MINERAL WOOL BASE ACOUSTIC SAND DECORATIVE STRUCTURE

NOTES AND DETAILS

VER: MJSYB070112

Product Introduction

Mineral wool based acoustic sand decorative structure takes mineral wool board as the base, and sand plaster as the coat, achieving a safe, environmental friendly material with seamless appearance. The raw materials are acoustic wool board (such as glass wool, rock wool, aluminum silicate, etc.) and decorative acoustic sand coat.

The decorative acoustic sand coat is the porous silica sandstone formed by the polymerization reaction of the natural silica sand through the silicon-based polymer. The acoustic sand coat has a lot of pores, with good porous sound permeability. The incident external acoustic energy through the sand coat will be absorbed by the sound absorber of the substrate. Since both the acoustic wool and the sand coat are inorganic materials, the mineral wool based decorative acoustic Sand Panel with non-combustible, weather resistant, not soluble in water, sunlight resistance, environmental friendly, and seamless, is ideal for building indoor sound absorption use.

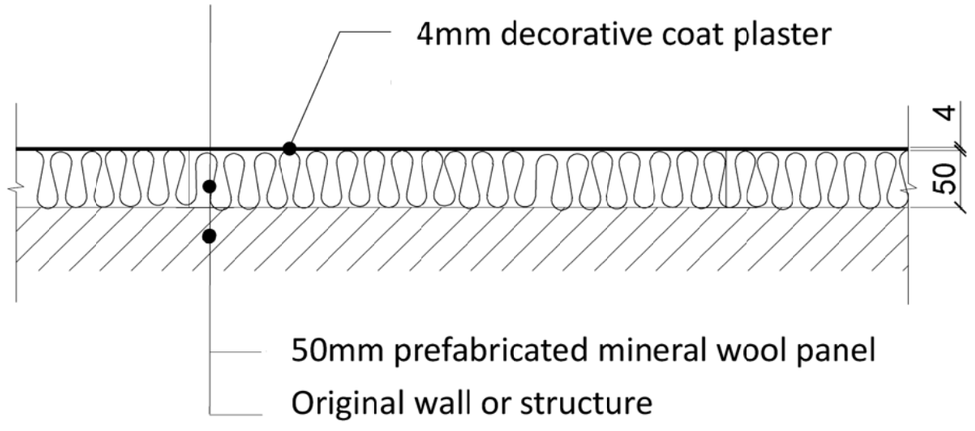
Sound absorption cotton used environmentally friendly hydrophobic rock wool or centrifugal glass wool board, cotton board on both surfaces, the use of non-combustible level basalt line wrapped two layers of fiberglass mesh, play a strengthening and fixed role.

Decorative acoustic sand coat can be troweled or sprayed on the surface of the acoustic wool board, forming a large area seamless with sandstone fine texture of the interior decoration effect. Decorative surface of the sandstone material, the application of flexible silica sand modification technology, the formation of the surface layer with the appropriate flexibility, coupled with the material filled with pores, expand and contraction of hot and humid with self-adaptability, large area will not crack, continuous area can reach more than $3000m^2$.

Mineral wool based decorative acoustic sand panel can be designed large-scale seamless surface. Can also be made into a corrugated, round, curved, cascade, caission, internal and external corner, hyperboloid and other shapes of decorative effect.

Acoustic sand panels for theater, concert hall, performing art centers, recording studio and other professional acoustic spaces;

Also suitable for classrooms, conference rooms, museums, exhibition halls, offices, business hall, reception room, auction room, waiting room, courtroom, library, gallery, fitness center, shopping center, hotel lobby, ward and all of the spaces need sound absorption to reduce the reverberation.Also suitable for factory shop, Mechanical room, elevator shaft, underground tunnels and other places need noise reduction.



Item	Frequency					
NRC	125	250	500	1000	2000	4000
0.80	0.62	0.72	0.87	0.86	0.74	0.60

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Technique Parameters

Physical parameters of acoustical sand panels are shown in the chart below.

Item		Test Result	National requirements	Remark
Thickness	Prefabricated acoustic wool panel	30-100mm	/	Materials are divided into Prefabricated acoustic wool panel and acoustic sand coat layer, the Prefabricated acoustic wool panel is plate-like, through the frame fixed to the wall or ceiling. The coat layer is mortar-like, applied to the outer surface of the substrate by troweling or spraying, and dried to form a continuous, seamless, hard surface. Both the substrate and the coat layer are sandstone materials, rich in porosity (porosity up to 45% -50%). The chemical bond of the polymer is very strong, which makes the coat resilient. Millions of microspores makes the panel more adaptive to heating expanding and drying constriction, the finish faces are never cracked. Almost all of the components of this material are natural inorganic, free of formaldehyde, benzene and other harmful emissions, laboratory testing is lower than 1/10 of the national standard. After installation, it is equal to or better than the highest level of latex paint or wallpaper, which means that you could stay in immediately. The material has neutral PH value. Due to natural feature of sand, this material is not water, acid and alkali soluble. Laboratory testing freeze-thaw cycle 25 times, simulated 25 years of extreme cold and heat cycle (a cycle: all immersion in water, frozen below 0 ℃, thawing, heating to high temperature), the material strength is not less than 99% of the original strength. The sound absorption coefficient is optimized by graded particle size. The laboratory achieves different porosity through the ratio of sand particles with different sizes, and the optimum sand gradation with high sound absorption coefficient is finally determined by nearly a thousand experiments. The gradation is one of the core technologies of acoustical sand panels.
	Coat	4-6mm		
Surfaces density	Prefabricated acoustic wool panel	6-10kg/m2	/	
	Coat	8-10kg/m2		
Rupture strength		2.3MPa	⩾1.0 MPa	
Compressive strength		16.0MPa	⩾10 MPa	
Pound strength		A2	A2	
Nail-holding ability		<0.062mg	⩽0.5 mg	
Sound absorption coefficient		0.80～0.95	NRC⩾0.6	

Construction Introduction

1 Arrival of material

There are three types of materials:

1.1 Base penal: plate, mash fabric on both sides, sewed by basalt fiber,plastic film packaging, indicated as “prefabricated acoustic wool penal”;

1.2 Base material: For base plaster, including sand and slurry. Using paper bags and plastic transparent basketsfor package separately. Paper bags identified as "base sand", transparent baskets identified as "base slurry." Base material is the original sand color;

1.3 Coat material: For coating, divided into troweling and spraying types, and cannot be mixed, including sand and slurry, Using paper bags and plastic transparent basketsfor package separately. Paper bags identified as "troweling coat sand", For the trowel-type coat, or "spraying coat sand" for the spray-type coat; plastic bucket identified as "troweling coat slurry" for the trowel-type coat, or "spraying coat slurry" for the spray-type coat. Coat material is rich in color, including white, black, or other colors.

2 Prefabricated mineral wool installation

2.1First step is pointglued (such as polyurethane Styrofoam, quick drying powder, etc.) the prefabricated acoustic wool panel onto the original wall or ceiling.Then use the nail to fixed it. The acoustic wool penal should be tightly together, leaving no gap. For different structures of the bottom, should use the appropriate expansion bolt, expansion screws, tapping screws and other types of rock wool nails

2.2 Use the glue as a cushion to make the prefabricated acoustic wool penal flat.

2.3 After the installation of large area of the prefabricated acoustic wool penal it may be uneven at the seams which should be made flat by addingpressure on the upper side or adding glue at the lower side .

2.4 Cutting: By wallpaper knife or woodworking saws.

2.5 The back side of the prefabricated acoustic wool penal is the side with more thread residue, and the opposite side is the side covered with coat plaster.

3 Base plaster

3.1 Mix the base sandand base slurry of the base material. One bag of base sand matching one bag of base slurry. After mixing, stir it evenly.

3.2 Using a spatula for plasteringon the wall or ceiling. Base plaster is the key to the final effect, which must be smooth. Scraper or other auxiliary tools can be used to improve the smoothness of the completion of the surface.

3.3 Trowel the first layer of sand as a basic curing to cover the acoustic wool and thread on it with a thickness about 1-2mm or so. After the first layer drying to a coat continue troweling sand on it and making it flat. Do not make this layer too thick to prevent the slurry falling and uneven.

3.4 Lay a layer of mesh fabric onto the first layer of sand to enhance the strength of the plaster and prevent cracking. Trowel a layer of sand to fix the mesh. After drying, two more layer of sand with thickness of 1~2mm each layer to make the plaster flat and smooth and ready for the coat plaster.

3.5 Under normal circumstances, the base plaster recommended scraping about 2-3mm thickness, and should also be placed into a layer of mesh fabric, to enhance the integrity and crack resistance. If in serious uneven substrate, may be appropriate to improve the scraping thickness, the thickest requirements shall not exceed 12mm.

3.6 conventional temperature, humidity, well-ventilated building on the ground, base plaster drying time is about 12-24h. In the basement and other poor ventilation, or high humidity conditions in the south, the drying time may be extended (there are examples of relative humidity of 90% or more in the basement, the drying time is 72-96h). Allows slight grinding after drying of the base plaster.

3.7 The sand particles gradation is a professional sound-absorbing formulation that forms a breathable and permeable sandstone layer with 130 million pores per square meter. Therefore, in order to prevent the plugging of the pores caused by sound absorption failure, the slurry shall not add any other additives, the completion of the surface shall not be applied to any non-product surface with any other paint.

3.8 very special circumstances, the slurry allowed to try to add a small amount of water on site to improve the different workers habits, the general amount of water for per bag should not exceed 2% of the sand weight.

3.9 Note: After the completion of the construction of base plaster, it is required to be surface smooth, edge straight to ensure the coat plaster or coat spray decorative effect.

4 Coat construction

4.1 There are two kinds of coating, which are troweled smooth coat and spray textured coat.

4.2 The sand and slurry for troweling and spray coat are different, absolutely cannot be mixed.

4.3 Take a clean bucket, first poured into the slurry, and then the sand. Then stir with the mixer until forming into paste.

5 Trowel construction

5.1 Use a spatula to wipe the paste on the wall or base plaster. The effect of the coat layer is the final effect of the construction, which should be treated with caution, and strive to perfect.

5.2 recommended troweling more than twice, each thickness is about 1mm, the total coat plaster thickness should be controlled at 2-3mm.

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6 Spray constructoin

6.1 Spray the sprayed paste onto the wall or base plaster using a conventional paint spray gun. The effect of the coat layer is the final effect of the construction, which should be treated with caution, and strive to perfect.

6.2 recommended troweling more than twice, each thickness is about 1mm, the total coat plaster thickness should be controlled at 2-3mm.

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7 Tools, technology , maintenance and clean

7.1 Construction tools: wallpaper knife, hand drill, mixer, trowel, scraper and so on. If spray: air pump (air pressure 0.8Mpa, outlet> 1.0m3 / min) + paint gun

7.2 installation board: In order to facilitate the board flat, while strengthening the installation strength, should be point glued on the frame with silicone adhesive. Can be installed by screw or air nail.

1) Screw mounting. Applicable to steel frame, woodenframe and so on. Board should be punched holes first. Acoustic sand panels are made of silicon-based polymerization, which makes it similar to the brittle of glass (also silica).If screws are direct tapped, the board may burst. Each panel should be drilled with at least six M2.5 screws.

2) Air nail installation. Applicable to wood frame, can be installed directly. Each air nail should be at least 20-30mm long.

3) board installation: should keep the flatness of the board, if found local deformation protrusion, sandpaper or angle grinder can be used.

7.3 Base plaster: the base material mixed well. In the bucket first into the base layer of pulp, then, into the base material. Use the mixer to stir evenly to form the paste. Seam treating first. Then apply the layer of mesh fabric, while troweling sand. The thickness troweled base plaster should be controlled under 2-3mm. In the process of plastering, 120 mesh sandpaper or panel scrap can be used to polish.

7.4 spray layer: Using the spray sand and slurry, and then stir as 7.4.recommended spraying more than twice, each thickness is about 1mm, the total coat plaster thickness should be controlled at 2-3mm.The spray coat Should completely cover the base plaster.

7.5 trowelingcoat: Usingtrowelingsand and slurry, and then stir as 7.4. recommended troweling more than twice, each thickness is about 1mm, the total coat plaster thickness should be controlled at 2-3mm.Typical drying time is 12-24 hours. High level of construction workers can be smooth to achieve beautiful requirements. In the process of plastering, 120 mesh sandpaper or panel scrap can be used to polish.

7.6 Note:

1) One bag of sand matching one bag of slurry, no additive slurry or water.

2) Slurry first poured, then sand poured in to bucket.

3) Scraper must be used to ensure the flatness of the base plaster.

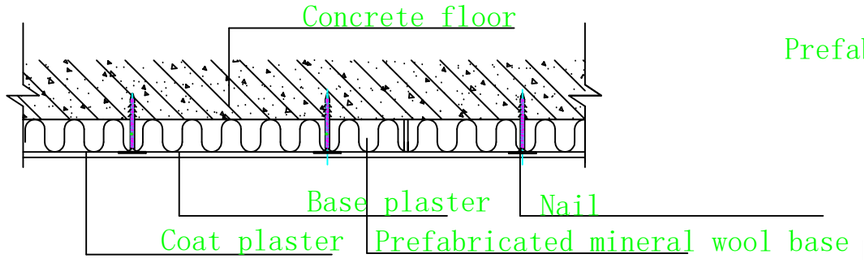
7.7 Maintenance and cleaning

1) collision avoidance: try to avoid sharp objects impact. Oncestroked, additional plaster or spray is necessary.

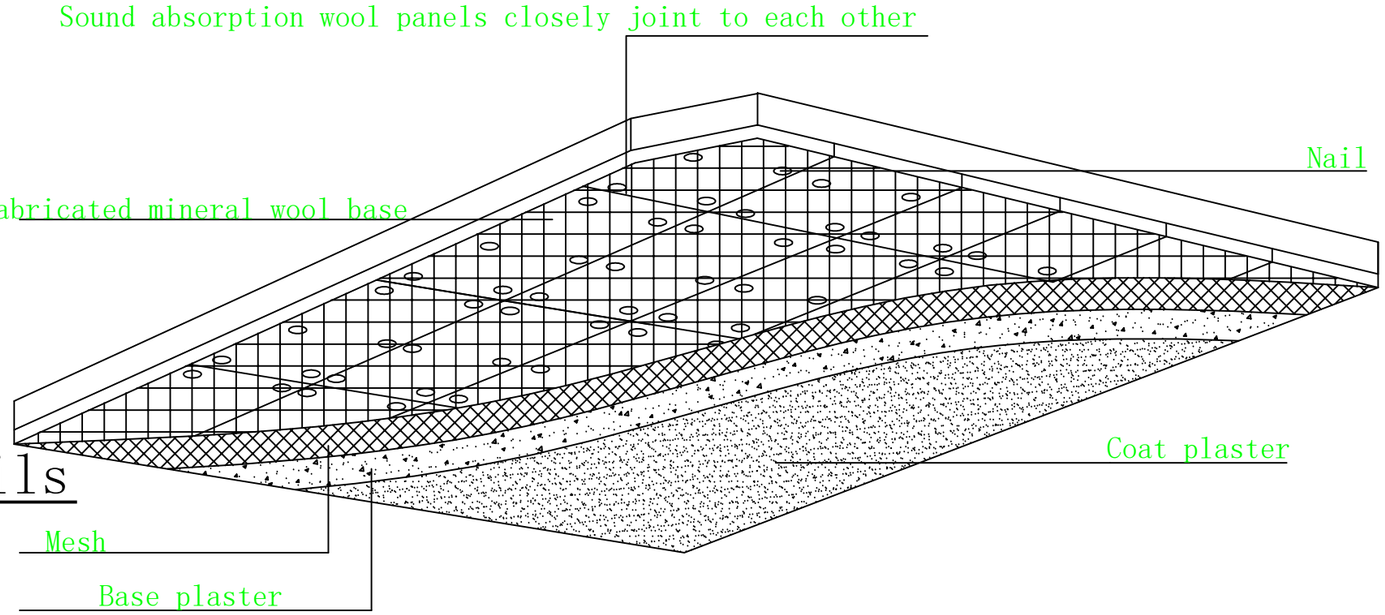
2) dust avoidance: try to avoid indoor dust to prevent surface pores blocked, aesthetic downgraded. After construction, pay attention to finished coat protection.

3) anti-stains: should prevent oil, water pollution into the surface pores, affecting the surface beautiful. In particular, prevent handprint of the electrical switch box installation (should require electricians to use white gloves), and avoid splashing of polluted water when clean the skirting.

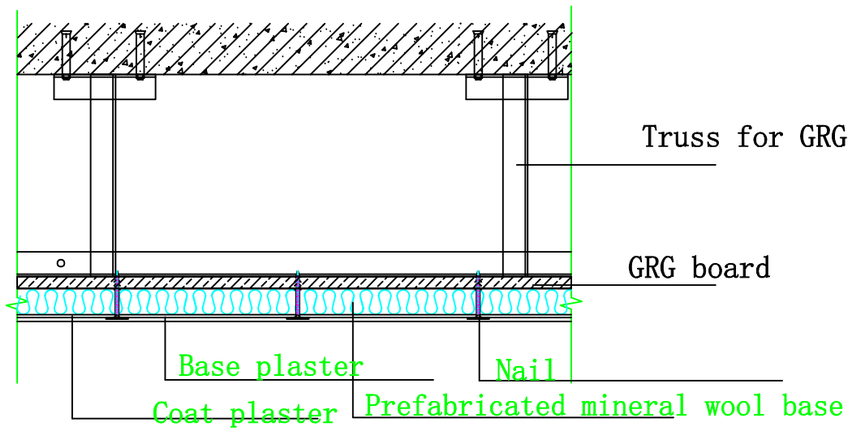
4) cleaning: for dust, air pump can blow dust. Slightly stains, can be gently wiped with a clean wet cloth. Note: no heavy wiping to prevent surface scratch which may degrade aesthetics.



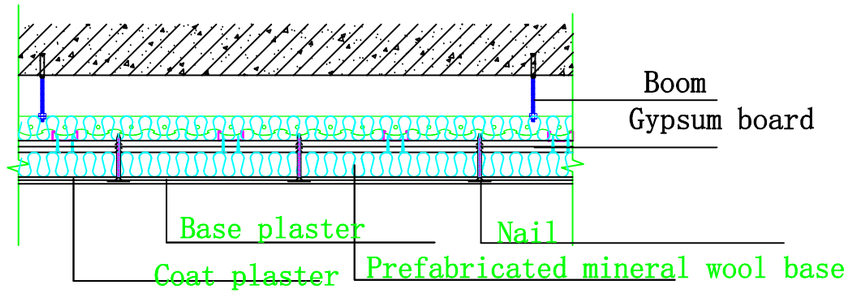
Concrete ceiling structure details



Ceiling structure details



GRG ceiling structure details



Gypsum board ceiling structure details

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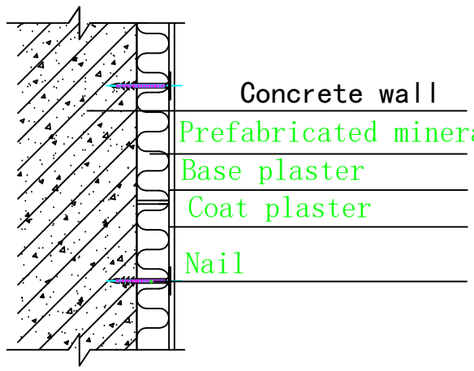
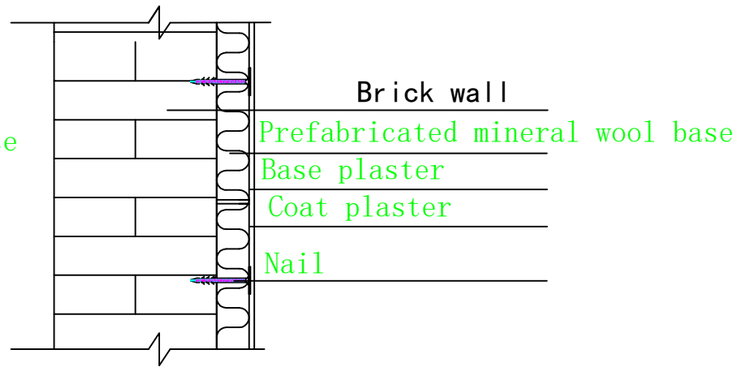
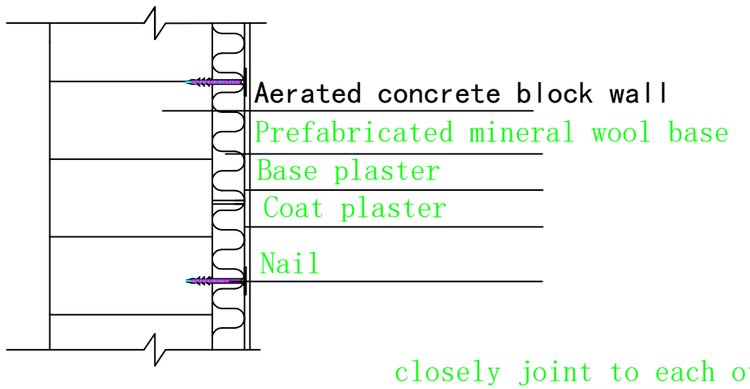


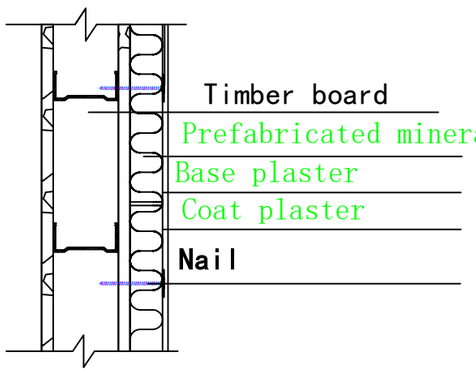
① concrete wall



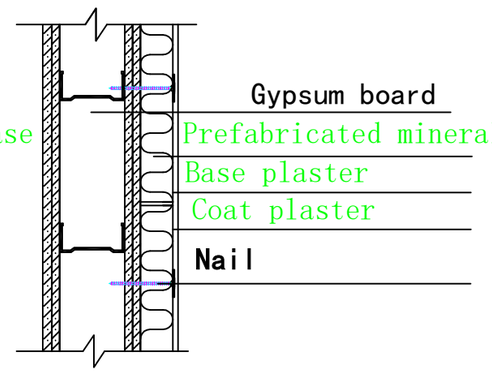
② wall



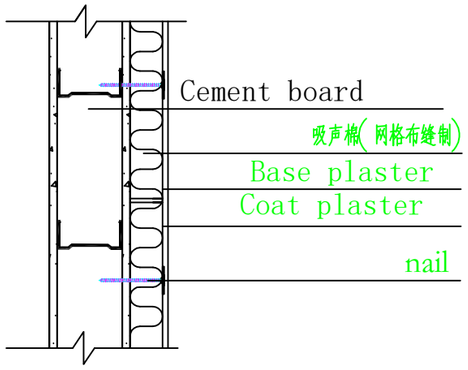
③ aerated concrete block wall



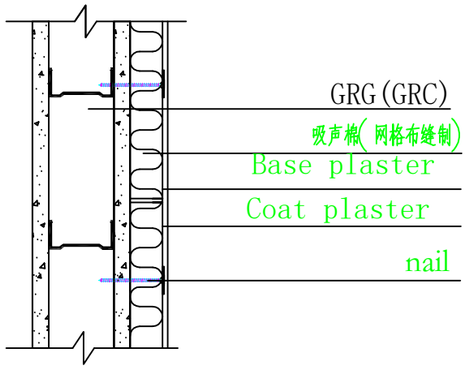
④ timber board



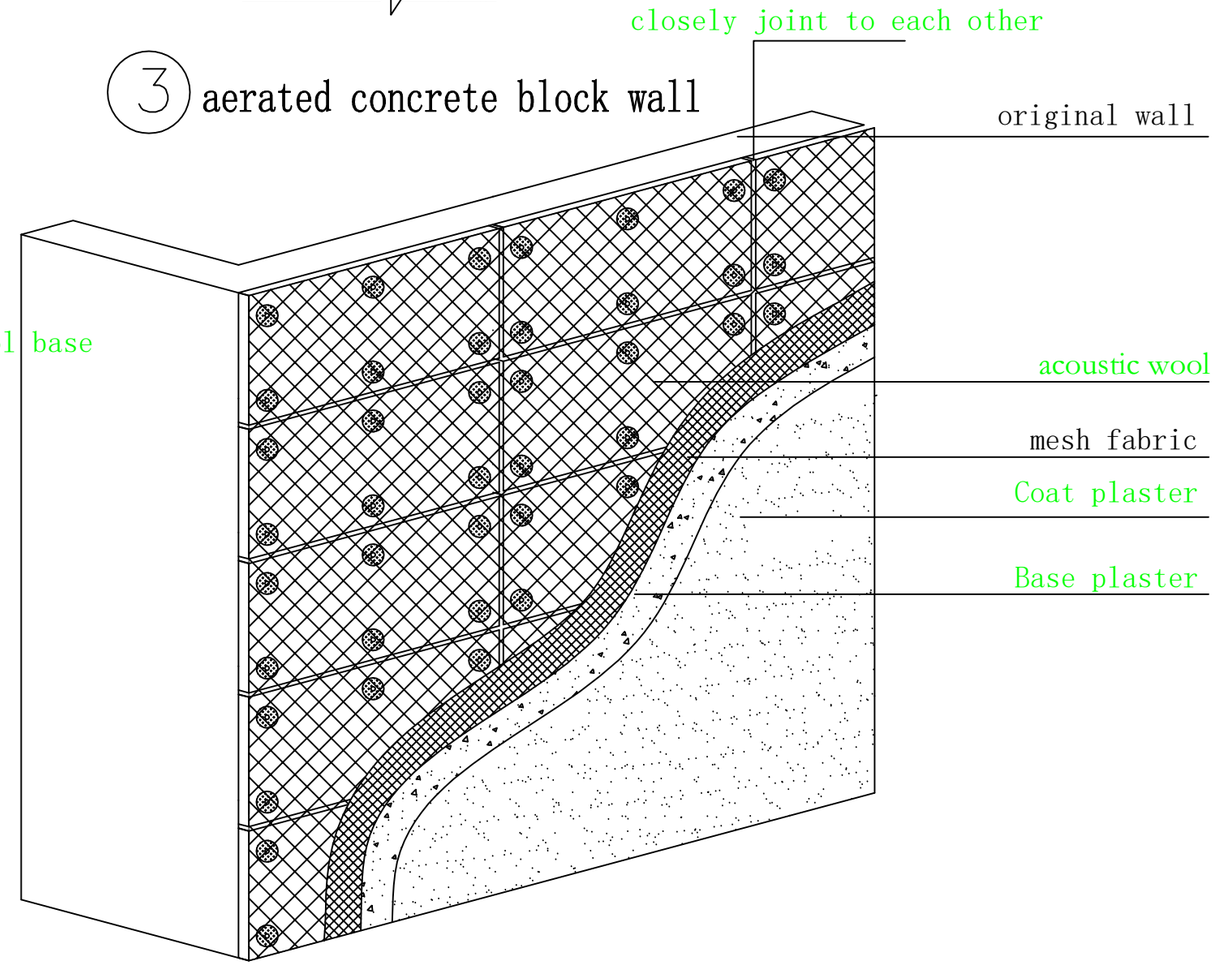
⑤ gypsum board



⑥ cement board



⑦ GRG(GRC)



acoustic wall

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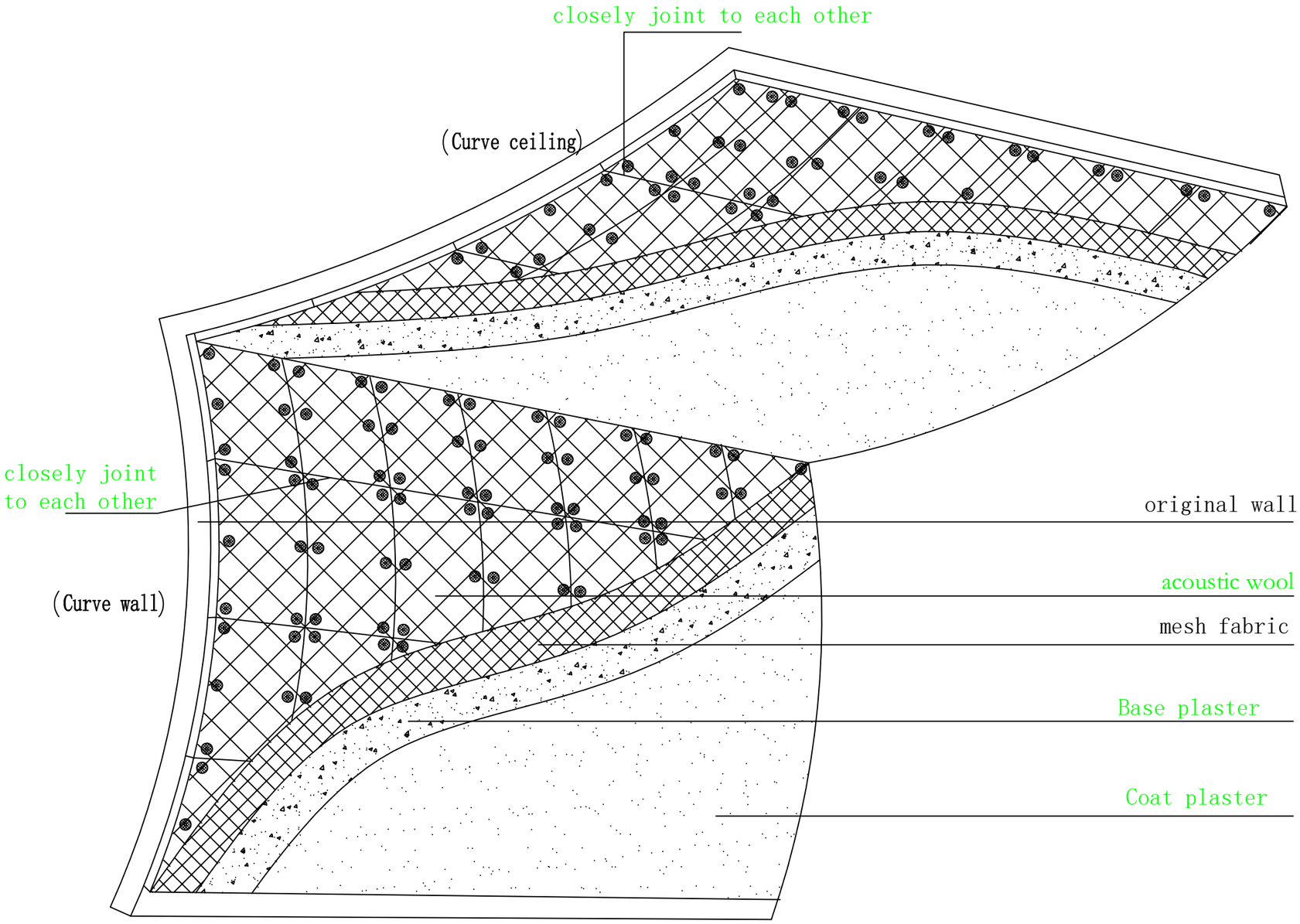
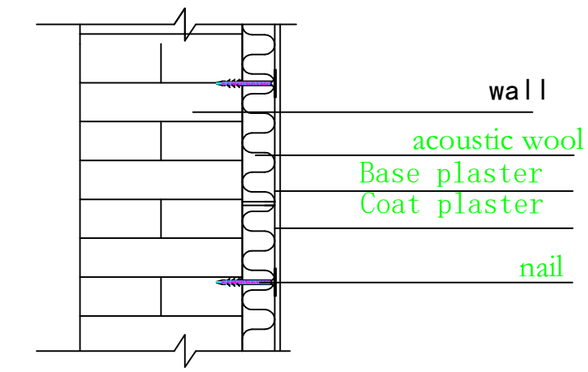
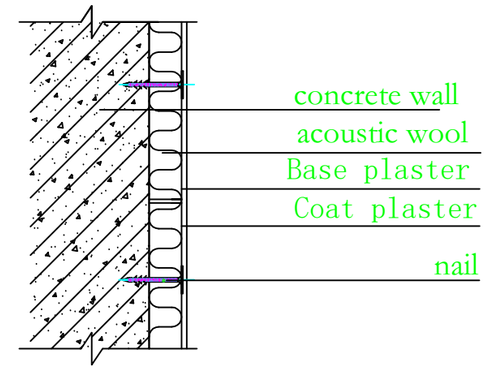


curve wall & curve ceiling



② wall



① concrete wall

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