

Scope: This specification is intended for use as a guideline for the construction of a new tennis court on a reinforced concrete base, finished with a cushioned "All American Hard Court" surface using the unique, patented Nova'ProBounce System.

SECTION 02542



NOVA'PROBOUNCE TENNIS SURFACE NEW CONSTRUCTION OVER REINFORCED CONCRETE

PART 1 – GENERAL

1.01 SUMMARY

- A. This section includes and is not limited to:
1. Installation of the patented Nova'ProBounce monolithic pavement "CushionCourt" tennis court consisting of a base sheet of synthetic fibers and fabric interlocked with select aggregates, synthetic polymers and flexible acrylic finishing materials.
 2. Sub grade preparation.
 3. Steel reinforced concrete base.
 4. Tennis net posts, foundations and anchor straps.

1.02 QUALITY ASSURANCE

- A. Nova'ProBounce tennis surfacing shall be constructed by an approved licensee certified by NGI Sports (NGI). The Nova'ProBounce system shall meet manufacturing specifications set up for same.
- B. All material shall be clearly marked.
- C. Material shall not be installed when rain is imminent or the temperature is below 50°F.
1. The installation of the Nova'ProBounce system shall be completed in dry weather.
 2. Neither surface nor aggregates may be moist or wet.
 3. Fabrication should be done in dry weather with the temperature above 50°F and rising.
 - 4.

1.03 WARRANTY

- A. Materials shall have a minimum limited warranty supplied by the manufacturer.
- B. Contractor to provide {Owner} {Architect} {Landscape Architect} {Engineer}, upon completion of warranty application, written warranty at completion of project in accordance with section [01700] [01740] of the Project Manual.

PART 2 - PRODUCTS

2.01 SURFACING SYSTEM FOR TENNIS

A. The Nova'ProBounce base sheet, Nova'PB-Stratum shall consist of artificial fibers that shall meet the following minimum specifications:

- | | |
|--------------------------|----------------------|
| 1. Tufting Construction | ASTM D418 |
| 2. Breaking Elongation | 124%, ASTM D1682 |
| 3. Breaking Load | 181 lbs., ASTM D1682 |
| 4. Grab Tear Strength | 100 lbs., ASTM D1682 |
| 5. Seam Tensile Strength | 55lbs./inch, minimum |
| 6. Melting Point | 334.4° F, ASTM D789 |
| 7. Flame Test | Pass, ASTM E108 |

B. Granular Fill Material: Nova'PB-Textfill, shall consist of approved 30-70 mesh infill granules applied at a rate of approximately two point two (2.2) pounds per square foot. All aggregate shall be kept dry.

C. Seams: Nova'PB-Bond, weather resistant polyester tape and one component, moisture cured urethane adhesive as recommended by system manufacturer.

D. Resin Binder: Nova'PB-PolySeal (acrylic binder) shall be of the quality approved by system designer, NGI.

E. Interface: Nova'PB-ACR Binder (interface coating) shall be of the quality approved by system designer, NGI.

F. Surface: Nova'PB-Finish (color surfacing materials) shall be of the quality approved by system designer, NGI.

2.02 BASE MATERIALS

A. Crushed Aggregate Base Course: Minimum 4" aggregate base with 1" to 1-1/2 " layer of stone dust screening for the leveling course constructed on a prepared sub grade.

1. Materials may be a combination of crushed stone, crushed or uncrushed sand gravel, limestone gravel, or other locally qualified binder materials approved by the {Owner} {Architect} {Landscape Architect} {Engineer}.

2. Materials shall be thoroughly mixed to ensure the final product will have a uniform grading and plasticity.



3. Crushed stone or gravel shall conform to local specifications for rock base construction and the following:
 - a. Retained on the 2 inch sieve -0- %
 - b. Retained on the 1/2 inch sieve 0-5%
 - c. Retained on the 3/4 inch sieve 5-30%
 - d. Retained on the No. 4 sieve 35-60%
 - e. Retained on the No. 8 sieve 45-70%
 - f. Retained on the No. 40 sieve 60-83%
 - g. Retained on the No. 200 sieve 80-92%
4. If the required compacted depth of the base course exceeds 6", the base shall be constructed in two or more layers of approximately equal thickness.

B. Sand: ASTM C144.

C. Vapor Barrier: Sheets, 6 mil minimum in thickness, no pinholes.

D. Steel Reinforcement Bars: Standard Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement ASTM A 615, Grade 60.

E. Tie Wire: 16 gauge annealed steel wire, Federal Specification QQ-W-461.

F. Prefabricated accessories shall comply with Product Standard PS7 and CRSI Manual of Standard Practice, Class D or E.

G. Normal Weight Concrete: Composed of ASTM C33 aggregate, cement and water, weighing 145-150 pounds/cubic foot, cured and air dried.

1. Portland Cement (Type 1 or 1A) shall conform to one of the Standard Specifications for Portland Cement, ASTM C 150 or Specifications for Blending Hydraulic Cements, ASTM C 595, excluding slag cements Types S and SA. Do not use curing compounds.
2. Air entrainment by total volume of concrete shall be:
 - a. 4-6% for 1 ½ inch maximum size coarse aggregate.
 - b. 5-7% for ¾ inch or 1 inch maximum size coarse aggregate.
 - c. 6 ½ to 8 ½% for 3/8 inch or ½ inch maximum size coarse aggregate.
3. Aggregate: ASTM C 33. For concrete work, the nominal size of the coarse aggregate should not exceed 1 ½ inches.



4. Concrete Proportioning and Mixing: Compression strength of not less than 3,000 psi at

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28 days after casting. The minimum cement content shall be not less than 470 lbs per cubic yard for 1 ½ inches maximum size coarse aggregate; 520 lbs for ¾ inch, 590 lbs for ½ inch and 610 lbs for 3/8 inch maximum size coarse aggregate. In freeze/thaw environments, the minimum cement content should not be less than 560 lbs per cubic yard. The slump should not be more than 4 inches. Ready-mixed concrete should be mixed and delivered in accordance with ASTM C 94, Specification for Ready-Mix Concrete.

2.03 TENNIS COURT ACCESSORY MATERIAL

- A. Net Posts and Sleeves Equipment: Tennis posts shall be made out of steel, metal or wood of sufficient strength to properly support the net at a height of 42". Posts and sleeves shall be set where indicated on drawings. Posts shall be set plumb and true so as to support the net at a height of 42" above the court surface at the net posts.
- B. Center Strap Anchor: A center strap anchor shall be positioned as shown on the drawings and set in concrete footings measuring 12" X 12" X 12".
- C. Tennis Nets: Shall be polyethylene 3 mm braided body, 42' long and 3.25' wide, polyester top binding attached with four lock stitched rows. Sides shall be braced with dowels for a neat, taut appearance. Nets shall be installed, upon completion, to posts and cables.

PART 3 - EXECUTION

3.01 SUB GRADE AND SURFACE PREPARATION

- A. Area is to be cleared of all trees, stumps, vegetation, and topsoil and treated with a soil sterilent.
- B. Prepare sub grade by blading, rolling and lightly scarifying a sound surface to within a finished tolerance of 1/8" in 10'(ten feet) when measured in any direction and a minimum overall slope of 1%.
- C. Contours of the sub grade shall conform to those of the finished grade of +/- 1/2".
- D. Fill and Compaction
 - 1. When fill is required, it shall be placed in 6" lifts, maximum, with approved material and each lift shall be thoroughly compacted to a density of 95% proctor.



- 2. Unstable or otherwise objectionable material shall be removed from the sub grade and

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replaced with approved material.

3. All holes, ruts and depressions shall be filled, reshaped and compacted as required to place the sub grade in acceptable condition to receive base material.
4. Prior to placing succeeding layers of material, the top of the under layer shall be significantly moist to ensure uniform moisture between layers.
5. The edges and edge slopes of the sub grade shall be bladed and otherwise depressed to conform to the lines and the dimensions of the finished surface.
6. Install a continuous, engineered 2 mm thick woven geotextile over the entire sub grade.

3.02 BASE INSTALLATION

- A. A true vapor barrier shall be installed prior to installation of any steel and/or cables. Once in place no vehicular traffic shall be allowed on the vapor barrier nor any other object which could puncture the barrier or otherwise compromise the integrity of the surface.
- B. Forms and screeds should be set accurately and secured to prevent settlement or movement during placing of concrete. Forms shall remain in place until the concrete has taken its final set.
- C. Steel Reinforcement Bars: #4 size at 18” on center in both directions.
 1. Bars shall be accurately positioned at mid-depth, terminating 2” away from edges and joints, and should be adequately supported by chairs with sand plates provided to prevent bar supports from sinking into the sub base.
 2. Bars shall be lapped at 18” and should also be securely tied or otherwise secured so that there is no possibility of displacement when concrete is placed.
 3. At the time of concrete placement, reinforcement shall be free of loose, flaky rust and other coatings or films that could interfere with bonding to the concrete.
- D. Joints
 1. Non-extruded expansion joint filler material $\frac{3}{4}$ inch thick should be installed at the net line if the two halves of the court are cast separately, and between courts if there is more than one court.
 2. The bottom edge of the filler material shall extend to or slightly below the bottom of the slab; the top edge should be held $\frac{7}{8}$ inch below the surface of the slab by a tack strip of



wood, its top flush with the finished slab surface.

3. Edges of joints should be tooled with an edging tool having a radius of ¼ inch. After the concrete has cured the tack strips should be removed and the joints sealed with an elastomeric sealing compound to within 1/8" of the surface.
4. If the two halves of the court are cast separately, a concrete grade beam 6 inches thick and 18 inches wide, minimum with two #4 reinforcing bars run continuous shall be cast across the center of the court.
 - a. Grade beam shall support the two slabs at the expansion joint under the net.
 - b. Top of grade beam shall be at the elevation of the bottom of the court slab.
 - c. Grade beam shall be placed 48 hours prior to the court concrete.
 - d. Bonding between the grade beam and the court concrete shall be prevented by painting the top of the beam with an asphaltic or other bond preventing material.
 - e. Thickened grade beam to 12 inches at the net posts to provide additional stability for the posts. *(CAUTION: All Working Joints May Close and Re-Open.)*

E. Concrete shall be pumped, not driven onto court.

F. Reinforced concrete slab shall be 6 inches thick. Overall dimension of an individual court shall be no less than 61 feet by 121 feet to provide for a 6 inch apron around the court. *(62 feet by 122 feet if want to provide a 1 foot apron. This additional footage helps prevent vegetation intrusion, facilitates landscape maintenance and adds to the overall cosmetics. Fencing should remain at 60 feet by 120 feet. Fence posts, net posts, sleeves and center anchor should be installed prior to or during concrete placement. Fencing should be completed prior to surfacing.)*

G. Concrete Placing and Finishing

1. At least a full half court shall be placed in one continuous operation without intervening joints of any kind.
2. Uninterrupted concrete placing operations without intervening joints shall be limited to one full court with continuous reinforcement.
3. Concrete shall be spread, consolidated, screeded, bull-floated and finished in accordance with Section 7.2 of ACI (American Concrete Institute) Standard 302, Recommended Practice for Concrete Floor and Slab Construction.



4. When concrete is sufficiently set to withstand foot pressure with only about ¼ inch indentation and the water sheen has left the surface, the slab shall be uniformly finished

by power floating and troweling.

5. Final finish texture shall be a medium broom finish unless otherwise specified by the surface manufacturer.
- H. Surface Tolerances: Finished surface of the court shall not vary more than 1/8 inch in 10 feet when measured in any direction with a 1% continuous slope.
- I. Curing: Immediately after finishing, the concrete shall be kept continuously moist for 7 days by covering with polyethylene film, waterproof curing paper, sprinkling, or other acceptable coverings. No curing compounds shall be used.

3.03 INSTALLATION OF TENNIS COURT ACCESSORIES

- A. At least 24 hours prior to placing concrete base, place 12” diameter holes in the base, 36” deep. Place net post sleeves in position with the top approximately ¼ “ below the finished court elevation and pour 6” of concrete around the bottom to hold in position. Be sure sleeve remains plumb.
 1. Foundations shall be so designed and poured, and the posts so set, as not to cause cracking or other damage to the finished court surface.
 2. Post foundations shall be not less than 24” in diameter at the top, not less than 30” in diameter at the bottom, and not less than 36” in depth.
 3. Concrete for sleeve foundations shall be mixed in ratios of six standard 94 pound sacks of cement per cubic yard of concrete, with one such sack of cement to not more than six U.S. gallons of water, attaining a compressive strength of not less than 3,500 psi at 28 days after pouring.
- B. Foundations shall be situated so as to provide a clear distance between posts of 33’ on single courts and 42’ on double courts.
- C. Posts shall be set plumb and true so as to support the net at a height of 42 inches above the court surface at the net posts.
- D. The metal anchor strap, located at the center of the net, shall be set in a concrete footing measuring 12” in diameter and 12” deep.



- E. Square footings and foundations are not acceptable.
- F. Tennis nets shall be installed, upon completion, to posts and cables for a neat, taut

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appearance.

3.04 TENNIS COURT SURFACE PREPARATION

- A. Inspect entire surface for any imperfections; grind and scrape surface to remove any imperfections which may exist. Depressions 1/16" or deeper shall be filled and leveled.
- B. The entire surface shall be thoroughly cleaned to remove dust, dirt and foreign debris.
- C. Apply 24" 7.5mm mylar tape over all joints. Apply a coat of Nova'PB Bond over one side to secure into place.

3.05 NOVA'PROBOUNCE SURFACING SYSTEM

- A. Confirm that all center strap anchors and net post sleeves are in place prior to surface installation.
- B. The surface course shall be installed according to manufacturer's specifications.
- C. All surface course materials are to be installed after the surface has been inspected and approved by the [Owner] [Architect] [Landscape Architect] [Engineer].
- D. Specially engineered base sheet layer, Nova'PB-Stratum, shall be placed over sub base in accordance with manufacturer's instructions.
- E. All sections of the base sheet layer are to be laid out in the same direction.
- F. All joints shall be attached with Nova'PB-Bond, a special combination of a one-component, moisture cured urethane adhesive and a weather resistant tape as recommended by system manufacturer. Heat seaming methods are not allowed.
- G. Base Sheet In-fill: Using a special mechanical mix device to filter the material into the fabric, the Nova'PB-TeXFill material in fill shall be filtered into the surface mat in several light layers and shall be brushed in to allow for compaction and a level finish.
- H. Prime Coat: Entire area to receive a primer of Nova'PB-PolySeal blended with a pre-measured quantity of Nova'PB-Colorant and allowed to cure for a minimum of 24 hours. All materials to be spray-applied using the Nova'PB-AppSYS.
- I. Seal Coat: Entire area to be saturated with a seal coat of Nova'PB-PolySeal binder blended with a premeasured quantity of Nova'PB-ACR Binder to lock system and allow to cure for a minimum of 24 hours. All materials to be spray-applied using the Nova'PB-AppSYS.



- J. Inspect entire surface for imperfections; grind and scrape surface to remove any imperfections which may exist.
- K. Fill & Texture: Apply one coat by rubber squeegee of Nova'PB-ACR Binder to surface to prepare area to receive Nova'PB-Finish color surfacing materials.
- L. Edging: Apply edge trim, Nova'PB-Edge Tape to perimeter of court to seal all surface edges.
- M. Finish: Apply Nova'PB-Finish - approved flexible color surfacing materials.
- N. CAUTION: Do not allow petroleum products to be spilled on the Nova'ProBounce surface.

3.06 CLEAN UP

- A. Upon completion of the work, the contractor shall remove all containers, surplus materials and debris and have the site in a clean and orderly condition acceptable to the [Owner], [Architect], [Landscape Architect], [Engineer].
- B. Provide [Owner], [Architect], [Landscape Architect], [Engineer] with Nova'ProBounce Maintenance Manual at completion of project in accordance with Section [01700] [01730] of the Project Manual.

END OF SECTION

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