Elastic Acrylic Sports Courts

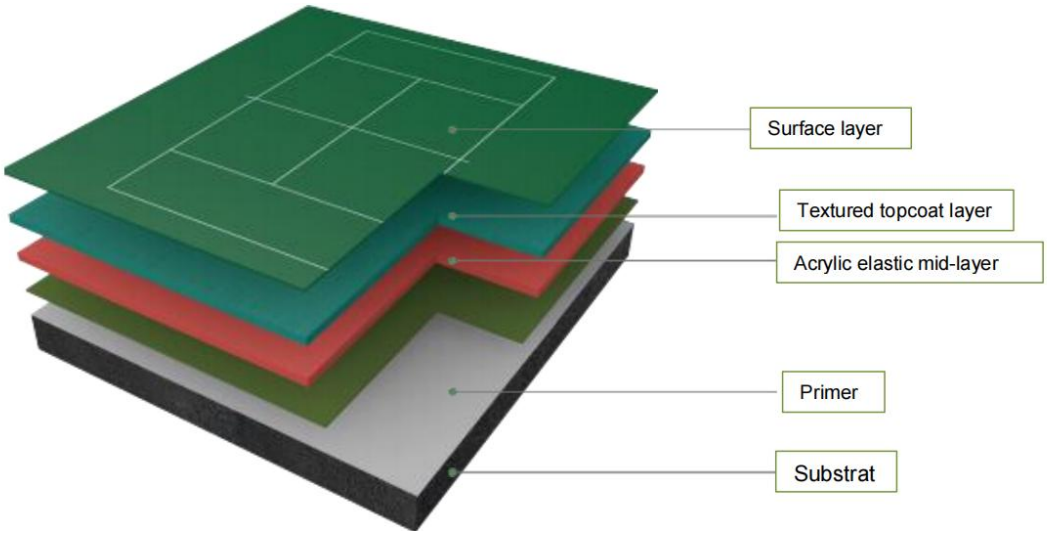
Construction Guide



Elastic Acrylic Sports Courts

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Construction Structure and System Arrangement



Environmental Requirements

- **Material Storage Conditions:**

Materials shall be stored in a cool, dry, and well-ventilated environment at a storage temperature between 5–35°C. Direct sunlight and rain exposure must be avoided, and all materials shall remain in their original sealed containers.

- **Construction Conditions:**

The ambient construction temperature shall be maintained between 10–35°C, and the relative humidity shall be below 80%.

Construction Drying Time

Tested at 23°C and 50% RH; drying time may be longer in cooler or more humid conditions.

Layer	Surface Dry Time	Recoat Time
Primer Coat	1 hour	12 hours
Elastic Layer	1 hour	3 hours
Finish Layer	1 hour	3 hours
Line Marking	1 hour	3 hours

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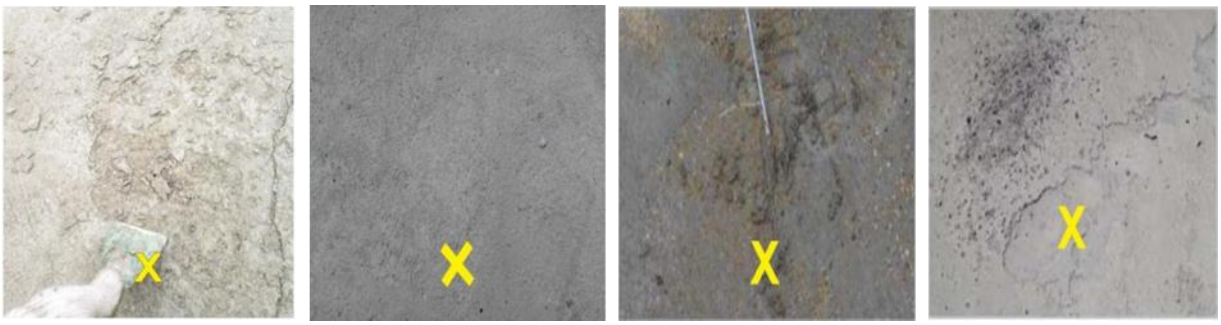
APPLICATION INSTRUCTIONS

1.Substrate Requirements:

1.1 Concrete Base

- The substrate strength must meet the standard of structural concrete C25.
- The substrate surface shall be solid, free of laitance and dusting.
- Surface evenness must meet the requirements. On-site, water testing or measurement with a 3-meter aluminum straightedge can be used. The site must have no large-area water accumulation; water depth within the 3-meter straightedge shall be less than 3 mm. The overall compliance rate of all test points should reach 90% or above.
- The substrate must have a certain slope to facilitate surface drainage of the court, with a slope of 0.5–0.7%.
- The overall curing period of the substrate must be no less than 20 days.





1.2 Asphalt Base

- Check the asphalt structure type first:

Skeleton-porous structure (typical examples: Asphalt Mix AM and OGFC drainage asphalt mix):
This structure has relatively large surface pores. More primer/sealer is required. Material quantities should be confirmed on-site with the client to ensure sufficient primer.
Skeleton-dense structure (typical example: SMA asphalt mix):
This structure has high deformation resistance and good durability. With small pores, it requires less material, making it the ideal asphalt base. However, due to high asphalt content, bleeding may occur, so adequate curing time is necessary before construction.
Floating-dense structure (typical example: AC conventional asphalt mix):
This structure has poor high-temperature stability and is prone to surface bulging or deformation. A thorough inspection of the entire site is required before construction.

- Confirm on-site curing time with the client: The minimum curing time is 7 days. If less than 7 days, watering is required twice daily (morning and evening). For SMA asphalt, a curing period of 10 days or more is required.
- Check for surface bulges or loosely laid areas: Any issues must be communicated immediately and rectified by the asphalt contractor.
- Inspect edges for depressions, cracks, or incomplete finishes: Repairs must be carried out with cold asphalt, and mortar repairs are strictly prohibited.
- Check surface evenness and slope: Requirements are the same as in section 1.1.
- Check for asphalt bleeding (oil seepage) on the surface.

2. Substrate Preparation

(1) Concrete Base

Acid Cleaning:

Scrape off any loose material from the flat substrate surface.Pre-wet the substrate with clean water. Apply approximately 8% diluted hydrochloric acid evenly and scrub the surface to remove cement laitance and powdery materials.Rinse thoroughly with clean water to ensure no residual acid remains. The substrate should be free of white powdery deposits and loose particles.Allow the surface to dry, mark areas of water accumulation, and note the water depth.

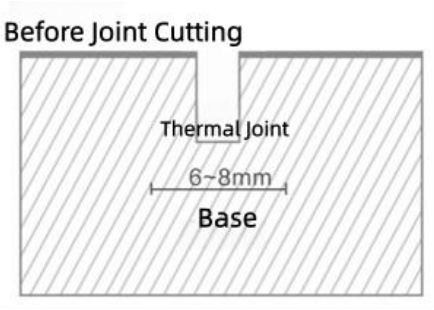
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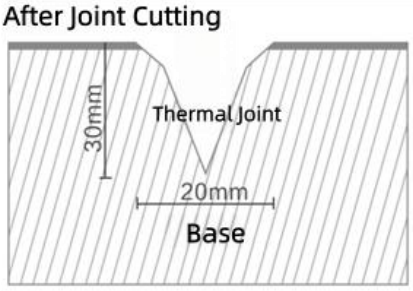
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Cutting Expansion Joints:

- For newly poured concrete, temperature expansion joints must be cut at appropriate intervals. Typically, one block is cut every 5 m × 6 m. Joints must be cut between casting panels. The joint width should be 6–8 mm, and the depth should be ⩾ 20 mm (⩾ 30 mm for concrete bases thicker than 150 mm). This ensures that thermal expansion and contraction are concentrated in the joints and do not cause cracking elsewhere.

- Chamfer the substrate on both sides of the expansion joint: 30–40 mm wide and 30 mm deep, forming a "V"-shaped groove.





Filling Expansion Joints

- Material: Silicone PU elastic layer
- Mixing Ratio: Silicone PU elastic layer : Quartz sand = 1:1
- Application:
  Mix the materials in the specified ratio thoroughly using an electric mixer.Pour the mixture into the expansion joints.Use a trowel or spatula to spread the mixture evenly over the base surface.Allow it to cure for 12 hours.After curing, grind any protruding parts flush with the surface using a grinder and clean the area.





(2) Asphalt Base

For a newly laid asphalt base, clean the surface thoroughly. Wash with a solution of detergent or laundry powder and water, then rinse thoroughly with clean water.For existing asphalt bases with cracks, repair them following the expansion joint repair procedure.

3. Pre-Construction Preparations

Prepare all necessary tools and equipment, including a dust-free dry grinder, trowels, scrapers, blower, sandpaper, angle grinder, polishing machine, spray gun, air compressor, and mixer.

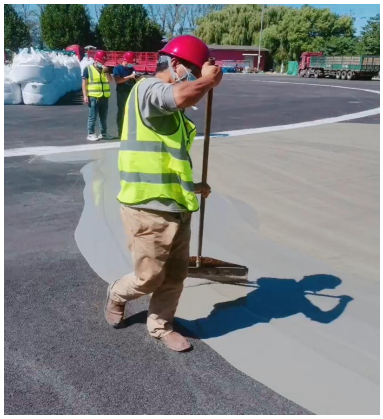
4. Primer Coat Application

4.1 Primer Application on Asphalt Base

Material	Mix Ratio
Acrylic Primer	1
108 Adhesive	0.6
Quartz Sand (80 mesh)	4
Cement (P.O 42.5)	2

Mix the materials in the order shown in the table: first add cement, quartz sand, and acrylic primer into the mixer and blend thoroughly. Then add the 108 adhesive and an appropriate amount of water, mixing until uniform.

Apply the prepared mixture evenly onto the primed asphalt base using a scraper. For asphalt surfaces with large aggregates, two applications may be required; for smaller aggregates, one application is sufficient. The purpose is to seal the fine pores of the asphalt base. The primer consumption is 0.35–0.7 kg/m².



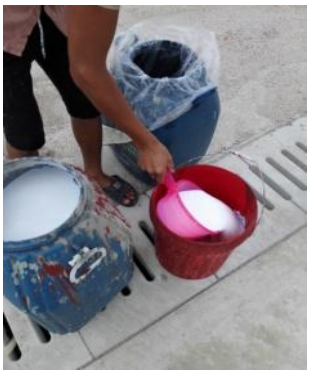
Application Process



Finished Surface Appearance

4.2 Primer Application on Concrete Base

Material	Mix Ratio
Acrylic Primer	1
Water	4



Primer Preparation



Primer Application

5. Elastic Layer Application

Coarse Elastic Layer:
Add 12% P.O 42.5 cement and an appropriate amount of water to the coarse elastic layer mixture and mix thoroughly. Apply the mixture onto the substrate using a notched trowel or flat trowel. The thickness of each coat should not exceed 1–2 mm. Allow the previous coat to cure before applying the next coat, generally 2–5 hours, depending on on-site weather conditions. Continue applying until the required total thickness is achieved.

Fine Elastic Layer:
The material ratio and application process are the same as for the coarse elastic layer.

Consumption: 1.2–1.4 kg per mm per m².





6. Finish Layer Application

Material	Mix Ratio
Acrylic Topcoat	4
Quartz Sand	3

Apply the finish coat in two layers.

For the first layer, mix quartz sand into the acrylic topcoat according to the specified ratio, then roll the mixture evenly onto the elastic layer.

For the second layer, apply the acrylic topcoat directly—without quartz sand—by spraying or rolling.

The finish coat consumption is 0.7–1.0 kg/m^2.



7. Line Marking Application

Positioning:

Use theodolites, steel tape measures, and other measuring tools to locate all marking lines in accordance with standards or design drawings. Measurements must be taken repeatedly and verified for accuracy. Once confirmed, mark the positions on the PU surface using a marking pen or special pencil.

Verification:

After positioning, verify angles using radial measurements. For straight sections, recheck using certified steel rulers (including length calibration and temperature correction). Line marking may proceed only after all measurements meet the required standards.

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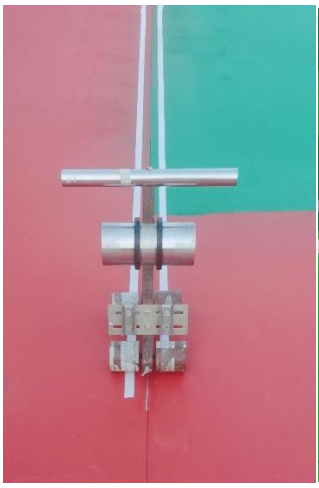
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Masking and Application:

Apply masking tape along the markings, mix the line marking paint, and apply using rolling or brushing methods.

Application Quality:

Operators must control rolling or brushing pressure to ensure clean, aesthetically pleasing lines with uniform color.



Apply masking tape



Line Marking



Finished Appearance

CONSTRUCTION PRECAUTIONS

Acrylic materials are suitable only for asphalt concrete bases and cement concrete bases. Their use on other types of substrates is not recommended.

Installing acrylic surfacing does not fundamentally prevent cracks from occurring, nor does it stop existing cracks from reflecting through from the substrate. In fact, acrylic materials themselves do not crack spontaneously; all cracks in the acrylic surface result from substrate cracks reflecting upward and pulling the acrylic layer apart.

Acrylic materials must be mixed with water, and the amount of water added must be controlled. Excessive water will reduce material viscosity and lead to issues such as color inconsistency, foaming, reduced adhesion, surface powdering, and lower wear resistance. Only clean, potable water should be used for mixing.