterboard repair piece into the hole and hold it in place for a few seconds to give the adhesive time to 'grab'. Once the adhesive has dried, fully apply filler on top of the plasterboard insert to bring the repair flush.

Tools required for repairing plaster

- Plasterers trowel
- Two buckets
- Face mask
- Hand brush
- Old paintbrush
- Mixing stick
- Dust sheet or old towel
- Kitchen fork or scarifies

Tools For Removing Paint

The manual paint scraper is the most basic tool for removing paint and rust. It's especially handy for working in corners and tight spaces. A metal brush attached to a cordless drill is great for removing paint from metal surfaces. Move the brush back and forth against the surface of the metal. An electric grinder may be used at low speed for removing paint from wood or metal. Choose a model with depth controls, which allow you to hit the surface lightly or more deeply.

Heat guns are a high-tech tool for removing paint from wood surfaces. Gloves are essential when using a heat gun because the tool can heat up to 1,000 degrees. To use a heat gun, wave it back and forth about 1" above the painted surface. Continue to keep the gun moving

constantly to prevent scorching the wood. When the paint starts to bubble, remove it with a scraper. Finish the job by rubbing mineral spirits on the surface.

- **Sandpaper Basics**

Power sanders are great for smoothing large surfaces, but for sanding tough areas, a sheet of sandpaper is best. Here's a guide on how to choose the best sandpaper for any project. All types of sandpaper come in a range of grades, or grits, from coarse to fine. But not all sandpaper is the same some works better for specific jobs than others.

Drywall sandpaper is used to smooth joint compound between sheets of drywall. It's durable and can withstand rinsing and reusing.

Between-coats sandpaper is used for sanding between coats of paint to ensure a smooth surface. Surface-removal sandpaper is used specifically for latex paint and has a fine grit.

Aluminum-oxide sandpaper is used for sanding hardwood. When using any kind of sandpaper on wood, sand in the direction of the wood's grain, never across the grain.

Garnet sandpaper is particularly good for smoothing sharp edges in wood. Silicone-carbine paper is generally used to remove varnish from wood. Emery cloth is good for removing rust on metal or dulling the sheen of a piece of metal.

Self-Check 3	Written Test

Directions: **multiple choice**

I ,choice the correct answer from the given

1 All joints should be raked brick and stone masonry are

A 10mm and 15mm B 15mm and 20mm C 10mm and 20mm D all

2 The materials of patch up plaster is

A masking tape B powder C PVA D all

Satisfactory rating above 7 unsatisfactory below 7

Name: _____ Date: _____

Answer sheet

Score = _____

Rating:_____

1 ----------

2 ----------

3 ----------

Information Sheet-4	brushing, washing and scraping Surface

4,1 Steps for brushing Surface Preparation

People tend to put a lot of emphasis on paint finishes. Of course, the importance of a new and sparkling paint film of a well chosen color can't be over stated. After all, this is what they will be looking at after the paint has dried. But if this look of a freshly painted home is to last, one must not underestimate the importance of proper surface preparation.

Listed below are preparation steps for both interior and exterior paint jobs. These steps do not cover all of the possible circumstances that one can encounter on a painting project, only the more common ones.

- **Interior Paint Preparation Steps**

- Wash the walls if accumulated dirt is a problem. Any household detergent will work. Use TSP (Tri Sodium Phosphate) for grease or a heavy build-up of cigarette smoke. If you use powdered TSP, be sure to rinse it off with water. Use chlorine-based bleach on mildew.
- Using a scraper or a spackle blade, remove all loose paint and sand down the rough ridges where the paint has broken off. Dig out any cracks a fraction of an inch on both sides so as to form a 'V' shape. This increases contact area for your patching material to adhere to.
- Apply spackle to cracks, holes and heavy paint ridges. Two thin patch coats are always better than one thick coat. Spackle that's too thick tends to shrink and crack as it dries. In deep holes and cracks, I like to use "Fix-All" for the first patch coat. "Fix-All" is difficult to sand so keep it in the crack or hole, slightly recessed below the surface of the wall, then follow it up with a thin coat of spackle.
- If the existing wall has something other than a smooth texture, your patch should match that texture as closely as possible. You can create a stippled effect by dabbing the surface with a sponge or stiff bristle brush while the patching material is still tacky. You can also roll a coat of stipple paint or thinned out joint compound on top of a dry patch.
- Use latex caulk to seal joints around door jambs, window casings and baseboards. Wide and deep cracks may require more than one application. Use a damp rag to wipe off any excess caulk.
- Sand all glossy surfaces or treat them with liquid sandpaper. This provides a roughened surface or "tooth" for good adhesion of a subsequent coat.

- **Primer Application**

No matter what type of surface you're painting, it has to be clean, free of loose or cracked paint, rust scale, oil, grease, dirt, mildew and chemical residue before application of primer.

Primer or undercoat has two main purposes:

1. to seal the substrate in order to prevent the chemistry in the substrate from migrating into and interfering with the chemistry of the finish coat;
2. to help bind the finish coat to the surface being painted.

There is a specialty primer for just about every type of surface - wood, masonry, metal, etc. Essentially, the primer serves as a foundation that supports the finish coat. Understanding this should help you understand the importance of primer. The best primer available is going to be your best choice for any paint job.

- **Exterior Paint Preparation Steps**

Before any other work is begun, check for leaks and any moisture getting into the substrate. Repair any roof leaks, gutters, windows and leaky plumbing. Damp basements and other excessively humid interior rooms are other common sources of moisture in the substrate. Use vents and dehumidifiers as necessary. Unless the source of moisture in the substrate is found and eliminated, the quality of your paint job will be compromised.

- All exterior surfaces will need to be washed to remove mildew, dirt and excessive chalking. Consider using a power washer if there are more than 500 square feet of surface to wash.

  Mildew has a blotchy and powdery appearance. It is a living organism that's common in damp areas which get little sunlight. Any surface that has mildew must be completely sterilized before painting. Wash the mildewed surface with a mixture of one quart of household bleach in a gallon of water.

  Chalking is loosely-bound powder that forms on the surface of paint. Chalking happens when paint binder is destroyed by sun and moisture. Scrape, sand and wash off all chalking before primer application.
- On stucco, thoroughly scrape off loose paint. Repair all cracks and holes. Fill gaps around windows, door casings, or where two materials meet such as at the foundation line or where wood meets masonry. Use caulk or elastomer-based patch to fill these cracks. (Elastomer is a polymer with the property of high elasticity. The term derives from elastic polymer.)

  Cracks of 1/16" wide or larger should be chiseled out a fraction of an inch on both sides so as to form a 'V'. This increases the contact area for the patching material that you will be using. If you use a non-textured stucco patching material, texturize the patched area to make it approximate the existing stucco. You can use a coarse fiber brush, like a scrub brush, for this purpose. Rub the brush over the partially set patch in a circular motion until the repair looks like the rest of the wall. If you are using elastomer-based patch, take an old brush, dip it in water and feather out the edges of the patch.

  Remove any efflorescence (calcium deposits) with a stiff-bristled brush. Then neutralize the salt with a 5% solution of muriatic acid. Rinse thoroughly with clear water.

  Use good exterior primer or surface conditioner for previously painted stucco. Because of the chemical reaction that occurs in the newly applied stucco, the new stucco must be allowed to properly cure and then primed with alkali resistant primer.
- On wood surfaces, thoroughly scrape off all of the loose and cracking paint. Sand it to remove any remaining loose paint and create a smoother surface. Consider stripping if more then 25% of the coating is cracked or peeling. In stripping, chemicals or heat is used to completely remove all of the existing coatings down to the substrate. When multiple coatings are present, stripping may be the best way to prepare the surface. However, because of the laborious nature of the stripping process, costs vs. benefits will need to be evaluated. Inject caulking compound into any cracks around windows, doors

and all open vertical seams. Use good quality exterior wood primer.

Note: Do not caulk the horizontal seams between siding planks. Because siding planks overlap each other, this opening almost never is a source of a leak. On the contrary, caulking of these joints can cause moisture to be trapped in the substrate.

Note: Never use an inflexible patching material, such as spackling, in a shallow depression of an exterior surface. This is because exterior surfaces (and wood, in particular) undergo a greater degree of contraction and expansion due to humidity and heat fluctuation in a substrate. If your patching material does not move at the same rate, it will tend to crack and cause premature paint failure. If you must use patching to smooth out shallow imperfections (like paint ridges), use elastomer based products that will move with the substrate as it expands and contracts.

- When you're painting iron or steel, the most important thing is good contact between the surface and the coating. These metals rust when air and moisture get under the protective coating. Rust is like cancer. Once it is in the metal, it is virtually impossible to get rid of. That's why surface preparation is so important. Use a good rust inhibitive primer.
- Rusting metal must be sanded to remove loose rust scale, then cleaned and primed with rust inhibitive primer. Punch in rusting nails to set them slightly below the surface. Spot prime the nail heads with rust inhibitive primer and fill the nail holes with epoxy filler.
- Galvanized metal comes from the factory with a residue of the manufacturing process that prevents good paint adhesion. It is best to let galvanized metal surfaces wheather for about six months. Weathering tends to neutralize the surface, making it more ready to accept paint. If you have to paint galvanized metal right away, etch the surface with a mild acid such as vinegar. Rinse the surface thoroughly and then apply a coat of galvanized metal primer.

As mentioned before, good surface preparation is essential for a lasting paint job. The most expensive paint, the best painting technique and the finest brush will not compensate for even a single needed but skipped preparation step. Skimp on surface preparation and you will literally cut years off the useful life of your paint job.

4.2 Washing surface work

Construction sites cleaning; before, throughout and after the process. Make your sites shine without damaging your work. A clean construction site is an effective, safe and efficient one. Let us help you by pressure washing surfaces throughout the building process; be it surface preparation, cleaning entire sections or the final site and building cleaning before delivery. We have been working with Montreal contractors since 2003 to ensure the cleanliness of their yards.

Pressure washing services:

- Pre-build and Post-build
- Cleaning the exterior walls, floors and roofs
- Pressure cleaning building interiors (cement, asphalt, etc.)
- Cleaning of windows and frames.
- Pressure washing dirt and dust form surfaces and floors.

The many advantages of building washing

- Regular building washing or house washing will ensure longevity of the paintwork.
- Any dirt and dust build-up and also stains and mould is effectively cleaned and washed away instantly.
- If you are planning on selling your property, a building wash will help increase the value of your property significantly.
- The curb appeal of your home is greatly improved

The Building Washing Process

Stage 1

- Before any building washing or house washing service, the first step is preparation. Your friendly building washing specialist will prepare and take precautions before the actual house washing is carried out.
- We will take the time to walk around your house to check outdoor items are a safe distance from potential spray and will help you move any delicate items.
- As part of the preparation, we make sure no windows and doors are open.
- We make sure your car is not parked in the driveway, or we will ask you to park it in the garage or away from the house.
- We make sure the electrical box and other electrical equipment are covered.
- We will cover and protect things on the deck, balcony, or patio that is not waterproof.
- Any gaps in the windows or doors will be sealed, so that water will not seep in.

- **Stage 2**

After preparing the house, a safe, non-toxic cleaning product is sprayed on all the external surfaces like walls, railings, poles, roofing, gutters, eaves etc. This will help release the dirt build-up, mould and stains. After the cleaning solution is sprayed, then the surfaces are scrubbed using a soft bristle brush or broom and this helps remove any embedded stains and dirt.

- **Stage 3**

Water is used to rinse the surfaces. All the grime stains and dirt are removed effectively. And the house washing process is completed.

Services offers a bi-annual washing schedule to help you manage the ongoing maintenance of your property, ensuring it stays clean all year round. Combining external and internal window cleaning to a Building Wash will not only ensure your entire property will be immaculate but you will receive a discount when you bundle the two services together. Simply ask us about this when booking your job.

4.3 Scraper surface

Application methods before patching

figure 4.1 application method

- **Related Articles**

Textured walls can bring character to your room and help hide imperfections in the wall surface, but they can also make your room look dated or have an industrial feel, depending on the texture design. Removing the texture is a messy, although uncomplicated, process. Once the texture is gone, you have the option to add a different, more pleasing texture to the walls or to keep it as a smooth surface ready to be painted.

- **Removing Texture**

Before you can add a new surface to you wall, you must remove the existing texture. Spray a small area of the wall with water from a spray bottle, then let the water soak in for a few minutes. Scrape the texture off the softened area using a wide floor scraper, holding it an angle so you don't damage the wall surface behind the texture. Keep scraping until the texture is removed on all the walls. Make sure to keep drop cloths or tarps on the floor and over furniture during this process.

- Smooth Walls

To make smooth walls after you finish scraping off the texture, spread joint compound over the entire wall surface with a putty knife and sand it smooth. To sand the wall, use a pole sander, which has a flat sandpaper holder on the end of a broomstick-sized pole. This saves you significant time over trying to sand by hand. Once the sanding is finished, you can prime and paint the new smooth surface.

- Add Texture

There are several textures you can add using joint compound. Mix the compound with water, starting with 1 part water to 4 parts compound; you can add more water or more joint compound if necessary to get the consistency you want. Spread joint compound over a small

area with a putty knife, then create your design. You can use a smaller putty knife to make a type design by sliding it in small, quick strokes across the compound, varying the direction of the strokes. Use a comb or small-notched trowel to make straight lines or swirl patterns. You can also sweep the end of a broom across the compound for a lighter textured pattern. Dab a sponge into the damp compound for a more stenciled look.

Figure 4,2 scraping surface

Scraping is an effective way of removing old wall covering and flaking paint from the surface of walls.

A wall scraper is a useful tool for preparing a wall for new wallpaper.

Scraping a wall will ensure that it is as smooth as possible, as you can remove any other unwanted material such as glue or varnish.

Figure 4,3 figure scraping for wall paper

Painting and wallpapering often require a crucial first step: scraping off what's already there. Dozens of scrapers are available, and your choice should be determined by the task. Straight scrapers are good for removing softened paint or soaked wallpaper. Specialty scrapers come with curved edges for working on corners and curves.Some straight scrapers come with plastic handles that increase comfort and make it possible to use more pressure.

Putty knives come in handy before painting to ensure that the surface is smooth. Apply putty to the tip of the knife to fill in cracks or divots in the work surface. Allow the putty to dry before you paint, stain or apply wallpaper to a surface.

- **Tools For Removing Paint**

The manual paint scraper is the most basic tool for removing paint and rust. It's especially handy for working in corners and tight spaces. A metal brush attached to a cordless drill is great for removing paint from metal surfaces. Move the brush back and forth against the surface of the metal. An electric grinder may be used at low speed for removing paint from wood or metal. Choose a model with depth controls, which allow you to hit the surface lightly or more deeply.

- **Sandpaper Basics**

Power sanders are great for smoothing large surfaces, but for sanding tough areas, a sheet of sandpaper is best. Here's a guide on how to choose the best sandpaper for any project.

All types of sandpaper come in a range of grades, or grits, from coarse to fine. But not all sandpaper is the same some works better for specific jobs than others.

Drywall sandpaper is used to smooth joint compound between sheets of drywall. It's durable and can withstand rinsing and reusing. Between-coats sandpaper is used for sanding between coats of paint to ensure a smooth surface. Surface-removal sandpaper is used specifically for latex paint and has a fine grit. Aluminum-oxide sandpaper is used for sanding hardwood. When using any kind of sandpaper on wood, sand in the direction of the wood's grain, never across the grain.

Self-Check 4	Written Test

Directions: **multiple choice**

I , choice the correct answer from the given

1 The prime application has to be clean from

A loose and cracked C oil, grease ,mildew

B rust scale D all

2 The pressure washing services are

A pre build and post build C washing dirt and dust

B Cleaning the exterior D all

Satisfactory rating above 7 unsatisfactory below 7

Name: _____ Date: _____

Answer sheet

Score = _____

Rating:_____

1 ----------

2 ----------

Information Sheet-5	sealing Patched areas

Seal Patch Repair Kit

figure 5.1 seal patch

Seal Patch Repair Kit is an easy and effective way to patch and repair damaged bridge seal glands used in strip seal & modular expansion joints. This repair is a cost effective solution to damaged seals in substitute of replacing the entire seal gland of the strip seal and modular expansion joint.

Product Features

- Forms a durable, weatherproof, non-slip barrier on the seal gland
- Resistant to rain, snow, sun, wind, hail, air, moisture, UV degradation, extreme temperatures and natural weathering
- Blocks out air, water, and moisture
- Prevents rust and corrosion
- Mildew and chemical resistant
- Non-hazardous
- Non-flammable

Directions

1. Protective clothing is recommended prior to starting any projects.
2. Make sure the surface is clean, dry and free of grease, oil and dirt.
3. Increase adhesion by etching surface with sand paper.
4. A piece of styrofoam is cut to the size of the damaged hole or slit of the seal gland.
5. The styrofoam piece is then glued to the damaged area using a two-part adhesive.

6. The Seal Patch laminate is applied on top of the styrofoam wedge and surrounding area.
7. Additional reinforcement tape is applied on top of the Seal Patch laminate.
8. You can either brush, roll, dip or pour the liquid Seal Patch directly onto the surface of the reinforcement tape.
9. Allow each coat to dry completely (24 to 48 hours) before adding additional coats.
10. Liquid Seal Patch fully cures in 48 hours.

Tips for Brushing/Rolling Applications

1. Brush or roll Liquid Seal Patch using an even sweeping motion.
2. Apply several even coats until the surface has been completely covered and all cracks and holes have been filled.
3. Always brush or roll over a larger area than just where the leak occurred.

Cover the Damage with Joint Compound

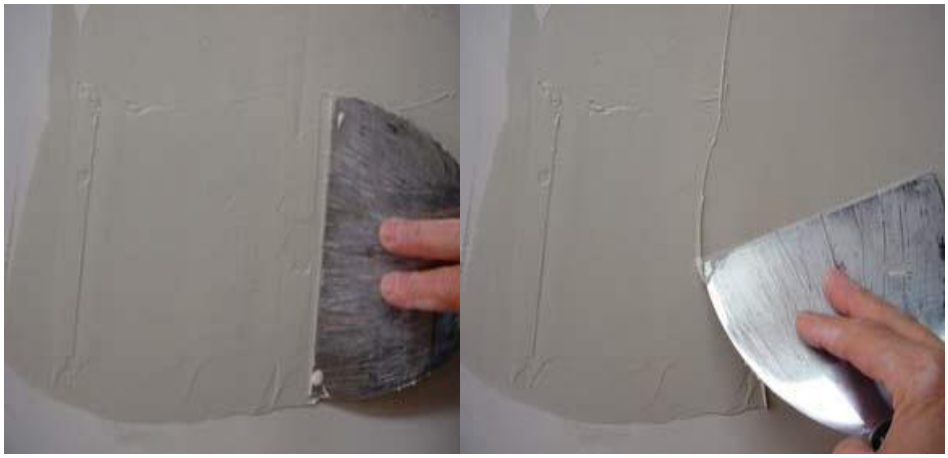

Figure 5 .2 cover the joint damage joint

If the surface you are dealing with has a chronic bubbling problem or you are repairing bubbling in fresh paint, using setting-type joint compound, or mud, for this repair will minimize the chance of the blisters recurring. Ready-mixed compound tends to add too much moisture to the surface and can induce bubbling in the finish.

Mix some mud and apply a skim coat over the damaged area. Use a joint knife held at an angle to "butter" the surface with back and forth strokes.

Immediately skim the excess mud from the surface to leave a thin covering over the damage. Hold the knife at about a 30° angle and press down hard, but not hard enough to dig into the surface. Skim from one side to the other without stopping. Scrape the collected mud from the knife onto the rim of a mud pan and continue skimming the remaining mud in parallel strokes, cleaning the knife after each stroke.

Ignore any ridges left between the rows by the edges of the knife blade, these will be removed later. Around the perimeter of the patch, skim the mud as thin as possible to help blend it into the surrounding wall. Let the mud set for about 30 minutes.

Apply a Second Coat of Joint Compound

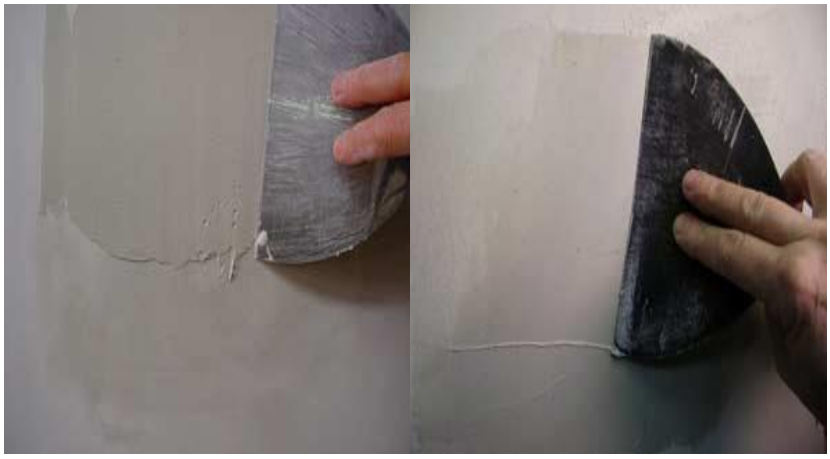

figure 5.6 apply second joint

When the mud is dry, scrape off any ridges using the joint knife to cut them off with upward strokes of the blade. Also, lightly sand the whole patch if necessary to smooth out any other bumps or protrusions before applying another coat. At the edges of the patch, sand to feather the mud with the surrounding surface.

Wipe the sanding dust off with a damp rag and apply a second coat of mud, skimming perpendicular to the first coat. If you skimmed the first coat vertically, apply the next with horizontal strokes. This will help to level out the surface.

Let the second mud coat dry, and if necessary, apply another to build up the patch until it hides the damage and smoothed out the wall. As before, skim the mud stroking perpendicular to the previous coat.

Sand and Touch Up the Repair

figure 4,7 sanding face

Let the patch dry well and then sand it using light pressure, in wide back and forth strokes. Along the edges, sand harder to help feather the patch into the surrounding surface, but avoid digging into the wall. Wipe the sanding dust away with a damp rag or sponge being careful not to wipe away the new joint compound.

Let any moisture from the rag dry before priming. If you are repairing bubbling in fresh paint or a water-damaged surface, prime with the same primer-sealer used before to be sure the problem doesn't recur. Let the primer dry for an hour or so before touching up the finish paint.

- ***Cover Cracks with Repair Spray***

Stress cracks usually show up around window and door openings. The cracks are the result of framing movement and are hard to fix permanently. But using spray-on crack repair is a good way to at least extend the life of your repair. The spray forms a flexible membrane over the crack that can stretch and relax as the building moves.

If the crack is open, fill it first with patching compound. Then follow the instructions on the can to cover the crack with the crack-repair spray. Let it dry and cover it with paint to finish

Fill a Row of Holes with One Swipe

Professional drywall tapers always fill a row of screw holes with one long stripe of joint compound, rather than filling every screw hole separately. In addition to being faster, this method disguises the screw holes better and makes it easier to sand the patch. Instead of sanding around each hole, you can just sand the whole stripe.

Self-Check -5	Written Test

Directions: **multiple choice**

INSTRUCTION I , choice the correct answer from the given alternatives

1 Seal patch repair kit effective way to……..

A patch and repair damaged C expansion joint

B strip seal D all

2 Rolling applications are ……..

A roll liquid seal patch C roll over a larger area

B apply several even coats D all

Satisfactory rating above 7 unsatisfactory below 7

Name: _____ Date: _____

Answer sheet

Score = _____

Rating:_____

1 ----------

2 ----------

Operation Sheet 1	Applying Pointing putty jointer tool to fill indent and form joints

1,1 The techniques for Applying Pointing putty jointer tool to fill indent and form joints**.**

Steps 1- wear safety PPE !

Step 2- select tools and equipment to fill holes depression !

Step 3- Implement surface gently to remove loose materials!

Step 4- Apply 1st coat of putty point in vertical top to bottom, left to right!

Step 5- Apply the next coat after the 1st is stiffed!

.

LAP Test	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates Applying Pointing putty jointer tool to fill indent and form joints, perform the following tasks within 3 hours.

Task 1: clean the tools and equipment's

Task 2: Reuse the rubbish of mortar

ANSWER KEY OF SELF CHECK LEARNING OUT COME (LO1)

Unit competence name	**Prepare surface for plastering**	**MO**
Learning out come	**Patch and fill holes & Depresion**	**LO4**
	Choice	**Matching**
Self- check 1	**1 D ,2 D 3**	
Self -check 2	**1 D , 2 D**	
Self- check 3	**1 A 2, D**	
Self -check 4	**1 D 2 D**	
Self-check 5	**1 D , 2 D**	

Information list and names of provider

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3	Habtamu Abayneh	BSC in Building Construction Technology	SNNPRS	Habtishzeget05@gmail.com
4	Mihiretab Gashaw	BSC in Building Construction Technology	Addis Ababa	mihiretabgashaw@gmail.com
5	Shikure Tahir	BSC in Building Construction Technology	Somalie	Shikuretahir09@gmail.com
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