

Smart-Sound-Sand®Panel  
3S硅砂静音板



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## Company Introduction

H&Z (Beijing) High-Tech. Co., Ltd was registered on April 19, 2007 in China, which works professionally on vibration reduction, sound absorption, sound insulation, noise reduction, vibration isolation, architectural acoustic consultant, design, and construction. H&Z is a High-Tech enterprise in the Zhongguancun Studying Business Park in Beijing, and devoted to the development and production of acoustic materials. We are making great efforts to solve noise pollution problems and provide protection for customers. We choose recycled materials following the environmental protection idea in order to respond to the national's advocating. We insist on innovation and improvement of the quality and service in an increasingly competitive market and always provide customers with low-cost and high-efficiency products and solutions, so as to create a comfortable living for you.

H&Z's engineers design the noise reduction and sound beautification plan exactly for you and provide you with professional installation and renovation services. Choosing the service of H&Z (Beijing) High-Tech. Co., Ltd is to choose a quiet and harmonious living environment.

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## Manufacture Process of Smart-Sound-Sand® Panel

3S® Panel is made of selected nature sands from Inner Mongolia Plateau. The inorganic and silicon-based solvent is thinly and evenly applied to the surface of sand particles (whose main ingredient is silica), which causes the outer surface of sand particles to melt and then solidifies between each other. In this way, sand particles are aggregated together, just as they are welded together. Because the shape of each sand particle is irregular and unique, when they are aggregated together, a large number of irregular and interconnected micro pores will be naturally formed. In the aggregating process, by precisely controlling the sand particle size and aggregation procedure, which could determine both the pore patterns and its arrangements represented by air flow resistance, we can achieve 3S® Panels of various sound absorption characteristics. 3S® Panels which are manufactured by the aggregation technology inherently have high strength and are fire-, moisture-, frost- and aging-resistant. Most of all, no adhesive is used in the process, so there is no volatile organic compounds in the panels. 3S® Panels are a green and environmental-friendly acoustic material.

## The Sound-Absorbing Principle of Smart-Sound-Sand® Panel

There are many interconnected tiny pores with different shapes inside 3S® Panels. When sound wave reaches the surface of the panels, it will run deeply inside and propagate among the pores. Due to the viscous resistance and friction generated by the movement of air particles, sound energy will gradually be consumed into thermal energy and results in sound-absorbing. The structure of the pores between sand particles determines the acoustic frequency performances. So by adjusting the sizes, quantities and forms of these pores, we can control the sound-absorbing frequency characteristics.



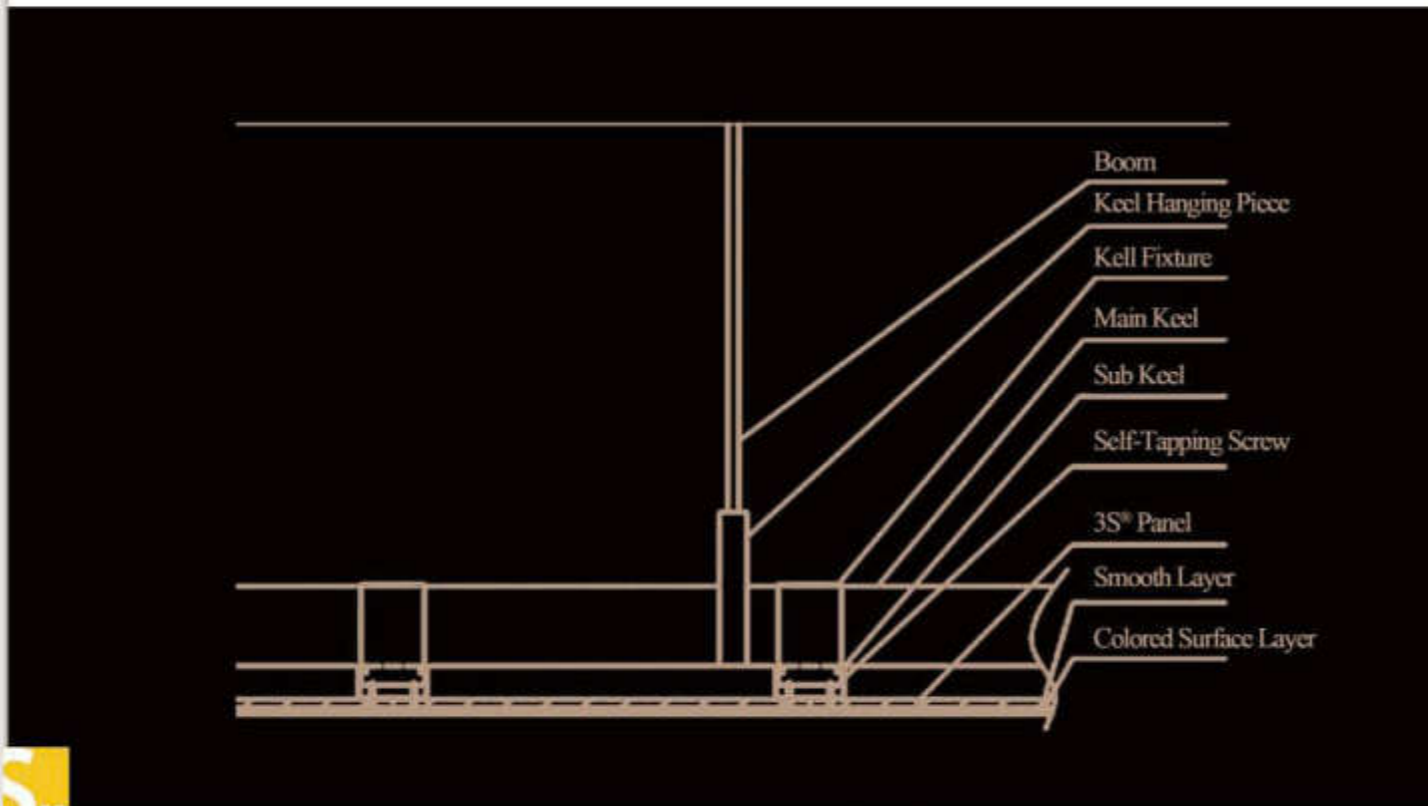
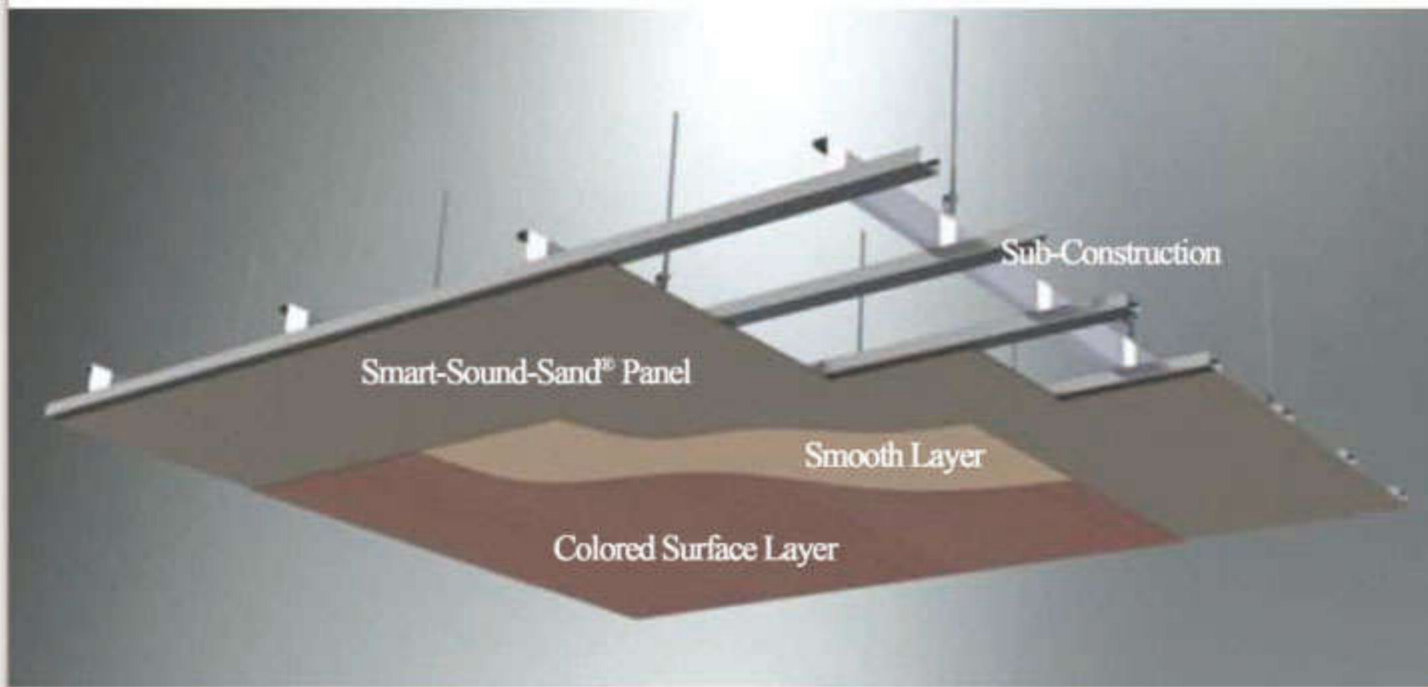
## Smart-Sound-Sand® Panel

Rather than money, power, and even happiness, quiet has become the most precious commodity of our modern world, but has been dwindling so helplessly. Have you ever deeply experienced quiet, in which to relax your mind with eyes closing, to integrate self into the universe both emptily and virtually, to sense senselessly, to feel feelinglessly, to go back to the source origination unselfconsciously, and to connect to the future destination contemplatively?

Quiet balances both the positive and negative extremely, but is so difficult for us to achieve. Among the bustling city life, environmental quiet makes us mental balanced, following wisdom immediately. It separates us from foolish dream confusions, and reawakens us to the wonder of the splendid nature which is unimagined greater than ourselves.

3S silicon sand acoustic panels are excellent creators of sound environment, presenting magnificent quiet for you. Tranquil landscape produces both inner physical peace and psychological quiet, and naturally offers healthy and comfort subsequently.

# 3S



# Smart-Sound-Sand® Panel



MASTERFUL PROFESSIONAL  
AND LUXURY QUALITY



**Smart-Sound-Sand® Panel**  
3S® with a strong sound-absorbing performance and consumption ability



3S® Basic Material



The effect after plastering



The effect after spraying

Sound wave can penetrate 3S® surface material effectively

# 3S

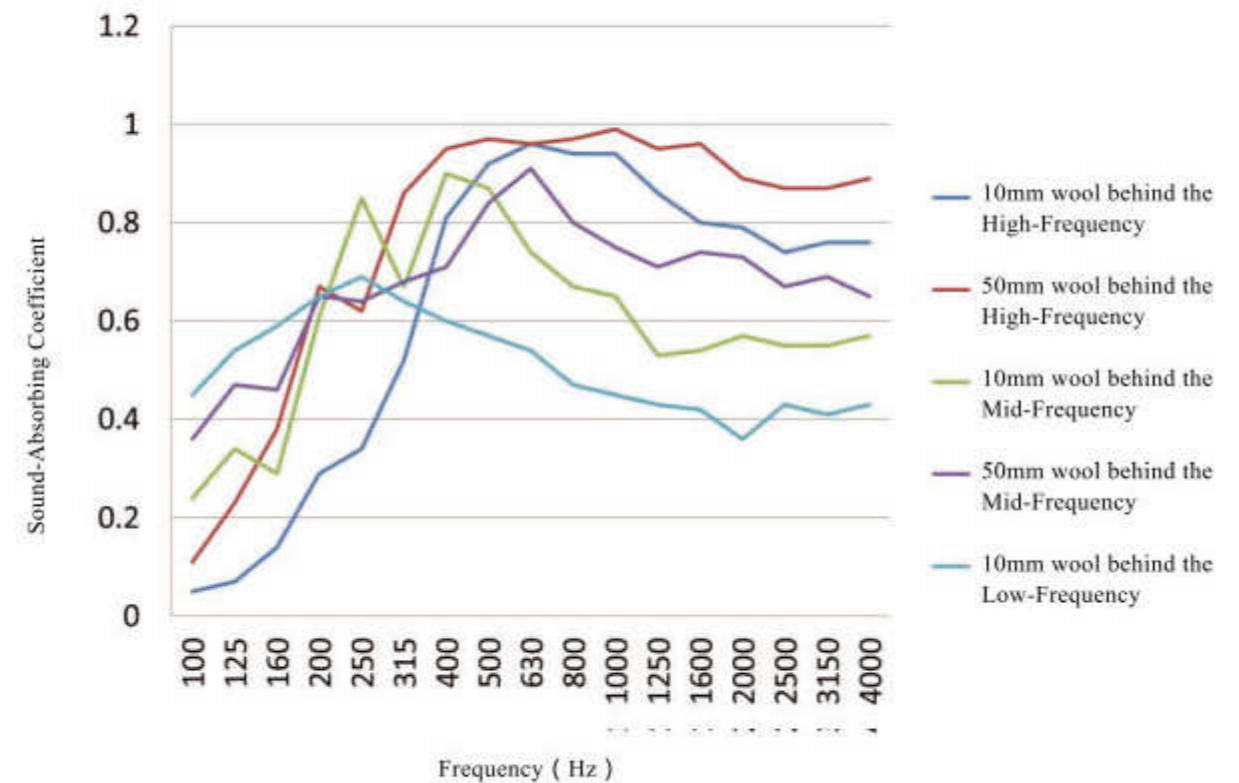


### Optional sound-absorbing characteristic

Panels are optional acoustic (low- Mid- and high- frequency) is more effective than traditional sound-absorbing material which frequency is fixed.

3S® Panels' sound-absorbing rate is 55% - 95%, for a variety of sound-absorbing requirements.

Model	Flow Resistance (Pa·s/m)	Structure	Cavity (mm)	Sound-Absorbing Coefficient NRC
SYB-H01 High Frequency	400-800	10mm thick sound-absorbing wool behind the panel	10	0.50
		30mm thick sound-absorbing wool behind the panel	30	0.80
		50mm thick sound-absorbing wool behind the panel	50	0.90
		10mm thick sound-absorbing wool behind the panel	50	0.75
SYB-M01 Mid Frequency	800-1400	10mm thick sound-absorbing wool behind the panel	50	0.65
			200	0.70
		50mm thick sound-absorbing wool behind the panel	50	0.65
			200	0.75
SYB-L02 Low Frequency	1400-2500		50	0.4
			100	0.45
			200	0.50





### Seamless Installation

Combine both function and decoration perfectly  
Elegant & High-grade  
Modesty & Dignity  
Graceful & Majestic

### Curvy Installation

Support > 5 m radius of single curved surface modeling  
 Support > 25 m radius of double curved surface Modeling  
 Support for diverse curved edges



### Fire Safety

Reach standard A -s1, d0, t0 (GB 8624-06) of China  
 Meet standard GB 50222 -95 of Chinese fire safety requirements  
 It can be widely used in all kinds of buildings.

	3S® Panel	Wood Wool Acoustic Panel	Microporous Metal Plate	Perforated Cement Board	Polyester Fiber Acoustic Panels	Ecological Wooden Sound -Absorbing Panels	Groove Wooden Sound -Absorbing Panels
Absorption Coefficient	0.5~0.8	0.5~0.7	0.5~0.7	0.4~0.7	0.76	0.77	0.33
Fire Rating	A	B1	A	A	B1	B1	B2



Rich color  
 User-defined color  
 Rough texture of natural grit surface and elegance of matt

# 3S

Smart-Sound-Sand® Panel  
3S 智慧砂音板



Acoustic and visual enjoyment, fantastic  
Our company's classic project—Fly Theater of Wuhu Fante Paradise

Chang Ping Court in Beijing

Optimize lighting, integrated improvement for audiovisual environment

Matt surface is conducive to soften indoor light  
Diffuse reflection can create an elegant and no projection environment

Environmental-friendly

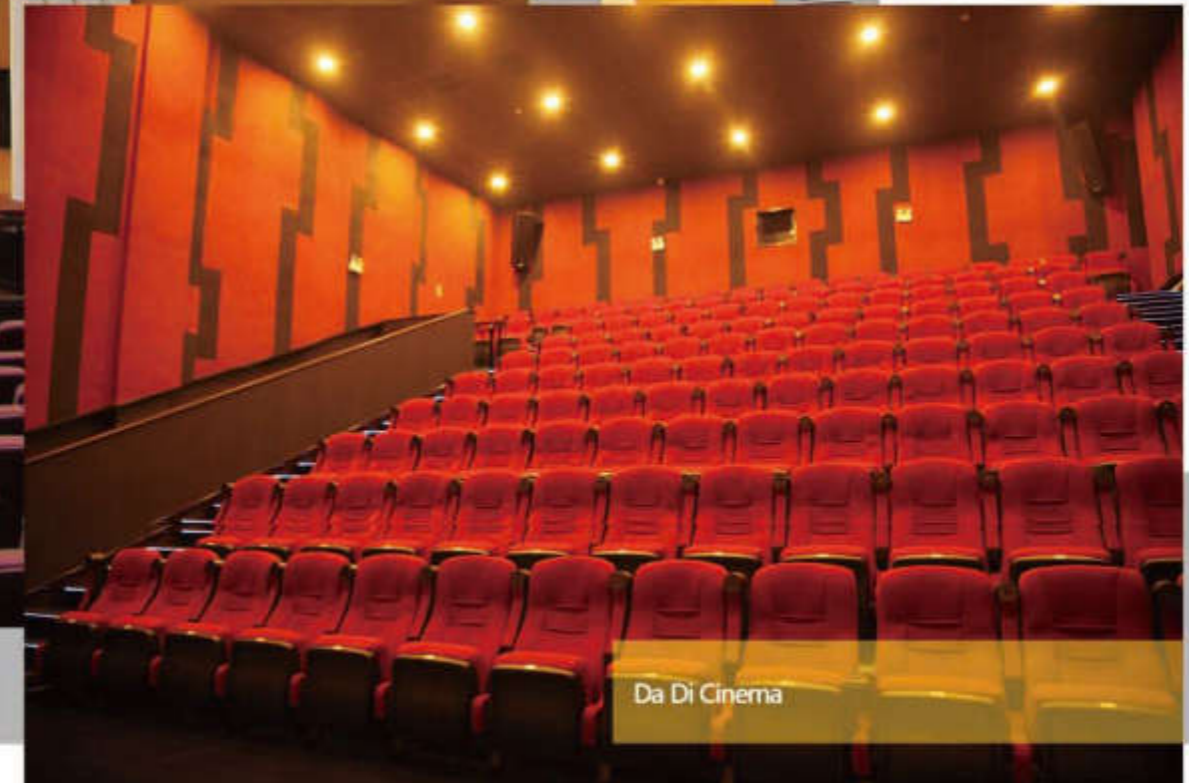
Total volatiles (TVOC)  $\leq 0.062$ , far lower than the national standard which is  $\leq 0.5$

No release of harmful substances, and it is a green material.

Waste materials can be recycled

	Material	Environmental Performance
<b>3S® Panels</b>	sand	E0

Nara International Conference Center in Japan



Da Di Cinema



Installation is simple, panels can be cut easily on the site  
Fixed with screw  
Easy cleaning and maintenance



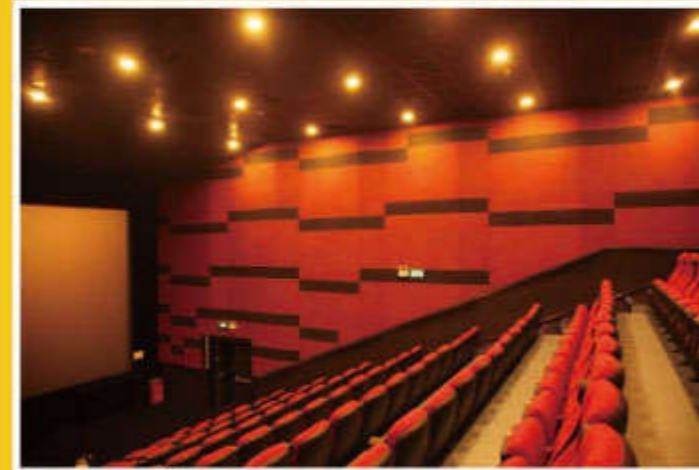
Large Ceiling



Fine Visual

Curve Ceiling

Combine both function and decoration perfectly



Sound-Absorption Wall

## 3S® advantages : extraordinary, comprehensive and innovative

Extraordinary sound-absorbing rate, which is 55% - 95%

Seamless installation, big size and whole plate

Suitable for various process of ceiling, hook face of wall and curve

Incombustible level reaches A

Total volatile organic compound (TVOC)  $\leq 0.062$

Changeable and multitudinous colors

## More extraordinary and innovative advantages

Moisture-resistance: Swell rate is only 0.16%, high performance of moisture-resistance.

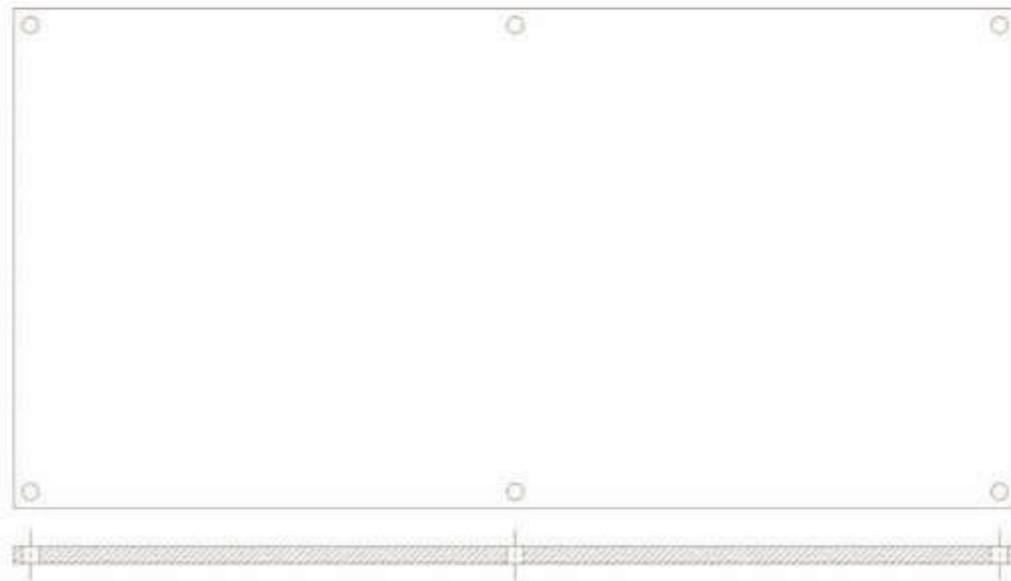
Frost-resistance: No stratum, cracking or and other wreck phenomenon after freeze-thaw cycle test.

Pound-resistance : pressure strength  $\geq 29.1\text{MPa}$ , folding strength is  $7.4\text{MPa}-24.7\text{MPa}$ , pounding strength is  $5.2\text{KJ}/\text{m}^2$ , Screw holding  $\geq 690\text{N}$ . It's better than the same thickness cement fiberboard.

Aging-resistance : The quality won't change in ultraviolet exposure.

Decoration: Unique sand stone pattern, simple and pure.

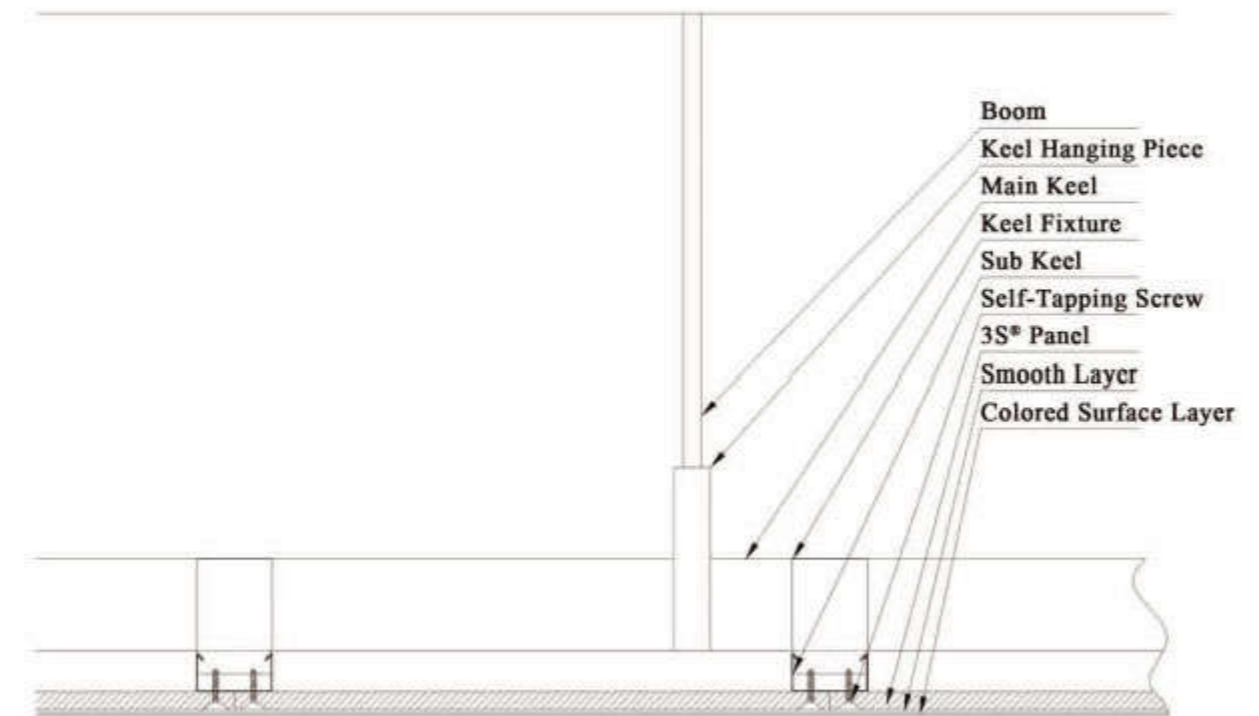
1. composite positioning lines: define the elevation lines, positioning lines, hanging points lines, light fixture lines
  2. install keels: install the side keels, main keels and sub keels following the guide of lines.
- Tips: 1) the cantilever of main keels should not exceed 300mm, otherwise there should be extra suspender  
 2) the joints of adjacent keels should be staggered.  
 3) the sub keels of walls should be MDF board with a width of 50mm and a minimum thickness of 12mm. Fire protection should be cast attention.
3. install sound-absorbing panels.
- 1) Ceiling:
    - ① drill holes on the installation of base boards ( as shown below )



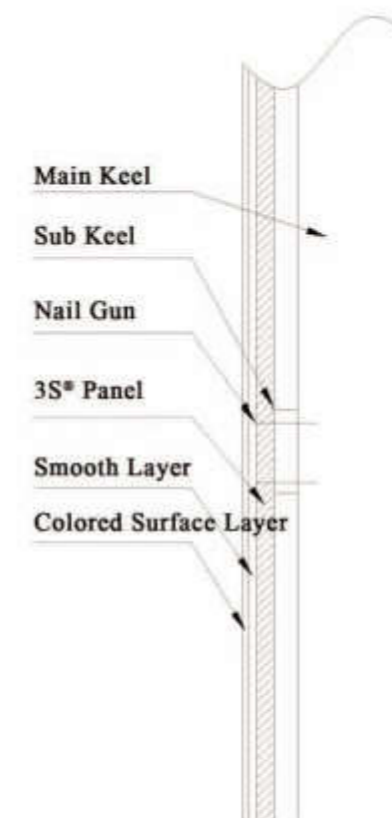
The drawing of drilling holes in base boards

- ② smear glass cement or structural adhesive at the joints of the sound-absorbing panels and the sub keels.
  - ③ fix the base boards by using self-tapping screws through their holes.
  - ④ coat the base boards after installation with acoustic transparent paint, while putting glass fiber cloth underneath it.
  - ⑤ spray the surface layer after coating with acoustic transparent paint (flexible color according to requirements).
- 2) Wall:
    - ① fix the sound-absorbing panels on the sub keels (MDF board with 50mm width and 12mm thickness) using shoot nail.
    - ② coat the base boards after installation with acoustic transparent paint.
    - ③ spray the surface layer after coating with acoustic transparent paint

- Note: i. shining is needed after each coating of spraying process.  
 ii. 36-72 hours are need for the coat layer to get completely dried.  
 iii. 24-48 hours are needed for the spray layer to get completely dried.



3S® Panel installation node of ceiling



3S® Panel installation node of wall