

post-tensioned



LERenner
SPORTS SURFACES

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Post-tensioned concrete was originally developed during the 1930's when it was realized that placing concrete under compression greatly increased its strength. This method involves encasing sheathed cables in concrete, then stressing and locking the cables in compression after the concrete has set up. This method of construction allows for large slabs to be constructed without intervening joints, creating a truly monolithic slab.

In 1981, Lee Renner became aware of the use of post-tensioned concrete for tennis court construction. He recognized the value of a method of construction that would provide a more structurally sound substrate, one that would increase longevity and better resist the most common problems associated with tennis courts: heaving, settling and large structural cracks.

Today, most new and reconstructed tennis courts in the Rocky Mountain region are specified and constructed using this tested and perfected technology. Post-tensioned concrete tennis courts have grown in popularity because of these advantages over conventional concrete and asphalt courts:

- **Ability to span unstable soils**
- **Increased resistance to settling and/or heaving**
- **Elimination of cold joints around net posts and fence posts**
- **Better uniformity of play**
- **More controlled slope for drainage**
- **Stable, attractive concrete edge**
- **Lower maintenance costs. This is important if future access is limited by landscaping, structures, etc.**
- **Eliminates the potential liability from structural cracking**
- **Ability to construct over existing courts, thereby saving valuable resources associated with demolition and disposal**

the post-tensioned construction process



Renner Sports Surfaces has over 27 years experience in the design and construction of post-tensioned concrete tennis courts, utilizing installers trained and certified by the Post-Tensioning Institute.

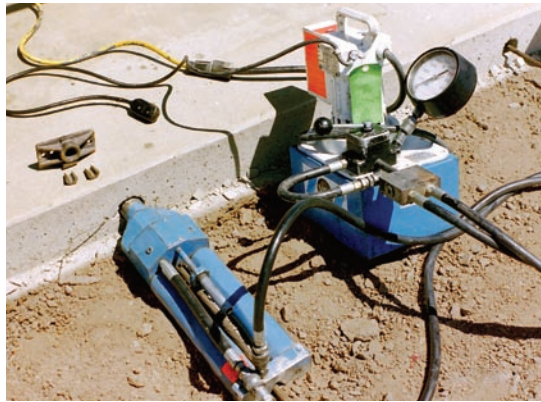
1. laser grading

After rough grading, the fine grade is achieved with the use of a laser controlled machine to create a true plane with tolerances to $\pm 3/8"$. A perimeter beam is then excavated for the cable anchors.



2. cable placement

Forms are set to grade using laser technology to assure uniform planarity throughout. The post-tensioning tendons are placed in both directions, with spacing determined by slab length and soil conditions.



3. concrete placement

Concrete is placed using concrete pump trucks, and leveled using laser-guided equipment to assure uniform planarity.



4. concrete finishing

Using equipment specifically designed for working large areas of concrete, the slab is finished in multiple directions, assuring planarity and texture across the entire court complex.



5. fence posts

Fence posts are installed at the perimeter beam into the wet concrete to eliminate cold joints at these locations.

6. tendon stressing

Once the concrete has achieved a specific compressive strength, the tendons are hydraulically tensioned to 33,000 p.s.i. and anchored at 28,900 p.s.i. Following final stressing, cable ends are cut off 3/4" inside the edge of slab and the pocket is grouted to prevent rusting of the tendons.

7. surfacing

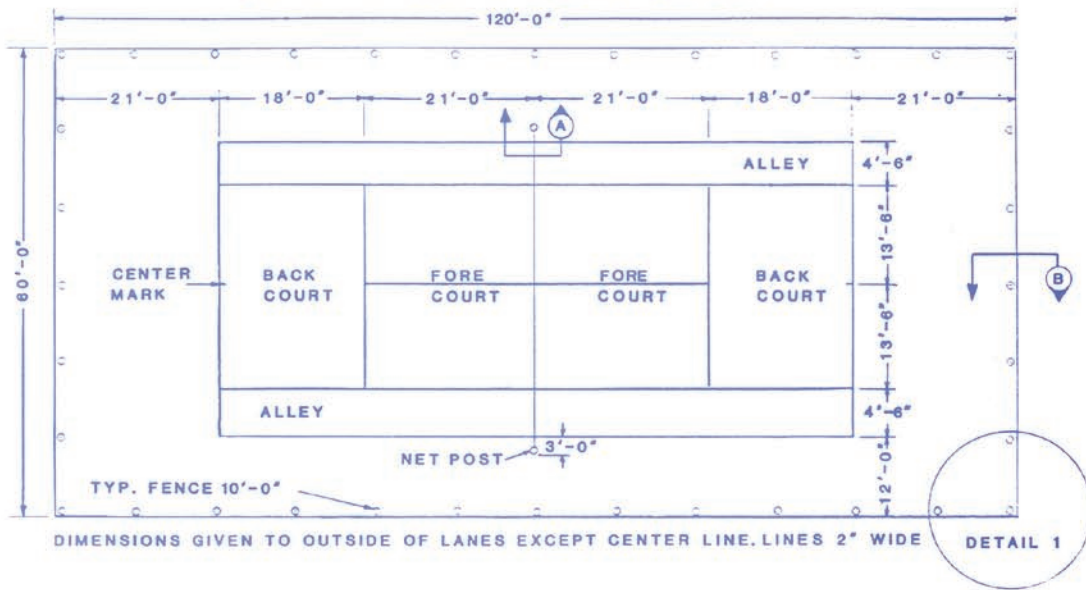
Standard surfacing consists of multiple coats of acrylic color applied to the prepared concrete. For resilience, a variety of cushioned surfaces are available.

8. accessories

A full line of accessories, including windscreens, lighting, benches, and other amenities, is available to customize your project.

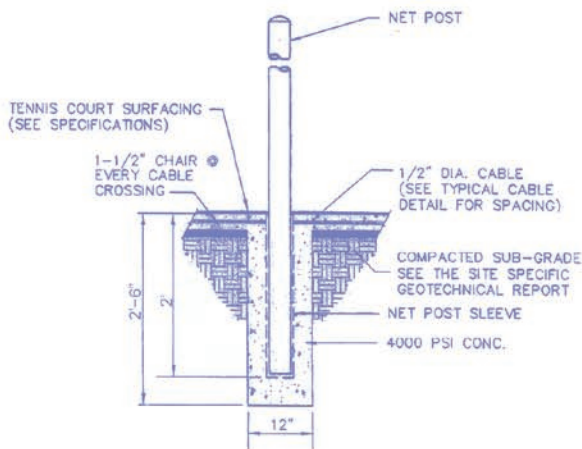
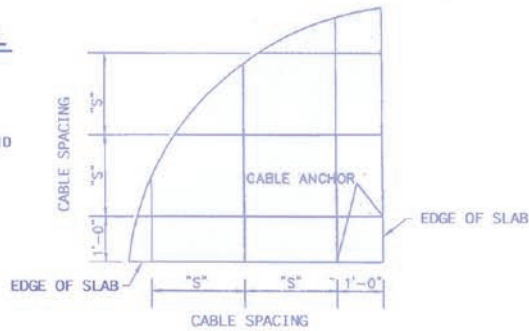
STANDARD CONSTRUCTION DETAILS

60'-0" X 120'-0" COURT LAYOUT

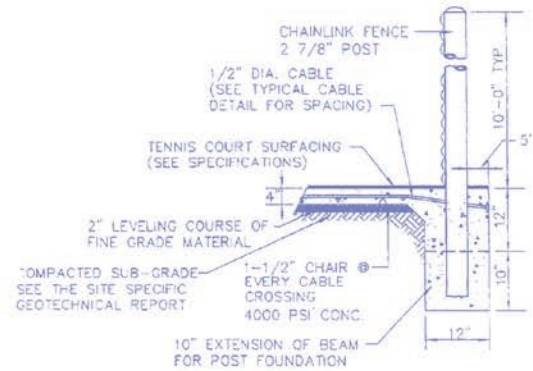


DETAIL 1 — TYPICAL CABLE DETAIL (NOT TO SCALE)

SLAB LENGTH	CABLE SPACING	DEAD END/LIVE END
0' - 100'	"S" = 3' - 4"	1 DEAD & 1 LIVE END
100 - 200'	"S" = 2' - 6"	2 LIVE ENDS
>200'	"S" = 2' - 0"	2 LIVE ENDS



CROSS SECTION A — TYPICAL NET POST FOUNDATION
(NOT TO SCALE)



CROSS SECTION B — TYPICAL PERIMETER BEAM & FENCE
(NOT TO SCALE)



TENNIS COURTS, RUNNING TRACKS, BASKETBALL COURTS, IN-LINE HOCKEY RINKS

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