

CEILINGS

USG MIDDLE EAST MAC CEILING INSTALLATION AND MAINTENANCE GUIDE

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USG ME 
INNOVATIVE SOLUTIONS. EVERYTIME.

INSTALLATION

MAC CEILING

MAC CEILING

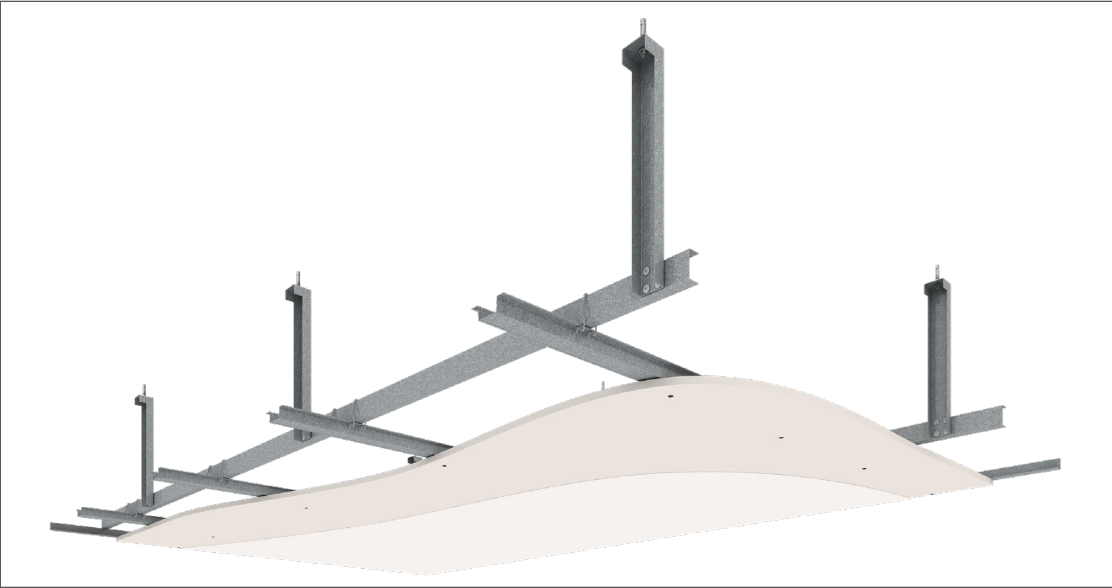
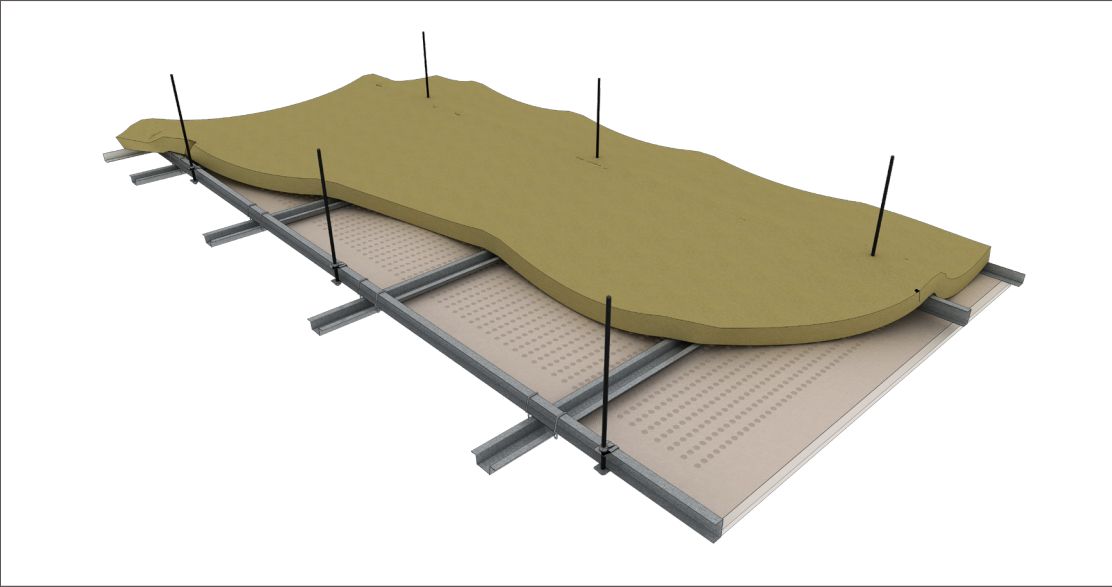
Commercial architects and interior designers want clean, seamless ceilings with a monolithic look, but these ceilings often have poor acoustics. This forces them to compromise, resulting in a disparity between the architect’s initial vision and the final experience of the room.

Architects have been asking for a Monolithic Plasterboard Ceiling with Acoustical Performance. USG Middle East Monolithic Acoustical Ceiling System (MAC) – a breakthrough ceiling solution that combines the best in seamless design and acoustical performance. It features highly engineered MAC Panels that install and finish similar to traditional plasterboard.

Installed by certified contractors, the panels are screw-attached to a plasterboard suspension system. The joints are finished using USG ME Monosilent ceilings compounds, and then coated with USG ME MAC Plaster Spray Applied Finish (Textured Finish) to create a monolithic appearance. This patented finish is acoustically transparent, allowing sound to pass through the perforations, where it’s absorbed by the insulation.

The result is a surface that delivers excellent acoustical performance and enhances the overall aesthetic, perfect for high-profile spaces such as Hotels, luxurious spaces, lobby areas, executive or boardrooms, conference rooms.

USG Middle East Monolithic Acoustical Ceiling System (MAC) is an industry game-changer. It means architects and designers no longer need to compromise between acoustics and aesthetics, unlocking new possibilities for what a ceiling can do.



Suspension Options as per the projects specifications

INSTALLATION

MAC CEILING

SYSTEM SUMMARY

	Monolithic Acoustical Ceiling (MAC)	
Specification	Weight	≈ 9.05kg/m²
	Board Size	1200x2400x12.5mm
	Final Thickness	16mm
	Acoustic Rating*	Up to NRC 0.9
	Light Reflectance	0.85 for white finish
	Fire Hazard Properties	Fire propagation index, I = 5.0 (BS 476 Part 6) Surface spread of flame = Class 1 (BS 476 Part 7)
	Final Finish	MAC Plaster Spray Applied Finish Standard white or black. Other RAL colors are available upon request Seamless and spray-applied fine texture with low VOC-emitting material
	Framing	USG ME Suspension System
	Insulation	Glass Wool 90mm-thick 14kg/m³ or Stone Wool 50mm-thick 40kg/m³
Acoustic Performance**	Fastener	25mm Type “S” Needle Point Screws
	Joint Tape	USG Sheetrock® Brand Paper Joint Tape
	Joint Compound	USG ME Monosilent Compound
	0.9 NRC	Insulation: Stone Wool 50mm thick, 40 kg/m³ 100mm Suspension mounting from plenum
	0.9 NRC	Insulation: Glass Wool 90mm thick, 14kg/m³ 100mm Suspension mounting from plenum
	0.7 NRC	No Insulation, 200mm Suspension mounting from plenum
	0.6 NRC	No Insulation, 400mm Suspension mounting from plenum

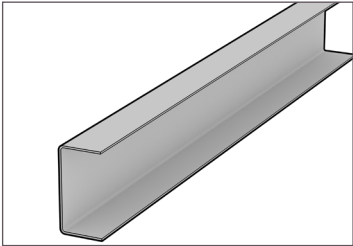
* NRC values for panels with factory applied acoustical backer
** Additional acoustical backer options available for enhanced total acoustics NRC and CAC performance

FEATURES AND BENEFITS

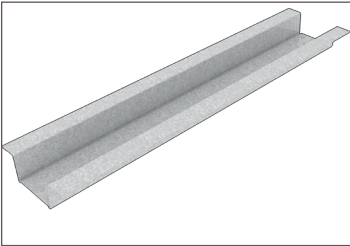
- Seamless plasterboard look with fine texture and true acoustical performance of up to 0.9 NRC.
- Special acoustical perforated Monolithic Acoustical Ceiling (MAC) board to optimize sound performance.
- Class 1 surface burning as per BS 476, Part 7.
- Fire propagation index, I = 5.0 as per BS 476, Part 6.
- VOC <0.1 mg/m2/hr as per ASTM D5116.
- High light-reflective finish (LR-0.85 for white finish) reduces fixture & energy use.
- Acoustically transparent spray-applied finish.

COMPONENTS

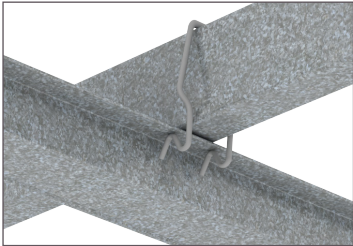
FRAMING



Primary Channel Drywall Suspension



Furring Channel Drywall Suspension

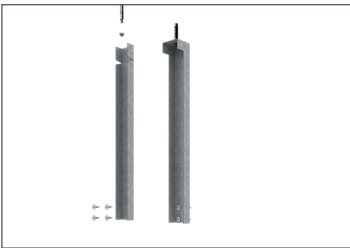


Wire Connecting Clip (WCC)

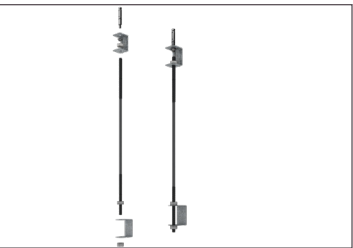
SUSPENSION OPTIONS



Adjustable Hanger



Primary Channel Hanger



Threaded Rod

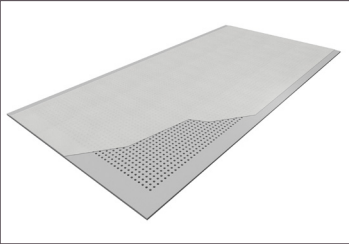
INSTALLATION

MAC CEILING

LINING



Insulation
Glass Wool 90mm-thick 14kg/m³ or
Stone Wool 50mm-thick 40kg/m³



Monolithic Acoustical Ceiling (MAC)
12.5mm-thick, 1200mm-wide, and
2400mm in length, with tapered edges.
R12-1 pattern with 20% open area.

FINISHING



Paper Joint Tape



Monosilent Compound



MAC Plaster Spray Applied Finish



**Sanding Block with 180 to 220-grit
sandpaper**



Pitch Squeegee Trowel

SPRAYING



Texture Sprayer



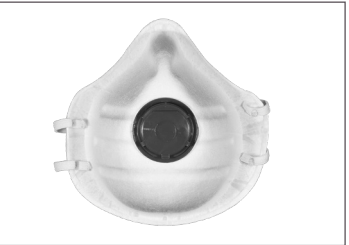
Air Compressor



Disposable Protective Overalls



Safety Glasses

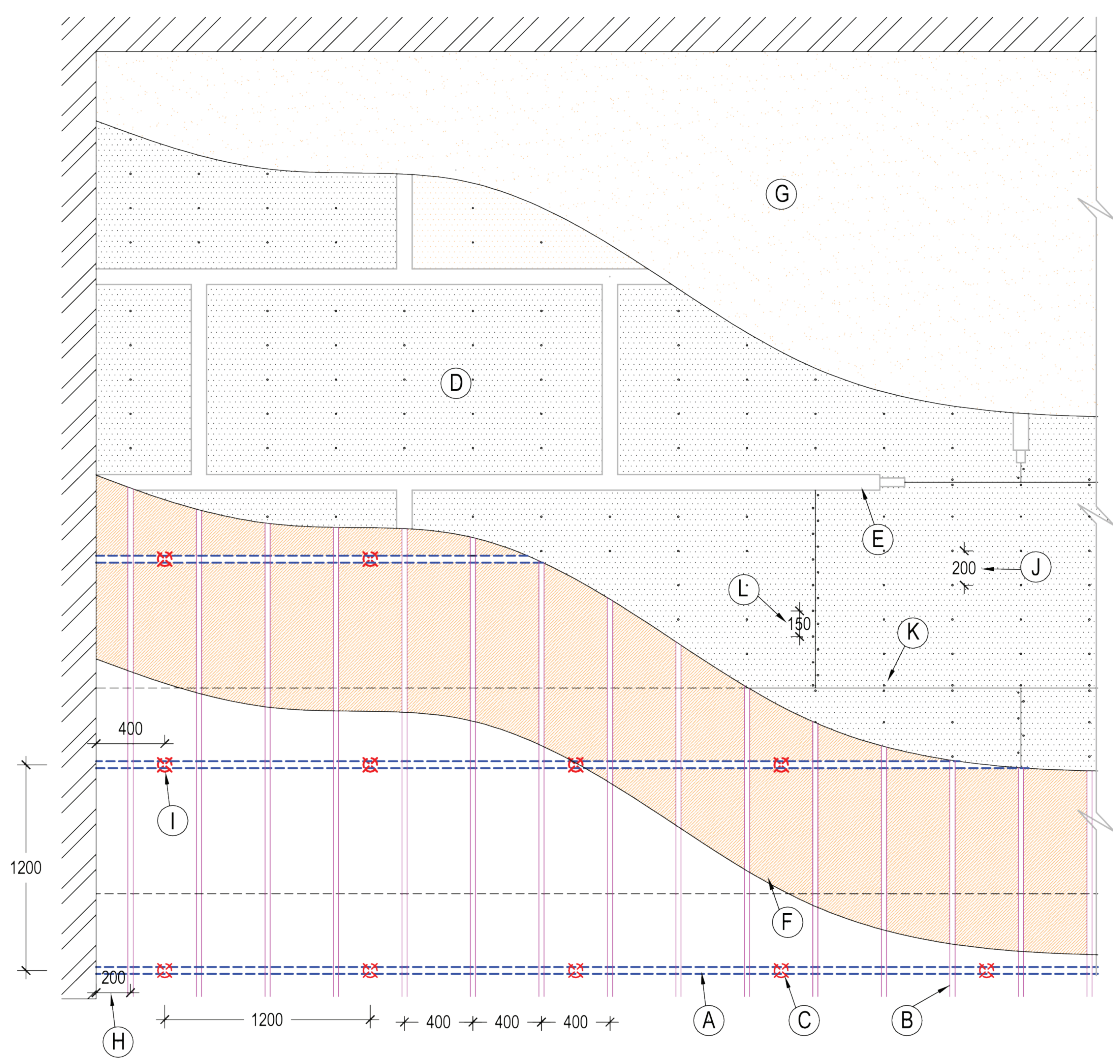


P2/N95 Dust Mask (AS/NZS 1716:2012)

INSTALLATION

MAC CEILING

FIXING CONFIGURATION



- (A) --- Primary Channel Drywall Suspension @ 1200mm ctrs max.
- (B) --- Furring Channel Drywall Suspension @ 400mm ctrs max.
- (C) [Symbol] Suspension system as specified
- (D) [Symbol] Monolithic Acoustical Ceiling (MAC) Plasterboard
- (E) [Symbol] Monosilent Compound and Paper Joint Tape
- (F) [Symbol] Insulation blanket (thickness and density as specified)
- (G) [Symbol] MAC Plaster Spray-Applied Finish
- (H) [Symbol] Furring Channel 200mm max. from perimeter wall
- (I) [Symbol] Suspension rod 400mm max. from perimeter wall
- (J) [Symbol] Screws @ 200mm ctrs at field/center of board
- (K) [Symbol] Screws @ 10-15mm from edge of board
- (L) [Symbol] Screws @ 150mm ctrs at butt joint, staggered

INSTALLATION

MAC CEILING

SCREW FIXING CONFIGURATION

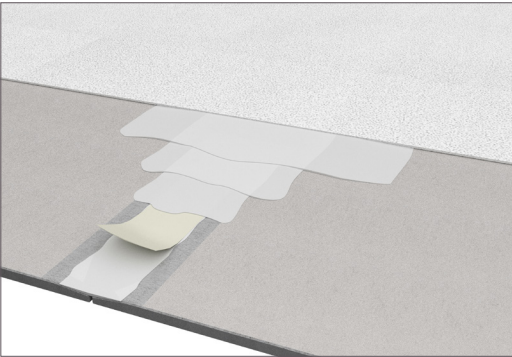
Location	Fixing Centers
Field/Center	200mm
Recessed Joint	150mm
Square Set/Fixing at Perimeter Relief	150mm
Edge Distance	10-15mm from edge

JOINTING SYSTEM (LEVEL 4 FINISH)

Item	Fixing Centers
Tape	Paper Joint Tape
First Coat	Monosilent Compound
Second Coat	
Final Coat	

The joints are finished using the USG ME Jointing Compound as per table above and Paper Joint Tape. It is imperative to finish the joints as flat and level with the surface of the board as possible. Slightly hollow or crowned joints will show as imperfections under critical lighting after the finish is applied. To achieve a Level 4 finish, use Paper Joint Tape and relevant USG ME Jointing Compound as per the table above, and finish all board joints to the correct finished width.

	First Coat	Second Coat	Third Coat
Recessed Joint	100mm (using 100mm-wide broad-knife)	150mm (using 150mm-wide broad-knife)	200mm (using 200mm-wide broad-knife)



Recessed Joint

INSTALLATION

MAC CEILING

INSTALLATION OF BOARDS

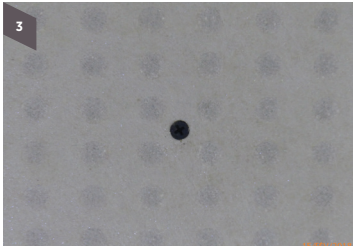
- Using a collated screw gun, screw fix the recessed and butt joints at 150mm centers. Ensure that the board edges are butted snugly without gaps.
- Use a manual-feed drill or screw gun and install using 30mm minimum self tapping screws at 200mm centers in the field.
- Using a drill bit stopper, ensure the screw is installed centrally between the holes.
- Fill in the joints with Monosilent Compound. Center and press the paper tape into the base compound using a 100mm broad knife. Ensure no air bubbles are left under tape.
- Apply second coat of Monosilent Compound using a 150mm-wide broad knife.
- Using a 200mm trowel or broad knife, apply the final coat of Monosilent Compound, feathering approximately 25mm beyond edges of the first coat.
- For spotting of screw heads, keep the compound area small to minimize covering the perforations.
- Allow the joint compound to dry, then lightly sand with a sanding block (180 to 220-grit sand paper) to achieve a flat finish.
- Use the sanding block as shown.
- Do not use a wet sponge or sponge sanding block during the sanding process.



Step 1
Using a collated screw gun, screw fix the recessed & butt joints at 150mm centers



Step 2
Install screws
Min. 30mm



Step 3
Install screws centrally between the holes



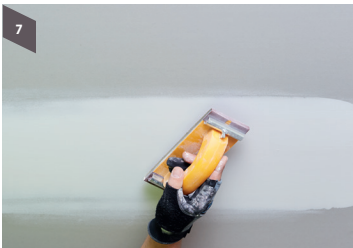
Step 4
Fill in the joints with Monosilent compound



Step 5
Apply second coat



Step 6
Apply final coat



Step 7
When compound is dry, lightly sand with a sanding block

INSTALLATION

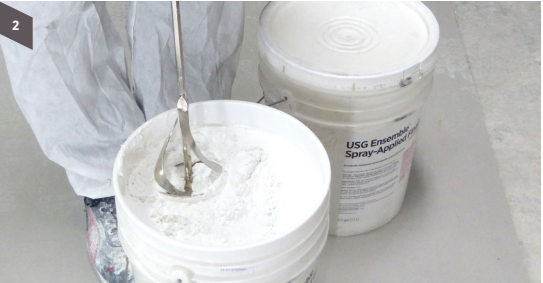
MAC CEILING

MIXING

- Check the consistency of the MAC Plaster Spray Applied Finish. If needed, add approximately 500 to 600ml of clean water to the pail.
- Mix the paint using a 450rpm electric drill and a high shear paddle mixer. If the texture remains dry, add an additional 100 ml of clean water and repeat the mixing process.
- Mix the paint thoroughly for approximately one to two minutes until it achieves a smooth, whipped-cream consistency.
- Check the viscosity of the paint using the material thickness gauge (small steel ball) provided by the spray equipment manufacturer. If the steel ball sinks completely within three to four seconds, the texture is ready to spray. If the ball does not sink within three to four seconds, add an additional 100 ml of clean water at a time and mix thoroughly until it passes the test.



Step 1
Check the consistency of the Mac Plaster Spray Applied Finish



Step 2
Mix Paint using electric drill



Step 3
Mix until smooth



Step 4
Check the viscosity of the paint using the material thickness gauge (small steel ball)

INSTALLATION

MAC CEILING

SETTING THE EQUIPMENT

- Prime the Spray Machine Prime texture equipment with five liters of clean water.
- With the air nozzle switched off, cycle water through the hose and drain the water out completely (including water in the hose).
- Pour the mixed MAC Plaster Spray Applied Finish into the hopper.
- Empty the water remaining in the hose until the paint starts to flow. With the air nozzle turned off, cycle the remaining water out of the hose into an empty bucket until the paint reaches the spray gun. When the paint has reached the gun, cycle the paint through the gun back into the hopper until it is flowing smoothly through the machine.
- When there is a need to stop spraying for longer than 30 minutes, submerge the gun into water to avoid blockage in the spray gun.
- Depending on the desired texture, adjust the pump pressure to 60 to 70psi and the air pressure to 80 to 90psi. For a finer texture, a higher pump pressure can be adopted. Set the independent air compressor regulator to 120psi.
- Standard spray gun 4mm tip with added GRACO fan tip 4mm adaptor must be used to increase spray fan width to 400mm for a faster and smoother finish.



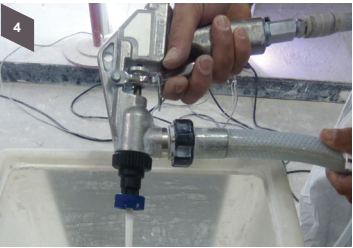
Step 1
Put in the spray machine 5 liters of clean water



Step 2
Cycle water through the hose



Step 3
Pour the mixed paint into the hopper.



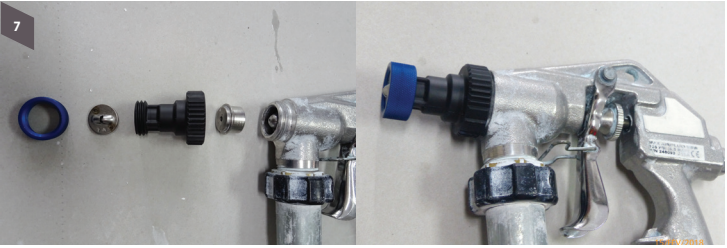
Step 4
Use gun to smoothly cycle paint through the machine, ensuring a smooth flow of the paint.



Step 5
Submerge the gun into water when you need to stop



Step 6
Depending on the desired texture, adjust the pump



Step 7
Standard spray gun

INSTALLATION

MAC CEILING

SPRAYING

- MAC Plaster Spray-Applied Finish must be applied in a minimum of four coats, cross-hatched with a minimum of 50% overlap to achieve the appearance and sound performance. Maintain clean safety conditions and wear proper protective equipment (safety goggles, NIOSH approved respirator, and overalls) while applying the finish.
- Start in one corner and work progressively across the ceiling. Once the finish is dry to the touch (approximately 10 to 20 minutes), re-coat using the same technique. Apply the coat with minimum one-meter gun clearance. Allow the paint to dry for approximately 10 to 20 minutes between layers.
- Between each spray, submerge the gun into water to avoid blockage in the spray gun.
- Apply a minimum of four successive coats until the desired appearance is achieved and the perforations are no longer visible through the finish.
- The spray is considered successful when all the butt joints, recessed joints and screw heads are no longer visible under natural light, and a consistent and fine texture is achieved.
- Leave the ceiling to dry for a minimum of 24 hours. It must be totally dry. If needed, remove any minor irregularities with a soft rubber-bladed squeegee.



Step 1
Apply MAC plaster spray applied finish



Step 2
Start in one corner and work progressively across the ceiling



Step 3
Submerge the gun into water to avoid blockage



Step 4
Four coats of MAC plaster spray applied finish must be applied



Step 5
Leave the ceiling to dry for a minimum of 24 hours



Step 6
Use soft rubber-bladed squeegee to remove any minor irregularities

INSTALLATION

MAC CEILING

CLEANING

- Ensure the paint is thoroughly cleaned from the hose and gun.
- Flush the remaining paint in the hose and fill the hopper with water.
- Disconnect the spray gun, nozzle, and air pressure valve for proper cleaning.
- Clean the nozzle by removing the tip and holder. Thoroughly clean out any residual dry paint in the gun.
- Clean the paint valve by thoroughly cleaning out the paint residue.
- Open up the pressure cap and clean out residual paint within the gun.
- Lastly, ensure the air pressure nozzle is cleaned thoroughly.



Step 1



Step 2



Step 3



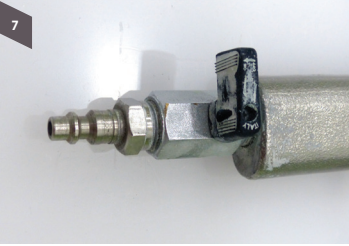
Step 4



Step 5



Step 6



Step 7

MAINTENANCE

MAC CEILING

The USG ME MAC Spray-Applied Finish can be damaged during or after the installation. Repairing a textured surface is not always easy but if done properly, the end-result will be an aesthetically pleasing repair that blends in well with the adjacent areas.

PART 1

DIRT AND STAIN REMEDIATION (SMALLER THAN 15CM)

- 1. Do not use water or cleaning solutions.
- 2. Try to clean the surface with a dry soft brush such as a 5cm nylon bristle paint brush (not wire).
- 3. For persistent staining, use a slightly stiffer brush, such as a vinyl bristle scrub brush (not wire).
Brush the area briskly in both directions.
- 4. If the discoloration persists, refer to Part 4: Fingerprint and Soiling Removal by Spray Application.

PART 2A

DEEP SCRATCH OR GOUGE (SMALLER THAN 15CM)

- 1. Use small amounts of the MAC Spray-Applied Finish to spot-fill the gouge. Do not sand the surface.
- 2. Work the material during the setting time with a vinyl bristle scrub brush or nylon bristle paint brush to pull and blend the texture to match the surrounding surface.
- 3. If the area becomes discolored follow Part 4: Fingerprint and Soiling Removal by Spray Application.

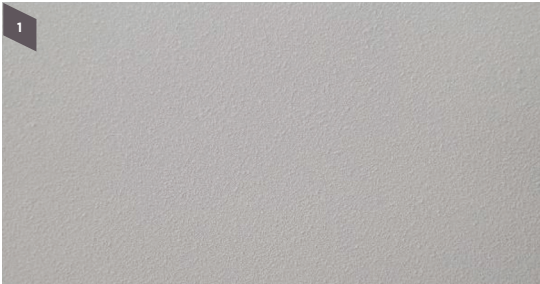
PART 2B

DISCOLORATION OR VERY IRREGULAR TEXTURE

- 1. If the area is persistently discolored and the texture is very irregular, the coating can be applied with a hopper sprayer and a very high volume of air (90 PSI @ 10-14 CFM). Use the 245924 – Graco TexSpray Air Spray Trigger Gun with Hopper 4mm tip. Practice on a scrap piece of plasterboard first to test your settings and technique.

PART 3

FINGERPRINT REMOVAL



This image represents USG ME Mac Spray-Applied Finish before the ceiling gets damaged and requires repairs



Dirty finger prints on the finished ceiling is one common issue requiring maintenance



Step 1
Try to brush the soiled area with a soft brush such as a 5cm nylon bristly paint brush



Step 2
Try lightly sanding the soiled area with a sanding sponge such as a very fine grade sanding hand pad



Step 3
For deep soiling, use a utility knife to lightly scrape away the soiled areas



If there are still signs of soiling, the next step is to use a spray application to mask the discoloration

MAINTENANCE

MAC CEILING

PART 4

FINGERPRINT AND SOILING REMOVAL VIA SPRAY APPLICATION



An aerosol spray-applicator can be found in the paint aisle at any home improvement or hardware store



Step 1
Mix a small batch of 50% water and 50% MAC Spray-Applied Finish



Step 2
Mix well with a drill and mixing blade



Step 3
Pour the mixed batch into the glass jar



Step 4
Before inserting the straw into the glass jar, remove the small filter at the bottom of the straw



Step 5
Attach the aerosol spray dispenser to the glass jar



Step 6
Test-spray on something disposable before spraying on the ceiling



Step 7
Once the spray is coming out consistently, lightly coat the soiled area in a cross-hatch pattern. Hold the tip 30 to 35cm away from the target. Allow ample time to dry between coats. Circulating the air by using fans can significantly help decrease dry time

MAINTENANCE

MAC CEILING

PART 4
CONTINUE



Step 8
Between coats, remove the aerosol top from the bottom jar and place it in water. Place the cap that comes with the kit on the jar



Step 9
The mixture of water and MAC Spray-Applied Finish will separate if left sitting for an extended period. Place the cap that comes with the kit on the glass jar and shake well before using it again

Step 10
Repeat Step 7 until the desired aesthetic has been achieved

PART 5

SCUFFING, SCRATCHING AND SMALL SURFACE IRREGULARITY REPAIR

The following repair recommendation covers scuffing, scratching, and small surface irregularities, and is limited to coating damage (not substrate damage). It describes a method to repair a very small area of a damaged finished ceiling without the need to reapply coating over the entire ceiling area.



This area was damaged by a door. The impression goes deep into the surface and it flattened the area around it



This is another blemish in the ceiling caused by contact with a door. The surface was flattened out and lost all its texture in the damaged area



Step 1
Using a putty knife, fill the damaged area with the acoustically transparent coating that was used to spray the ceiling



Step 2
Fill each damaged area as close to the same level of the surrounding textured area



Step 3
Smooth out the coating with a larger knife using light pressure so you do not flatten out or scrape off the texture that is not damaged



Step 4
Use a squeegee to remove any excess material in the textured area around the repair. You won't be able to make it perfectly smooth, but that is fine

MAINTENANCE

MAC CEILING



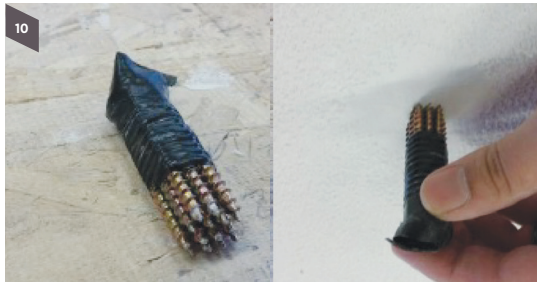
Step 5
Once you have put on enough material to make the surface flush with the textured area around the patch, allow it to fully dry



Step 6:
After several hours of drying, you may be able to begin the texturing process. The more material you put on the patch, the longer it will take to fully dry. If possible, allow it to dry overnight. If the material is not fully dry when you begin to re-texture the damaged area, the material will come off and you will need to start over



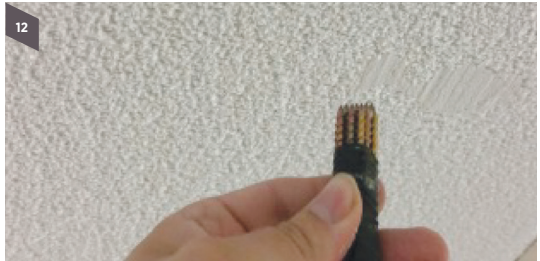
Step 7
For the re-texturing process, you can use a range of tools to make impressions in the smooth area so it will match the surrounding textured area. A single screw can be used but tightly wrapped screws work best for a broader area and takes less time to finish the damaged area



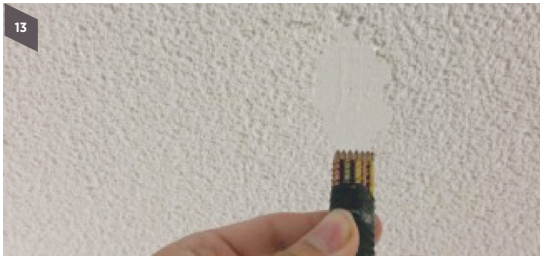
Step 8
Cut the heads off several screws and wrap them tightly together with tape, keeping the points as even as possible. This is an effective way to retexture a small repair



Step 9
Another effective tool is a common dog brush with several small pointy bristles



Step 10
Lightly press your tool of choice into the smooth area until it matches the surrounding area



Step 11
It may take several passes in the same area to make the texture match the existing area around it. Go slowly to ensure you do not overdo the texturing of an area or remove too much material, leaving a hole in your repair



You will easily notice the difference in texture when you are close to the area that has been re-textured



Once you are satisfied with the texture of the repaired area, step back to see how well it blends in with the whole ceiling. If the repair is done properly it will appear as though the ceiling was never damaged

MAINTENANCE

MAC CEILING

PART 6

LARGE PATCH REPAIR

The following recommendation covers the repair of a large section of ceiling, including replacing a section of the substrate. It describes a method to repair a limited area of damaged ceiling without the need to reapply coating over the entire ceiling area.



Step 1
Remove the affected area of the ceiling. Make all cuts as straight as possible so the new boards will fit tight to the existing boards



Step 3
Sand at least 400mm wider than the area to be patched



Step 5
Peel off the paper and veil to create room for the tape



Step 7
After the new panel is cut to size, score the paper and veil 40mm from the perimeter, to make room for the tape on the joint



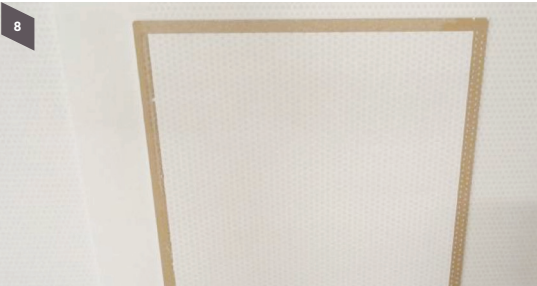
Step 2
Sand the existing coating off, down to the front veil, on the board around the entire perimeter of the area to be patched



Step 4
Score the veil and paper 40mm from the edge around the area to be patched



Step 6
Repeat this on all the sides of the area to be patched



Step 8
Repeat this on all the sides of the new panel

MAINTENANCE

MAC CEILING



Step 9
Add additional framing as needed to support the new boards



Step 10
Cut new acoustical backer panels to size and insert them where needed



Step 11
Install the replacement panel, and be sure to insert additional screws around the perimeter of the existing ceiling at 150mm centres



Step 12
Use a long straight edge to make sure the new panel is flush with the existing ceiling



Step 13
Pre-fill all the gaps as tightly as possible with USG ME Joint Compound. Spot all screws with USG ME Joint Compound



Step 14
Use USG ME or Sheetrock® branded paper or mesh tape or equivalent on all joints



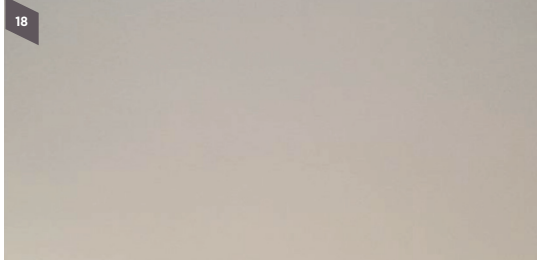
Step 15
Fill all joints and spot all screws with USG ME Joint Compound



Step 16
Feather out joints flat from the new patch and the existing ceiling using USG ME Finishing Compounds



Step 17
Sand all the joints level/flat with the existing ceiling



Step 18
Spray four coats of the USG ME MAC Spray-Applied Finish to bring the newly patched area to the same thickness as the existing ceiling. On the last coat, widen the spray area to blend out the ceiling



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