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**NEW BUILD AND FULL REPLASTERING OF EXISTING
SQUASH COURTS OR A SINGLE WALL**

Armourcoat Plaster

Armourcoat's Finishing Plaster is manufactured from 99% pure gypsum, and is quarried in the UK. Only material testing to 89% reflectance of Barium Sulfate (deemed to be pure white) is selected for Armourcoat's Finishing Plaster. A whitening agent (Titanium Dioxide) is added during manufacture to achieve even higher standards of whiteness and color consistency. Color variations, between individual batches while held to a minimum do occur, but variations will be slight.

Part I - General

1.1 Description

- A. The information herein details a high-density, gypsum plaster wall system suitable for racquetball, handball or squash courts.
- B. The general contractor shall provide first quality dense fletton brick or dense aggregate block (120 lbs./cu.ft. 2000 PSI). In situ concrete is suitable, but the bond between concrete and basecoat should be strengthened. Sand lime, flint lime or calcium silicate bricks, lightweight aggregate blockwork or hollow clay pots should be avoided. All substrates must be installed to a tolerance of plus or minus 1/8" in 10' - 0" of plumb and straight subject to approval by the plaster contractor. Moisture barriers must be adequate for conditions.
- C. Provide all labor, equipment and materials to finish and completely install the Armourcoat plaster system as called for in the drawings.

1.2 Quality Assurance

- A. All system components must be supplied by Anderson Courts and Sports Surfaces, Inc. of Buffalo, New York.
- B. The plaster installer shall be trained and certified by Anderson Courts and Sports Surfaces, Inc. with at least 5 years of experience.

1.3 Working Conditions

- A. The plaster system shall not be installed until all masonry, plastering and drywall work is complete and overhead mechanical trades and painters have finished in the area. The building must be reasonably dry; all openings closed in; permanent

- heating, air conditioning and lighting installed and working before, during and after installation.
- B. The area shall be dry, free of foreign materials and turned over to the plaster installer broom clean. Moderate room temperature of 65° or more shall be maintained a week preceding and throughout the duration of the work.
 - C. Electricity, clean water and waste disposal facilities shall be available.
 - D. Door frames shall be built into the rear wall and shall protrude ½” from the line of the substrate. Where glass walls are specified, the channels shall be fitted to protrude ½” from the line of the substrate.
 - E. The maple wood flooring shall be installed after plastering.

1.4 Warranty

- A. Anderson Courts and Sports Surfaces, Inc. warrants the plaster it ships to be free of defects in material and workmanship for a period of three (3) years. Anderson Courts and Sports Surfaces, Inc. warrants the installation to be free of defects in material and workmanship for a period of two (2) years. The exclusive remedy under this warranty shall be replacement of defective materials supplied by Anderson Courts and Sports Surfaces, Inc. or correction of defective installation. All implied warranties of merchantability or fitness for intended use are limited to the period of this warranty. This warranty excludes consequential damages.
- B. This warranty does not cover damage caused by fire, winds, floods, chemicals or other abuse or by failure of other contractors to adhere to specifications, or neglect of reasonable precaution to provide adequate protection. This warranty also excludes damage due to excessive dryness or excessive moisture from humidity, spillage, migration through the slab or wall or any other source. This warranty also excludes damage to the plaster due to ordinary wear and tear, faulty construction of the building (other than the plaster installation), separation of the concrete slab or settlement of the wall substrates.

Part 2 - Products

2.1 Manufacturer

- A. The wall system shall be fabricated and installed in conformity with the designs and approved shop drawings prepared by Anderson Courts and Sports Surfaces, Inc.
- B. Manufacturer shall be Armourcoat Ltd. as represented by Anderson Courts and Sports Surfaces, Inc.
- C. Wall system must conform to World Squash Federation requirements or governing body requirements having jurisdiction. Any system not conforming to WSF specification or those of the applicable governing body will not be acceptable.

2.2 Substrates

- A. Wall Preparation
 - 1. Correct wall preparation is essential and Armourcoat QA contractors must possess the expertise and knowledge to handle effectively all substrate types

and allow for all relevant factors when specifying substrate surface treatments. Proper wall preparation is central to lasting results.

2. Only washed sands, free of earth pigments such as metallic oxides, clay and marl should be used in squash court construction. Impurities in construction materials cause staining.
3. Substrate surfaces, prior to plastering, must be free of curing compounds, dust, laitance, and other impurities such as oil, grease, salts and PVA (Polyvinyl Acetate) film resulting from priming agents used overstrength or on dense impervious substrates.
4. The use of curing compounds on in-situ concrete walls has caused some recent cases of plaster failure. Resin-based curing compounds form an impervious film, locking in the moisture essential to avoid premature dry-out, ensuring proper strength development and creating optimum conditions for effective concrete hydration. They are designed to breakdown after 30 days, but total degradation can take up to three months, depending on several variables. Thus, all curing film must be removed completely by either sand-blasting or scabbling before applying Armourcoat materials.
5. On dry walls, reduce suction by continuous damping down until just sufficient to give “hold” to the basecoat. Wetting the wall is preferable and cheaper than using a priming agent. If special site problems dictate the use of priming agents, they must be applied exactly according to manufacturer’s specifications. **Never** apply priming agents at more than recommended strength or to dense, impervious substrates as a plastic like skin will form which will induce delamination. Polyvinyl Acetate (PVA) film contamination can be recognized by wetting the wall. If present, a white “bloom” develops on the substrate within a few minutes, and in worst case a film of PVA can be peeled off the wall surface. If plastering was attempted it would be like plastering onto a plastic bag.

B. Dissimilar Materials

1. Avoid, if possible, application of Armourcoat plasters over dissimilar substrates within the same wall. Varying substrate expansion and flexing characteristics will cause cracking, particularly in mixed brickwork and blockwork, mixed blockwork types or between beams and columns running through either brick or block walls. In courts constructed in this fashion, a glass fiber mesh membrane must be entrained in the Basecoat covering the joints between build materials. It is seldom an absolute cure, but does reduce serious crack probability. Clients should be advised that hairline cracks are likely. Note: Using Expanded Metal Lathe with building paper to separate substrate from plaster over beams/columns is **NOT** appropriate for squash court walls.
2. Treatment of joints in mixed substrates - Apply a 1/16” thick layer of Armourcoat Basecoat over the joint lines, extending approximately 8” each side of the beam/column. Place a 12” wide strip of fiber mesh (available from Armourcoat Limited) on the wet Basecoat centrally over the joint. Sandwich with a further 1/16” of Basecoat, ensuring complete wetting and impregnation and flattening in of the mesh. Overcoat with Basecoat as soon as the plaster has stiffened, but is still tacky.

3.2 Installation

A. Mixing

1. Armourcoat is **NOT** a conventional plaster and demands specialist treatment. Incorrect mixing will cause pitting, pinholing, early plaster system failure and consequential cost. Both Armourcoat Basecoat and Finishing Plaster should be mixed in a high sided plastic container using a slow speed electric drill (500-600 rpm) with an Armourcoat paddle.
2. Mix Armourcoat plasters immediately prior to use with clean, cold water.
 - a. Armourcoat Basecoat Plaster
 1. Add powder to water. Mix mechanically to a uniform, lump-free, creamy consistency.
 - b. Armourcoat Finishing Plaster
 1. Add powder to water. Mix mechanically to a uniform, lump-free sloppy consistency. (allow approximately 2.5 gallons of water per bag of finishing plaster) Let the plaster mix stand for 5-10 minutes to allow for the emulsification of resins and additives. During this time the mixture will noticeably thicken to a creamy consistency. Mix again immediately prior to use. Add more water only if necessary to produce correct working consistency. **NOTE**: It is vital to ensure that mixing and application utensils are clean and uncontaminated at all times. Residual material from previous batches will accelerate setting, affecting the quality of work. Wash mixing buckets and tools at least once per hour.

B. Application of Basecoat Plaster

To achieve Armourcoat's renowned finish and quality, these guidelines must be followed.

Wet substrates as necessary before basecoating

Floating Squash Court Walls

Squash court walls must be plastered flat horizontally and vertically. This standard of accuracy can be achieved with the plumb and dot procedure.

1. Setting Wall Plane by Plumb and Dot Procedures
 - a. Install Armourcoat Out of Play Lines with Basecoat Plaster, using a string line, to a perfect horizontal plane ½" proud of the substrate.
 - b. Position three rows of wooden dots (2" x 2" plywood squares) with Basecoat Plaster horizontally along the length of the wall, observing the bonding rules for in-situ concrete and smooth faced Engineering Bricks.

- c. Fix the first and third row of dots 6” above the floor and below the out-of-play lines. Provided the out of play lines are set to a perfect horizontal plane this can substitute for the top or third row of dots.
- d. Locate the second row approximately 8’ above the floor to line up vertically with the rows below and above. Set the end dots to the required depth (3/8”) over high spots. Using a string line between the end dots in each row, set all intermediate dots to a perfect plane by pressing in or building out until the dots line up.
- e. With a string line, plumb the vertical lines between the top and bottoms rows.
- f. When the dots are set firm, use vertical screeds between the dots to produce ruling off lines.
- g. On in-situ concrete and smooth faced engineering bricks, bond the substrate before forming ruling off lines using Armourcoat Basecoat gauged with ‘Black Label’ resin mixed 1:1 with clean water immediately prior to use.
- h. Once the plaster on the vertical screed lines is set firm, the wall can be floated, but first, remove plywood dots and infill with Basecoat ensuring a good bond when infilling.

NOTE: Experienced squash court plasterers can rule off the Basecoat using the out of play line and a temporary rule line about 6” above and parallel to the floor. This produces excellent results, but should be attempted by experienced plasterers only. **ARMOURCOAT QA CONTRACTORS ADOPTING THIS MUST GUARANTEE FLATNESS TO THE SATISFACTION OF THE CLIENT OR HIS AGENT.**

C. In-situ Concrete and Smooth Faced Engineering Bricks

Prepare surfaces thoroughly as detailed in 2.2 - Substrate Wall Preparation. Scabble or sand blast in-situ concrete before plastering. Temperature changes cause mass concrete walls to expand and contract, which may lead to Basecoat bond failure. A strengthened bond, achieved by Armourcoat’s recommended bonding procedure for in-situ concrete courts will prevent this.

1. Set wall plane as described above (Floating Squash Court Walls’ - (See Section B)
2. Wet wall with clean water.
3. Brush and stipple damp wall with a bonding coat comprising: Armourcoat’s Basecoat gauged with Armourcoat ‘Black Label’ Resin mixed 1:1 with clean water immediately prior to use.
4. While bonding slurry is still wet, working wet on wet, build thickness to 3/8” over high spots, one plasterer applying a tight coat working about six feet ahead of a second plasterer applying the second coat. If only one plasterer is working, the same wet on wet procedures must be followed. If slurry coat loses tackiness, recoat before continuing Basecoat work.
5. With a feather edge or Darby, straighten horizontally and vertically between leveling screeds to a flat, true surface. Fill slacks and hollows while the plaster is still wet.

6. While Basecoat is setting, but is still wet, rule off to a final flat, true surface. Close surface holes or fissures with a plastic or cross-grained wooden float, leaving a textured surface. Do not trowel smooth with a steel trowel.

D. Dense Concrete Blockwork or “Common” Brick

These substrates need no special bonding. The following procedure should be adopted:

1. Set wall plane as described above (Floating Squash Court Walls - See Section B).
2. Wet wall to eliminate excess background suction.
3. Apply Basecoat as a continuous operation, starting with a tight coat pressed well into pores and fissures to leave no voids.
4. Working wet on wet, build thickness to 3/8” over high spots, one plasterer applying the second coat. A plasterer working alone should observe the same wet on wet procedure.
5. With a feather edge or Darby, straighten horizontally and vertically between leveling screeds to a flat, true surface. Fill slacks and hollows while the plaster is still wet.
6. While Basecoat is setting, but still slack, rule off to a final, flat, true surface. Close any holes or fissures with a plastic or cross-grained wooden float leaving a textured surface. Do not rowel smooth with a steel trowel.

Setting Time

Normal working time on the hawk for Armourcoat Basecoat Plaster is approximately 1.5-2.0 hours, depending on prevailing conditions. Basecoat will set sufficiently for overcoating with Finishing Plaster after 3-4 hours.

E. Application of finishing plaster

Armourcoat is not conventional plaster and thus demands specialist treatment. If practices detailed in these instructions are followed correctly, future problems and expenses will be avoided.

Armourcoat Finishing Plaster is applied as a three-coat system, wet on wet, by firm trowelling. Ideally, Finishing Plaster should be applied on the same day as the Basecoat and as soon as the Basecoat has set hard. If this is not possible the Basecoat must be thoroughly wetted to eliminate excess suction immediately before applying Finishing Plaster.

Application

Making up Finishing Plaster, gauged with clean, cold water as detailed in Section A - Mixing - whisking to a smooth, sloppy consistency in a high sided plastic container using a slow speed electric drill (500-600 rpm) fitted with an Armourcoat paddle.

1. Leave in to emulsify for 5-10 minutes then whisk again. Add more water only if necessary to produce correct working consistency.

2. Apply a first tight coat of Finishing Plaster, squeezing it into the Basecoat surface to fill any pores and voids and eliminating air pockets. A second coat is then applied, wet on wet, building out to a thickness of 1/16". Best results are achieved when the finishing plaster is put in by two plasterers, one scraping on the tight coat about 6 feet ahead of a second plasterer laying on the second coat in a continuous process.
3. By the time the second coat is applied, the earliest applied plaster will have started setting but will be sticky to the touch.
4. While firming but not yet set, trowel flat before applying the final 1/32" - 1/16" of plaster.
5. Trowel down at intervals to achieve a flat, smooth, uniform finish.
6. Normally walls can be plastered without using a sponge float or re-wetting. A sponge float while giving a flat surface may cause undesirable color patchiness. (See Section F Potential Problems and Solutions - Discoloration).
7. Hot, dry working conditions may cause surface drying and plaster peeling up under the trowel. In such cases, a two man team should scour the surface 2-3 yards square at a time with wetted sponge float, used in a circular motion.
8. As the scourer progresses, his partners follow, trowelling off surplus 'fat'.
9. With scouring and trowelling complete, the team returns to the start point to trowel down to a hard finish.

F. Potential Problems and Solutions

1. Delamination - Delamination is the most common cause of squash court plaster failure. This is usually an indication of incorrect substrate preparation or failure in application to press and scrape the first layer of plaster into the substrate surface, with subsequent layers applied wet on wet, to achieve layer bonding.
2. Wet Plaster on Dry - Armourcoat Finishing Plaster is a three-layer system, applied wet on wet, to the required 1/8" thickness. If the first or second layers of Finishing Plaster are allowed to lose stickiness or become touch dry, subsequent applications will not bond sufficiently to withstand the stresses of court use, which can lead to delamination failures. Armourcoat QA contractors must ensure that plaster layers are applied wet on wet. If the plaster does dry out, the affected area must be re-worked into soft putty by wetted sponge float before re-coating with fresh plaster. This upholds the wet on wet rule and ensures a consistent finish and layer bonding.
3. Surface Blisters - If surface blisters appear during trowelling, do not press them back onto the wall and hide them. They must be removed and the area refilled with fresh, wet Finishing Plaster scraped and pressed firmly to the Basecoat. Failure to do this will cause plaster patches to break away under impact with consequential financial cost to the applicator responsible.
4. Discoloration - If excessive amounts of water are used during the final trowelling there is a risk that the finished surface will be patchy when dry. The cause is that Titanium Dioxide (white colorant) is drawn from the plaster and disperses in the surface water. As the surface liquid is trowelled it rests in hollows and is scraped off high spots, causing an uneven discoloration that may be seen once the plaster has dried. Using a sponge float to bring plaster back to "life" can cause this effect. A sponge float should only be used as a last resort if a flat surface is not achievable by standard plastering methods.

While such patchiness may not be esthetically acceptable, it should be stressed that it does not affect the strength or integrity of the plaster.

G. Setting Times

1. Normal working time on hawk for Armourcoat's Basecoat plaster is approximately 1.5-2.0 hours, depending on prevailing conditions. Basecoat will set sufficiently for application of Finishing plaster after 3-4 hours. Armourcoat's Finishing plaster sets hard in 2.0-2.5 hours.

H. Curing

1. The complete Armourcoat Basecoat/Finishing Plaster system demands a natural curing time of 40 hours at temperatures between 40°F and 70°F. At temperatures above 70°, walls should be mist sprayed in the morning after finishing. Chemicals processes are complete after 48 hours, after which, excess water in the plaster can be drawn out using a dehumidifier.
2. Courts can be put into play when the plaster is visually dry. This varies with temperature, humidity in the building and dehumidifier efficiency, but should be within four days of plastering completion.

I. Armourcoat Material Storage

1. Armourcoat Basecoat and Finishing Plasters will store satisfactorily for up to nine months if in unopened bags kept in warm (+55°F) and dry storage conditions.

3.3 Clean Up

- A. Clean up all unused material and debris and remove from premises. Wipe down walls and ceilings as required.
- B. Protection of erected walls and final cleaning is by others.

3.4 Maintenance

- A. Upon completion of plaster installation, the owners, attendants or individuals in charge and responsible for upkeep of the building are to see that the care and maintenance instructions of Anderson Courts are followed. Failure to do so may void warranty.