



Martin County Building Department

900 SE Ruhnke Street

Stuart, FL 34994

(772) 288-5482

Fax (772) 419-6935

HOERSCH, DAVID KEITH
ARMOR COURTS INCORPORATED
3477 HIGH RIDGE ROAD
BOYNTON BEACH, FL 33426

NOTICE TO ALL CONTRACTORS

PLEASE BE ADVISED THAT MARTIN COUNTY, FLORIDA SECTION 43.42 REQUIRES COMPLIANCE WITH THE FOLLOWING EXERPT FROM THE GENERAL ORDINANCES OF THE MARTIN COUNTY CODE:

PROHIBITED ACTIVITIES:

43.42 R Advertising contracting work in any advertisement to the public in a newspaper or telephone directory without including in the advertisement the number of the contractor license issued to the person or business being advertised.

43.42 S Operating any commercial vehicle in the course of conducting the practice of contracting that fails to display the contractor license number of the contractor.

If you have any questions relating to the information in this letter , please contact the Martin County Contractor's Licensing Division of the Martin County Building Department.



MARTIN COUNTY, FLORIDA
Contractor's Licensing
Certificate of Competency

MC - TENNIS COURT CONSTRUCTION

License #:MC2000055

Expires: 09/30/2021

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[Home](#) | [Product Control](#) | [Contractors](#) | [Building Officials](#) | [Contact us](#) |

[miamidade.gov](#)

Contractor License Information

Contractor Number: 16BS00488
Contractor name: ARMOR COURTS INCORPORATED
Address: 3477 HIGH RIDGE ROAD
City, St, Zip: BOYNTON BEACH FL 33426
Phone: (561) 501-0885
Other Phone:
Fax:
Email: PHOERSCH@ARMORCOURTS.COM
D/B/A:
Contractor Status: ACTIVE

Class	Category	Category Description	Expiration Date
BLDG	56	TENNIS CT/PAVING	06/30/2023

CONTRACTOR INQUIRY COMPLETE

[BCCO Contractor Inquiry and Complaint Search](#) | [BCCO Home Page](#) | [State License Search Menu](#)

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Peter Ringle, Chair

Construction Industry Licensing Board
of Palm Beach County

Oscar Alvarez, Director

License Number	Type of Competency Certification
U-22209	TENNIS COURT CONTRACTOR



Named below is a Certified Contractor as outlined in the Standards to perform under the provisions of Special Act Chapter 67-1876, Laws of Florida as amended and as mandated by State Statute.

NAME : KEITH DAVID HOERSCH
FIRM : ARMOR COURTS INC
DBA :
4712 PEPPER BUSH LN
BOYNTON BEACH, FL 33436



Issued : 09/14/2021

Expiration date: 09/30/2023



Qualifications Statement

Armor Courts Inc., a Certified Women's Owned Business, is a Sports Surfacing Corporation established in 2015. Armor Courts, Inc. has over 15 years of combined experience between our staff.

Over the years, Armor Courts, Inc. has brought great value and professionalism to our clients, to include parks and recreation facility managers, multifamily homes, churches, schools, private residences, general contractors, and paving contractors throughout the state of Florida. The projects have consisted of basic repairs, complete restoration and ground up construction services for all types of sport surfaces which include Tennis, Basketball, Basketball Goal Installation, Pickleball, Shuffleboard Courts etc.

Our technicians are trained to only deliver quality work that is never comprised by price. Our administration is fully trained to handle any type of documentation and accounting to seamlessly complete all our transactions.

We are a fully licensed and insured Tennis Court Contractor in Palm Beach, Broward, Martin and Miami-Dade Counties.

We welcome the opportunity to be a trusted resource for all your outdoor sport surfaces.

3477 High Ridge Road, Boynton Beach FL 33426 – 561-501-0885

www.armorcourts.com
phoersch@armorcourts.com



Completed Projects Reference Sheet

Please accept these recent projects that you may contact for references. This group of professionals may respond more efficiently to emails rather than phone calls. However, you are welcome to phone them if that is your preference.

Municipalities

- **City of Boynton Beach** – Wesley Norwood – Parks Superintendent – 561 -742-6253
norwoodw@bbfl.us 2023 – Converted Tennis Courts to 6 Pickleball Courts at City of Boynton Beach Tennis Center
- **City of Boynton Beach** – Wesley Norwood – Parks Superintendent – 561 -742-6253
norwoodw@bbfl.us 2023 – Basketball Court Surfacing at Hester Park
- **City of Boynton Beach** – Frankie Lazo – Parks & Recreation Manager – 561-564-682
lazof@bbfl.us – 2021- Basketball Court Resurfacing at Sara Sims Park.
- **City of Coral Springs** – Seth Sheitmeyer – Parks & Recreation - 954-551-9224
sheitmeyer@coralsprings.org. 2021 - Basketball, Tennis Court, Pickleball Court Resurfacing at various parks.
- **City of Doral** – Lazaro Quintero- Assistant Parks & Recreation Director- 305-593-6600
lazaro.Quintero@cityofdoral.com Pickleball Court Striping at Doral Legacy Park.
- **City of Palm Beach Gardens** -Michael Hammock -Operations Manager -561-804-7048
mhammock@pbgfl.com 2020 –Tennis Court Resurfacing at Oaks Park - Resurfaced 4 Basketball Courts at Marisol Park.
- **City Of Palm Beach Gardens**- Andrew Keller-Operations – 561-804-7048 akeller@pbgfl.com
2022- Basketball & Pickleball Courts at Joseph R. Russo Athletic Complex
- **City of Parkland** – Bruno Battel- Parks & Recreation – 954-753-5040- bbattel@cityofparkland.org
2020 / 2021- Basketball Court Resurfacing at Pine Trails Park – Basketball Goal Replacement / Installation at Pine Trails Park and Terramar Park.
- **Greater Boca Raton Beach & Park District** - Melissa Dawson -Facilities Manager -561-706-5677
mdawson@mybocaparks.org –2019- Resurfaced 18 Tennis Courts at Patch Reef Park.
- **Village of North Palm Beach** -Stephen Poh-Director of Parks & Recreation -561-904-2128
spoh@village-npb.org - 2021- Basketball Court Striping, Backboard Replacement at Community Center.
- **Village of Palm Springs** -Garrett Pearson-Program Supervisor -561-434-5111- gpearson@vpsfl.org
2021 -Tennis Court Resurfacing at Village Athletics Center.

- **Village of Tequesta** – Greg Corbitt –Director of Parks & Recreation – 561-768-0473
gcorbitt@tequesta.org – 2021- Tennis / Pickleball Court Renovations & Resurfacing including Fence Replacement at Tequesta Park.

HOA's

- **Sunshine Holiday** – Anthony Fray – Property Manager –
sunshineholiday_mgr@equitylifestyle.com -2022- Petanque & Shuffleboard Courts, Concrete Repairs
- **Lakepointe POA** – Michael Voss – Property Manager – michael@phoenixfla.com –
2022 – Tennis Court Resurface
- **Cana lakes HOA** – Patrick Morris- Board Member - patrick.morris@gmail.com -2021- Tennis Court Resurfacing.
- **Captiva POA** - Martin Deiser – Property Manager - 561-213-1742- admin@solidrockpm.us -
2021Tennis Court Resurfacing.
- **LaPaloma- John Dyer – 518-801-2646- jodyer@lapolma-park.com- 2022 – Petanque Repairs & Surfacing-**
- **Old Cutler Lakes by the Bay** – Tara Walker – Property Manager – 305-232-0354
tara.walker@fsresidential.com -2021- Tennis Court Resurfacing.
- **Palm Beach Hampton Condominium [Hector-561-784-8753- hpages@zavikandassociates.com](mailto:hpages@zavikandassociates.com)-Tennis net replacement-2021**
- **Rialto HOA-** Blakely Richards – Property Manager-561-334-1327
brichards@campbellproperty.com – Basketball, Tennis Court Resurfacing- 2022
- **Spanish Lakes-** Steve Rodriguez – Area Director of Operations - 772-985-4758
wbcsteve@spanishlakes.com – 2019 / 2021- Tennis, Pickleball, Shuffleboard Court Resurfacing.
- **Smith Farm Master Association** – Michele Barkman- Property Manager – 561-641-6300
sfpmgr@smithfarm.org – 2021 – Basketball Resurfacing.
- **The Crossing of Boynton Beach** – Chris Serens- Property Manager – 561-641-8554
cserens@grsmgt.com – 2021 – Tennis Court Resurfacing.

Multifamily Homes

- **Club Lake Pointe- Olen Properties** – John Sessions – Property Services Manager – 954-752-6678
jsessions@olenliving.com – 2020- Tennis Courts Resurfacing
- **Club Mira Lago- Olen Properties** - John Sessions – Property Services Manager – 954-752-6678
jsessions@olenliving.com – 2020- Tennis Court Resurfacing.
- **Crosswynde - ESG Kullen-** Aubree Linsmeier – Construction Analysis – 813-260-0306
Alinsmeier@esgkullen.com – 2021 Tennis Court converted to Pickleball Court.
- **IMT Boynton Beach-** Stacy Demers 561-270-1742 stacy.demers@imtresidential.com
Fencing Repairs / Replacements, Bench Installation. 2022
- **Mizner Court – Francisco Alvez-** Property Manager – 561-997-0096
miznercourtmgr@lincolnapts.com – 2020- Tennis Court Resurfacing

- **Pembroke Cove-** Scully Company -Jill Greco- Regional Manager- 954-917-2911
jgreco@scullycompany.com – 2021- Basketball Court Repair & Resurfacing
- **Radcliff Park** – Don Lewis- 727-502-7019- publicworks@tgownofnrb.com- Tennis Ball conversion - 2022
- **Villa D’Estes** – Michelle Rashlich- Property Manager- 561-637-7880
villasdestemgr@lincolnapts.com – 2021- Tennis Court Resurfacing.

Houses of Worship

- **Incarnation Catholic School** – Pastor Eric Scanlam – 646-327-4204 –
escanlan@incarnationchurch.org – 2022 Basketball Court Surfacing
- **Real Life Church-** Billy Cole- Pastor-954-647-2960 pastorbillycole@aol.com -2020 Basketball Court Construction.
- **Saint Joseph’s Episcopal Church & School** – Jamie Veccia- Administrator - 561-732-2045
jveccia@sjsonline.org – 2021- Tennis Court Resurfacing.
- **St. Vincent DePaul Regional Seminary** – David Henry – 561-722-3568 – dhenry@svdp.edu- Tennis Court repair- 2022
- **Trinity Lutheran Church-** Ted Gross-Director- 970-749-0444 tgross@trinitydelray.org
2020- Basketball Court Resurfacing.
- **West Park Baptist Church-** Christopher Lewis- Pastor - 561-495-2107-
westparkbaptisikids@yahoo.com – 2021- Basketball Court Striping.
- **St. Vincent De Paul Regional Seminary** – David Henry – 561-732-4424 dhenry@svdp.edu – 2022 Tennis Court Resurfacing
- **Shirdi Sai Center of South Florida** – Rajesh Surve- 561-703-4505 rajeshsurve@yahoo.com -
2022 New Construction, Basketball Court

Schools

- **Nova South Eastern University-** Rachel Zamora – Building Manager
rz146@nova.edu 2023 – Tennis Court Resurfacing and Logo
- **Riverside Elementary School-** Rich Atzert – Senior Account Manager for Atlantic Southern Seal Coating and Paving – 954-916-7500
rich@atlanticsouthernpaving.com 2022 – Basketball Court Surfacing
- **Marjory Stoneman Douglas High School** – Michael Fishkind- Project Manager
mfishkind@dstephenson.com – 2020- Basketball / Volleyball Court Surfacing and Equipment.
- **Ransom Everglades Middle School-** Corey Goff- Project Manager – 305-986-9232-
cgoff@ransomeverglades.org – 2020- Basketball Court Resurfacing.
- **Rosarian Academy-** Bluewater Builders, Inc. – Kevin Nixon- Project Manager – 954-753-7233
knixon@bluewaterbuilders.cc – 2020- Basketball & Pickleball Improvements
- **Silver Lakes Elementary-** Rich Atzert- Account Representative- 954-299-6114
rich@atlanticsouthernpaving.com – 2021 Tennis Court Resurfacing
- **Saint Ann’s School** – Ron St Martin- Principal- 239-777-3803 rstmartin@stann.net
2020- Basketball Court Resurfacing.

Private Residences

- **Bowe Residence** – Theresa Bowe - Home Owner- mrsrealtor305@gmail.com
2023 – Basketball Court Surfacing
- **Fisher Residence** – Barry Fisher- Home Owner- barry@thebelvederegroup.net
2021- Tennis Court Resurfacing.
- **Frank Residence** – David & Marion Frank- Home Owners- welliworld@att.net
2021- Tennis Court Resurfacing.
- **Kerns Residence** – Anthony Kerns- Home Owner- askerns@bellsouth.net
2020- Basketball Court, Flex Court Sport Tiles.
- **Letchinger Residence** – Jim Letchinger- Home Owner- jim@jdlcorp.com
2021- Pickleball Court Resurfacing
- **Michel Residence** – Mary Michel- Home Owner marymichel7845@gmail.com
Tennis Court Resurfacing
Ross Residence – Amy Ross – Home Owner amyrossm9@gmail.com - 2021
- **Sass Residence** – Jennifer Sass- Home Owner jennifer.sass11@gmail.com
2022 Basketball Court Resurfacing
- **Witherill Residence** – Joshua Witherill – Home Owner jwitherill@gmail.com Pickleball striping 2021

Thank you in advance for the respect and privacy of these willing references. If you have any trouble contacting them, please feel free to contact me.

Patricia Hoersch, Owner / President

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

▶ Go to www.irs.gov/FormW9 for instructions and the latest information.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Armor Courts Incorporated

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

Individual/sole proprietor or single-member LLC

C Corporation

S Corporation

Partnership

Trust/estate

Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

Other (see instructions) ▶ _____

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
3477 High Ridge Road

6 City, state, and ZIP code
Boynton Beach, FL 33426

7 List account number(s) here (optional)

Requester's name and address (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number								
			-			-		
or								
Employer identification number								
4	7		-	3	3	7	8	9
							3	0

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here Signature of U.S. person ▶ *Patricia Hoersch* Date ▶ **January 3, 2023**

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the instructions for Part II for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or “doing business as” (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity’s name as shown on the entity’s tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a “disregarded entity.” See Regulations section 301.7701-2(c)(2)(iii). Enter the owner’s name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner’s name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity’s name on line 2, “Business name/disregarded entity name.” If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys’ fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.SSA.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/Businesses and clicking on Employer Identification Number (EIN) under Starting a Business. Go to www.irs.gov/Forms to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to www.irs.gov/OrderForms to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983.

You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983.

You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions.

You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor ²
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee ¹
b. So-called trust account that is not a legal or valid trust under state law	The actual owner ¹
6. Sole proprietorship or disregarded entity owned by an individual	The owner ³
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*

For this type of account:	Give name and EIN of:
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity ⁴
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee

For this type of account:	Give name and EIN of:
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(E))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

*Note: The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes.

Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at spam@uce.gov or report them at www.ftc.gov/complaint. You can contact the FTC at www.ftc.gov/idtheft or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see www.IdentityTheft.gov and Pub. 5027.

Visit www.irs.gov/IdentityTheft to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.



Asphalt Impurities

In some parts of the country, the crushed stone or sand aggregate used in asphalt may contain clay balls, wood bits, or other forms of contamination. It is impossible to obtain a guarantee from an asphalt producer or supplier against the presence of this material, particularly if their source has a history of such inclusions. Also, since a producer's source of aggregate may vary from time to time, it is impossible to predict whether a particular batch of asphalt from a producer will contain deleterious materials or to rely on the fact that the asphalt from a given producer or supplier has not contained these materials in the past. Therefore, this condition is beyond the control of the contractor and the contractor cannot assume responsibility. In areas where this occurs, it will affect all contractors equally.

If contaminated materials are present, over time, they may degrade, forming carbon dioxide and/or methane gas, creating bubbles in the surface coating or pitting in the surface. In most cases, these problems are minor and can be repaired using conventional patching methods.

Occasionally, in severe cases, an asphalt overlay, using aggregates from a different source, or a change of surface to a textile, modular or roll goods surface, will be required to permanently correct this problem.

Differences in site, weather and soil conditions require variations in construction and repair methods and materials. Readers are advised to consult a qualified contractor or design professional before undertaking construction or repair of a court. Rev. 03/04



Asphalt Stripping

Stripping in hot mix asphalt has become a more serious problem for recreational pavements over the past decade. Both the asphalt industry and the American Sports Builders Association (ASBA) are taking positive steps to control this problem. It is helpful to the builder as well as the owner to know how to recognize this condition and what steps to take to resolve it.

Stripping is the breakdown of the adhesive bond between the aggregate and the asphalt cement. This process occurs when water gets in between the aggregate surface and replaces the asphalt coating. For the most part, stripping initiates at the bottom asphalt layer and works its way upward, weakening the entire structure through its progression. Cracks then begin to form and may cause the pavement structure to completely disintegrate. Common symptoms of asphalt stripping are short hairline cracks, web cracking and puckering.

If stripping is suspected, a thorough investigation must be conducted. Contact a qualified asphalt testing laboratory and, under its direction, provide samples of the pavement to complete the following ASTM tests (samples usually consist of 6" cores of the pavement):

CONDITION	TYPE OF TEST
Asphalt Extraction	ASTM D2172
Asphalt Stripping	ASTM D3625
Indirect Tension (Swelling)	ASTM D4123
Percent Air Voids	ASTM D3203
Field Permeability Test	ASTM D3637

After the condition is accurately diagnosed from the test results, take immediate action through the following remedies:

1. Insure that surface and sub-surface drainage is effective and otherwise correct.
2. Depending on the results of the testing, if necessary, remove the entire affected area and rebuild the court/recreational surface.
3. Depending on the degree of pavement damage caused by stripping, a fiberglass membrane applied over the surface may be sufficient to repair the pavement. Install flexible acrylic coatings over the membrane to complete the surface.

To minimize asphalt stripping in the future, perform the following preliminary tasks:

1. Provide positive surface and subsurface drainage for pavement structures.
2. Add anti-stripping agents to the hot mix asphalt mixture.
3. Use hot, dry and clean aggregate.
4. Use well-compacted, densely graded, asphalt concrete and place it directly on a properly prepared stone base.
5. Thoroughly compact all courses in the pavement.

Asphalt stripping can be a serious concern, but proper planning and immediate diagnosis will help to minimize its effects.

BIBLIOGRAPHY:

The Asphalt Institute: "Cause and Prevention of Stripping in Asphalt Pavements." Educational Series No. 10, Second Edition.

NAPA Education Foundation: "Hot Mix Asphalt Materials, Mixture Design and Construction."

Differences in site, weather and soil conditions require variations in construction and repair methods and materials. Readers are advised to consult a qualified contractor or design professional before undertaking construction or repair of a court. Rev. 01/04



Birdbaths

“Birdbath” is a term commonly used in the tennis industry to describe a low area on a tennis court that holds water. More precisely, the American Sports Builders Association (ASBA) defines a birdbath as any area where standing water more than 1/8” (2mm) (commonly measured using two nickels) remains after drainage of the area has ceased or after one hour of drying at 70 degrees Fahrenheit in sunlight. Birdbaths delay play on the court after rain and may cause staining and/or peeling of the surface.

Among the causes of birdbaths are:

1. Unsuitable material in the subsoil;
2. Inadequate drainage around the tennis court;
3. Improper slope or grade;
4. Inadequate compaction of the subgrade; or
5. Paving error.

Paving and surfacing, even with laser-guided equipment, involves both skill and judgment. The number of variables impacting the paving and surfacing processes makes it unreasonable to expect perfection. Minor depressions in the surface, those less than 1/8” deep or those that drain or dry in under an hour, are considered within tolerance and are acceptable. In a new or recently resurfaced court, however, the contractor should correct birdbaths.

Because site selection, design and construction can involve compromise, over time, even properly designed and constructed courts may develop birdbaths over time. During design and construction, a proper balance must be struck between the risk of some problems over the long term versus the cost of extensive remediation prior to construction. Tennis courts sometimes are built on sites which are reclaimed or which have been deemed unsuitable for other purposes. In such cases, less than ideal subsoil, grade or drainage conditions may exist. Additionally, over time, new circumstances may arise which lead to settling or drainage problems.

The owner’s expectations regarding repair of birdbaths should be based on the nature of the birdbaths that exist to be repaired and the amount of money budgeted for the repair. For example, the owner should understand that birdbaths created by improper compaction or unsuitable materials may reappear later due to further settlement, while repairs to birdbaths caused by improper slope or grade may only move the water to a different area on the court.

Owners also should understand that available repair methods and materials are imperfect. Asphalt resurfacers and acrylic patch binders are water-based materials. After they are installed flush with the surface, they may shrink due to dehydration, allowing the area to once again hold water. Asphalt patches and acrylic repairs require time and proper weather conditions to cure. Further, patching materials can be installed only to an effective depth of approximately 1/2”. For these reasons, even a skilled contractor may make several site trips to “fine tune” a repair. Complete removal of standing water may be impossible. Generally, the owner should accept that repair of birdbaths is only a means of reducing the inconvenience they cause and extending the useful life of the court.

The number, size and depth of birdbaths is another consideration. The existence of multiple birdbaths or major depressions of 1/2” or more may indicate more serious problems. Repairing multiple or deeper birdbaths is labor intensive and often results in cosmetic imperfections, which may require resurfacing to correct. The larger the birdbath, the more difficult it can be to repair. Prior to repairing numerous birdbaths or major depressions, the owner should discuss the cost and alternatives, such as installing an overlay. In some cases, only reconstruction will provide a long-term solution.

Differences in site, weather and soil conditions require variations in construction and repair methods and materials. Readers are advised to consult a qualified contractor or design professional before undertaking construction or repair of a court. Rev. 11/10



Blisters or Bubbles

Blisters or bubbles in the color coating on asphalt and concrete courts most often are caused by moisture between the pavement and the coating material, within or beneath the pavement. Since both asphalt and concrete can absorb moisture, moisture trapped below the slab can be drawn up through the pavement or moisture may come from the pavement itself if the slab is incompletely dried or is experiencing severe drainage issues prior to the application of coating materials.

Whenever water is present on, in or beneath a tennis court pavement, heat from a warm day can draw the moisture upward to the surface where, if trapped, it vaporizes and expands. Most modern tennis court coatings are semi-permeable and allow a small amount of moisture to escape. However, if larger amounts of moisture are present, if too many coats of surfacing have been applied, if the coats are too thick or if impermeable coating materials have been used, the water cannot escape and the trapped vapor breaks the bond between the coating and slab, forming a bubble. Bubbles also may form between layers of coating.

Bubbles may also be caused by contamination of base materials during construction. Salts, organic residues, curing agents, clay balls, dust balls and oil spills are all materials that can cause bubbling or blistering in a tennis court surface. Blisters may also occur if a surface is not properly cleaned prior to application of color coatings and, therefore, the new coatings do not properly adhere to the surface.

When recoating an existing court, it is important to note how many coats of surfacing already are present, and if there are many layers, to consider removing the old coats before applying a new surface. Where many layers of coating are present, each additional layer of coating reduces the permeability of the surface and increases the likelihood of bubbling.

Small bubbles may be punctured with an ice pick or nail and pressed down, which may make them re-adhere if there is still liquid or semi-dry binder under the bubble. If not, adhesive must be injected with a syringe to facilitate bonding. Large bubbles may be cut open and reattached to the pavement with an adhesive.

In most cases, installation of a vapor barrier in construction, proper base construction techniques, proper drainage, adequate curing of the slab prior to coating and proper installation of coatings should prevent formation of blisters. In rare cases, however, even when permeable materials and proper methods are used, environmental conditions may result in the formation of an occasional blister.

Differences in site, weather and soil conditions require variations in construction and repair methods and materials. Readers are advised to consult a qualified contractor or design professional before undertaking construction or repair of a court. Rev. 06/08



Cracking of Asphalt Tennis Courts

The most common problem with asphalt tennis courts is pavement cracking. Cracking in asphalt is caused, at least in part, by the natural tendency of asphalt to shrink as it weathers, oxidizes and ages. In addition, asphalt loses its flexibility as it ages, making it more brittle. Since shrinking and becoming more brittle with age are properties of the material, cracking in asphalt tennis courts is inevitable.

Quality design and construction can minimize or delay cracking but cannot eliminate it. Once cracking begins, no matter which method is used for the potential exists for cracks to reappear.

There are many types of asphalt cracks. Surface cracks include hairline cracks (small irregular cracks present over large areas of the court), alligator cracks (a pattern of interlocking cracks over the surface resembling an alligator hide) and shrinkage cracks (a random pattern of interconnected cracks with irregular angles and sharp corners). In most cases, surface cracks do not affect the play of the game; however, if untreated, they will develop into more serious cracks and will require more extensive repair.

Pavement cracks include heat checking (a hairline crack pattern which follows the direction of rolling), structural cracks (large cracks which penetrate the asphalt pavement), reflection cracks (which occur in asphalt surface overlays and mirror a crack pattern in the pavement underneath), radial cracks (which appear at the point where the concrete net post, light pole or fence post footings meet the asphalt court surface) and settlement cracks (which result from paving over a poorly compacted or poorly drained subbase).

There are at least four methods of crack repair – crack filler, infrared patching, proprietary fabric repair system and full depth repair with either crack filler or hot mix asphalt. Repairing many cracks may leave the court with an unattractive, freckled appearance; however, resurfacing will correct this unsightly condition.

Because there are various causes of cracking, differences in sizes and numbers of cracks, and various options for crack repair, an owner would be wise to consult an experienced contractor or design professional to determine the best options for repair. It is important to note, however, that eventually cracks will reappear or new cracks will form. All methods of repair will provide some additional life for the court and some methods will extend the useful life of the court by many years, but if the owner is seeking a long term solution, the court should be reconstructed.

Differences in site, weather and soil conditions require variations in construction and repair methods and materials. Readers are advised to consult a qualified contractor or design professional before undertaking construction or repair of a court. Rev.11/10



Observations on Newly Coated Tennis Courts

Occasionally, owners express concern over unexpected conditions observed in new courts. Many of these conditions are normal.

After the first few rains, for example, soap bubbles will appear on the surface of a newly coated court. Detergents are added to coating materials to insure that colored pigments are dispersed throughout the coating material. While soap bubbles probably will not be visible on an indoor court, the court may be slippery, particularly if there is high humidity or condensation in the building, or if players have wet shoes when they walk on the court. Since there is no rain to wash the detergent off the surface of an indoor court, the slippery condition may last for a week or two. Players should exercise particular caution against slipping when using a newly constructed or newly resurfaced court.

Newly applied color coatings may have slight variations in color from one area to another but should appear to have a uniform color and texture when viewed from 25' (7.620m) away.

Owners, anxious to try out a new surface, may use the court before it is fully cured. When a player stops quickly or twists his shoe, the color coating may become detached from the asphalt bound undercoats. This is particularly true if the player has tennis shoes with deeply grooved patterns on the soles. Play should not be allowed until proper curing of the surface has occurred.

Tennis shoes will leave white scuff marks on a newly surfaced court. The number and severity of sneaker marks will decrease over time and owners should not be concerned by them. Black-soled shoes, however, make particularly unsightly marks on tennis court surfaces. Many shoes with dark colored soles will leave prominent marks on the surface.

Excessive ball wear and ball fuzz adhering to the court may be evident on a new court. This happens because of the sand used to regulate the speed and play of the court. Like a new sheet of sandpaper, a new tennis court is more abrasive than a used one.

New concrete courts may show some "ghosting." When the concrete used in construction contains lime, the lime may migrate up through the coating, leaving a white residue. The migration of lime can be minimized by proper preparation of the concrete pavement before color coating.

Due to the nature of the material, concrete is difficult to coat. Even a well-constructed, properly coated concrete court may show small areas of peeling. These areas should be touched-up immediately to prevent further damage to the court surface.

Differences in site, weather and soil conditions require variations in construction and repair methods and materials. Readers are advised to consult a qualified contractor or design professional before undertaking construction or repair of a court. Rev. 06/08



Pinholes

Pinholes occur on acrylic surfaces from time to time. The causes of this aesthetic condition include a number of factors that are difficult to predict prior to application. These factors often act in combination..

Conditions that can effect the formation of pinholes in the surface finish include:

- The texture of the surface underlayment. Courser textures are more prone to pinholes. Some of the current SuperPave asphalt mixes provide a coarser texture than some of the older available mixes.
- The drying conditions during application. Hotter weather tends to increase the potential for pinholes, as the higher surface temperature causes the rapid evaporation of water from the coating mix.
- When mixing the paint, air bubbles and foaming can form; these may result in the formation of pinholes.

Once the pinholes are a part of the surface structure they are very difficult to overcome.

Pinholes have no adverse affect on an acrylic finish if the correct number of applications has been applied. Acrylic sport surfaces are designed to allow water vapor to pass through them.

The finish surface should have a uniform texture for consistent play characteristics. Pinholes are so small they should not affect the surface texture nor do they affect the longevity or playability of the surface. Therefore, they are considered acceptable.

Differences in site, weather and soil conditions require variations in construction and repair methods and materials. Readers are advised to consult a qualified contractor or design professional before undertaking construction or repair of a court. Rev. 06/08



Regulating Pace

Players often classify tennis courts by their pace. The speed with which balls come off the surface, and the relative effect of ball spin after a bounce, produce courts which are rated as slow, medium or fast.

When the surface causes the ball to skid and the angle of the ball coming off the surface is lower than before the bounce, the surface is described as “fast.” A surface on which the ball comes off at the same angle as before the bounce is described as “medium.” A surface on which the ball comes off the surface at a higher angle after the bounce is described as “slow.” Generally, the rougher the texture, the more the surface will grip the ball and the slower the surface will play.

Acrylic-coated hard courts are rated as medium to fast. However, the speed of these courts, which is determined by the amount, shape and size of the sand or rubber particles mixed with color coating, can be modified. Altitude also has an impact on the size of sand that may be required to achieve the desired pace. Specifying the grade and amount of aggregate material to achieve a specified pace is highly technical; for that reason, it is important to rely on an experienced tennis court builder or coatings manufacturer familiar with local conditions to mix sand and/or rubber with the coating material.

It is important to know that the pace of an acrylic-coated tennis court will change over time. The surface will be slower when new. As the courts age and weather, some of the texture will be worn away, especially in the areas of most frequent use, and the courts will become faster. When the pace of the court becomes too fast or too inconsistent, the courts should be re-coated.

When cushioning is added to a hard court, to a limited degree, the thickness and density of the cushioning affects the pace of the game, as well. Thicker and less dense cushioning absorbs ball energy, providing a slower, lower bounce. Less thick or denser cushioning provides a quicker, higher bounce.

Clay and fast dry courts generally produce medium to slow play. To some degree, the pace of these surfaces can be modified by maintenance practices. Rolling the courts compacts the material. The firmer a court is maintained, the faster it will play.

Grass and synthetic turf are considered fast since the ball skids low, giving a player less time to make the shot. As with clay and fast dry courts, the pace of these courts can be modified slightly by maintenance practices.

The ideal court speed is strictly a matter of player preference. Players with a strong serve and volley game usually prefer a medium to fast surface. Baseline players, or those playing strictly recreational or social tennis, often enjoy longer rallies and a shot placement/spin type of game. For them, a slow to medium court is recommended.

Differences in site, weather and soil conditions require variations in construction and repair methods and materials. Readers are advised to consult a qualified contractor or design professional before undertaking construction or repair of a court. Rev. 03/04



Rust Spots

In some parts of the country, the crushed stone aggregate used in asphalt may contain iron. It is impossible to obtain a guarantee from an asphalt producer or supplier against the presence of this material, particularly if their source has a history of providing aggregates containing iron. Also, since a producer's source of aggregate may vary from time to time, it is impossible to predict whether a particular batch of asphalt will contain iron or to rely on the fact that the asphalt from a given producer or supplier has not contained iron in the past. Therefore, this condition is beyond the control of the contractor and the contractor cannot assume responsibility. In areas where this occurs, it will affect all local contractors equally.

If iron is present, it may oxidize, forming rust spots or streaks in the surface of the court. These spots or streaks, while unsightly, will not affect play or shorten the useful life of the court.

The manufacturers of some acrylic tennis court surfacing systems produce a rust inhibitor product, used as a filler coat in surfacing. While this product has been used with success, there is no guarantee that rust spots will not occur.

An asphalt overlay, using asphalt from a different source, or a change of surface to a textile, modular or roll goods surface, will be required to permanently correct this problem.

Differences in site, weather and soil conditions require variations in construction and repair methods and materials. Readers are advised to consult a qualified contractor or design professional before undertaking construction or repair of a court. Rev. 03/04



Squeegee Marks

Acrylic color surfacing systems are generally applied with a squeegee in multiple coats. Most systems include one or more filler coats, followed by two to three coats of color. Some systems also include texture or cushion coats between the filler and the top coats.

There are several theories regarding the application of color coatings. Some manufacturers and contractors recommend that coats of color be applied in alternate directions – one coat lengthwise, one coat crosswise and so on. Others believe that all coats should be applied in the lengthwise direction since the flow of play in tennis is almost entirely lengthwise. Still others believe that color coatings should be applied in a crosswise direction since the shorter crosswise pass may result in more uniform application. In any case, coating systems must be applied smoothly to a uniform thickness over the entire court surface. This requires an experienced applicator and careful attention to the technique.

Even when color coatings are applied with care by a skilled operator, some squeegee marks and other slight variations in color and texture are inevitable. This is because the formulation of acrylic causes components to migrate to the edge of the material as it is being applied. As a result, an observer will be able to locate the spot where the acrylic material was poured on the surface, where the squeegee operator turned to make a pass in the opposite direction or where one pass overlapped another. Squeegee marks will be more visible on lighter colors and more common when coatings are applied in hot weather or when they include coarser sand. Humidity, angle of the sun when the acrylic is applied and other factors also may affect frequency and visibility of these marks.

Due to the nature of the material and the human element in tennis court construction, squeegee marks are likely to occur, like marks in newly vacuumed plush carpet or newly mown grass. They will not affect play and will become less visible as the court wears and ages.

While squeegee marks are within industry standard, more serious flaws – ridges, drips, tool marks, foot prints, bucket marks and areas of excess material - are unacceptable and should be corrected by the surfacing contractor.

Differences in site, weather and soil conditions require variations in construction and repair methods and materials. Readers are advised to consult a qualified contractor or design professional before undertaking construction or repair of a court. Rev. 03/04



2023 Authorized Applicator Armor Courts

This is to confirm that the above-named company is an Authorized Applicator of all brands of California Sports Surfaces. A select group of applicators have demonstrated the capability and the techniques to successfully install our athletic surfaces and California Sports Surfaces, a division of the ICP Group fully supports their efforts with technical support, manufacturers warranties, and marketing assistance. This authorization is reviewed annually to ensure continued compliance with our standards. We are pleased to have this firm as a part of our network.

A handwritten signature in black ink that reads "Tom Magner". The signature is written in a cursive style and is positioned above a solid horizontal line.

Tom Magner
Director of Sales -California Sports Surfaces

THE ULTIMATE GUIDE TO HARD COURT

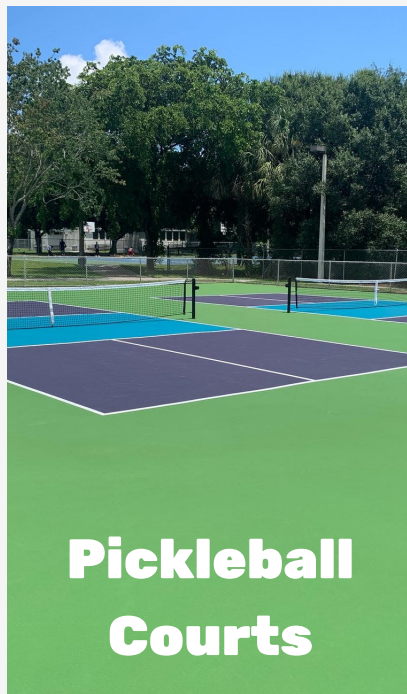
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THE ULTIMATE GUIDE TO HARD COURT MAINTENANCE, REPAIR, & RENOVATION



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This ebook covers issues that range from private courts, homeowner association courts, private clubs and public courts.

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SIGNAGE – POSTING RULES

Private club members typically know, or have posted on a bulletin board, policies as to when courts are open and closed, how long players have use of a court during busy times, and policies such as no black soled shoes permitted, no food or drink, no bicycles or skateboards, etc. – but homeowner associations and public courts also need to have this information posted to eliminate problems before they start.

Getting foreign materials into the court surface can be a problem because the court surface is porous and “breathes” to allow moisture vapors in and out. This porosity also means that stains can enter the surfacing and leave permanent marks. Not allowing food and beverages onto the court is a good start. This should be followed by allowing only white rubber soled tennis shoes, no bicycles or skateboards or other wheeled toys as black marks left behind cannot be removed.

COURT CLEANING

The single most important protection that can be used to extend and prolong the life of a hard surface is regular washing. Grit and dust in the air settles on a court. Twisting and running shoes which act like sandpaper, grind down the surface and wear it away. Club courts need to be cleaned as often as possible and the same is true for public courts which receive frequent usage. The unfortunate fact of life is that most public courts never get washed. Homeowner association and private courts, again subject to usage, need to be washed every few weeks to once a month. A high volume low pressure wash is recommended.

THE RIGHT CLEANING ACCESSORIES

Routinely, we see courts damaged by the use of inappropriate means for cleaning or getting rid of puddles. Brooms do not belong on a court and should only be used as a last resort for leaves and branches, when a blower is not available. The right way to remove water from a puddle is with either a blower, squeegee or with a sponge roller that both absorbs and pushes the moisture out of the puddle.

Properly maintaining a hard surface court is hand labor and doesn't lend itself to automation. The complete washing of a court and sponging of any small residual puddles can be done in less than a half hour. This process is also aided by having multiple hose bibs with ready access to each of the courts. Quick-disconnect couplers work well as they tend to eliminate unauthorized use.

TREE MAINTENANCE

A well-designed court will not have trees located too close. Many hard surface courts do have trees, and they present a number of maintenance problems. The most visible are the droppings of leaves, sap, twigs, bark and occasional branches. Sometimes elimination of the problems requires either removal of the trees or significant branch cutting. If neither of these options are implemented, regular removal of the debris will be required. One of the most irritating problems is fallen sap that sticks to the surface, is not water soluble and, therefore, just stays and builds up. A related issue is that many leaves will stain a court surface as they become wet and then bleach out with a hot sunny day. Some of these leaf stains will eventually bleach out of the surface again, but they leave a dulled mark in the surface.

Leaves allowed to accumulate on a court also represent a liability issue because a player, running back to reach a high, bouncing lob can readily slip and sustain injuries sufficient to create claims, increased insurance premiums, etc. Adjacent trees also need to be watched closely for roots seeking moisture under the slab of a tennis court. We have seen roots travel over 20 feet in order to get to moisture under a tennis court. Obviously, the type of root structure that a tree has is of great importance. Some have a tap root that goes virtually straight down and others have very large surface roots and still others have both. Roots under a court will raise, and eventually crack, a court surface. You are best advised to approach the problem before the symptoms get out of hand. This entails either tree removal or installation of a root barrier.

WINDSCREENS

The greatest enemy of windscreens is exposure to water from a sprinkler system. This water exposure causes staining of the windscreens and accelerates the ultraviolet ray's deterioration and tearing of the material. Water should not be permitted that close to the courts because it can do a great deal of damage.

Windscreens do not need to be washed and boomed down. Should you need to clean them, do so uniformly, using just a garden hose.

You can add to the life of your windscreens by making certain that they are firmly attached to the fencing at intervals not exceeding 24". A section that is loose and able to flap will, very rapidly become beaten to shreds and begin to tear.

Concerning windscreens, buy either the cheapest (actually truck tarp material) and plan to replace them frequently or, get good quality open mesh material, rather than the solid. The low-cost material doesn't need a hem or grommets, but a better material needs a reinforced hem that is quadruple sewn.

When you replace windscreens, try to do all of them at once, as one new windscreen suddenly makes all the others look much older and in worse condition than they really are. Black windscreens have twice the life expectancy of any of the other colors. The best value (cost versus life expectancy) in windscreens is open mesh polypropylene which is border hemmed and has grommets approximately every 24".

TENNIS & PICKLEBALL NET POSTS AND NETS

Many older courts have bent, damaged or rusted net posts with exterior crank systems that are rusted and barely operative. Unfortunately, most of these net posts are set directly into concrete or asphalt and replacing them means jack hammering and damaging your playing surface. While you can get replacement cranks and try to straighten the bent poles, the outcome is seldom satisfactory.

The old canvas and cord nets are still available, but seldom last much more than a season, as they are victims of both moisture and ultraviolet rays. The best value in nets

is found in those with a nylon upper trim which is quadruple sewn with nylon thread, has nylon braided material to form the net, a vinyl steel clad cable and a quadruple sewn bottom seam at the base.

In Florida, nets get year-round use and are not, therefore, subject to winter removal. There is very little to do with respect to preventive maintenance; however, it is helpful to have a canvas needle and some white nylon thread to reinforce failing seams and get many extra months out of a net.

BASKETBALL GOALS

Florida's weather can be hard on anything placed outdoors and basketball goals are no different. They should always be included in the maintenance schedule to look for rusted areas that may rust through the metal and collapse and cause injury to players and the court surface. Depending on the back boards composition they can become rusted, cloudy (some acrylic backboards), or loose with play. Many of today's basketball rims are breakaway rims and they too can become rusted and loose over time. In many cases these small component repairs can be done to the existing goals but others may need to be replaced entirely. Many times we see that the pole padding is gone or deteriorated to the point where it becomes unsightly or missing. These pads are very important as they provide safety to players in the event that they crash into them, without them they can cause serious injuries to players. Be sure to ask your sport specialist what is best for your situation.

LIGHTING – EXISTING

If you are happy with the quality of your existing lighting, you will want to do everything you can to properly maintain it and maximize its effectiveness. Bulbs, just like old tennis players, don't shine the way they used to. Therefore, you should have a regular program of bulb replacement. The means of access to 20' or higher fixtures can be solved by scissor lifts, scaffolding or a tall A-frame ladder. Beware of these leaving tread marks on an asphalt court. At a minimum, the lower glass and the inner reflectors should be cleaned once a year. You will be amazed at the sudden improvement in light. These things get covered with dirt, grime and dead bugs. While this cleaning is taking place, it also makes sense to install some inexpensive strips of

one side gummy insulation material you would use to seal cracks around a door or window, around the light housing door that opens which will minimize dust and insect entry.

You will also notice that light housings pick up overnight dew and then drop it onto the court below. If once a year light cleaning includes some spray paint, where needed, you can prevent the rust staining of your court that will otherwise result.

You will find that one-at-a-time bulb replacement is costly unless you actually own the right equipment to do it yourself. Many clubs find that it makes sense to set up a program to replace all the bulbs at one time. They end up with better lighting and a lower effective cost than just replacing bulbs when they burn out.

LIGHTING – REPLACEMENT AND UPGRADING

Many older courts have the old-style lights which have baseball or parking lot types of bulb housings that point up and out at an angle. This type of lighting is no longer favored as it is not energy efficient, and does a very inadequate job of lighting the courts.

If consideration is given to a lighting upgrade, it should start with a photometric analysis, a sectioned diagram of your court(s) showing the actual foot-candles of light you are presently getting. We then take your present pole placement and, via computer, see what can be done to improve the lighting through better fixtures and with or without the addition or replacement of poles. This normally produces a number of options that will let you relate costs to FOOTCANDLES, versus what you have at present.

It is very helpful if the individual or committee involved can come to a determination as to the level of desired lighting. This becomes a target for the computerized analysis of the best ways to achieve it.

The bottom line on court lighting is that you want a MINIMUM average of 60+ foot-candles on the playing surface without any dark zones. This level of lighting will normally satisfy from the youngest to the oldest players, virtually all levels of play and

can also keep the neighbors happy. The neighbor issue is a significant one, because the newer light designs shine directly down onto the court with a minimum of overspray.

When you are thinking about the installation of brand new lighting, be aware that it might require the upgrading of your electric panel and service to accommodate the new energy demand. While this needs to be a potential concern, the opposite can sometimes be the result. Better and improved fixtures give better light and draw less current. New lighting should also be planned in conjunction with any court renovation or resurfacing because this may also entail having to excavate for conduit, poles, etc. and this can be accomplished inexpensively, in conjunction with resurfacing.

COLOR COATING

The symptoms of a need for new color coating are when colors are very faded, specific areas are worn through, the court has alternate fast and slow areas or a combination thereof. In the real world, most asphalt & concrete courts are scheduled for color coating well before any of these symptoms occur. In many cases, cracks that need patching will move up the date for color coating. We will talk about cracks and patching in the next section.

Our experience has been that it takes a new worker a minimum of 2 years of day-in-and-day-out experience in color coating before he or she can do a reasonable quality of work. Consequently, you need to use some judgment when it comes to the person hired to do the work. It is more of an art form than a science. All of the materials are applied with a squeegee, not a roller or a paint brush. The mixing of materials with water to get the recommended coverages during the temperature conditions encountered at the time of application, is again an art form.

We are all familiar with "blind items". These are items about which it is really impossible to tell value. Different merchants offer what appear to be the same thing, but at great variations in price. Color coating is this type of a "blind item". There are very low cost and low-grade materials on the market and there are applicators who water down the product, skimp on the number of coats and use inexperienced personnel.

While their courts look good when they leave the project, the courts simply don't have the life expectancy that they should. The sand needs to be thoroughly screened and of relatively uniform size. This is hardly the type of material obtained by one local applicator who gets his sand from nearby beaches, where he runs it through a sieve and bags it.

All the acrylic color coating materials are diluted with a certain amount of water to match the temperature conditions at the time of application. Applicators can easily dilute the product down so that the actual amount of coating material is minimal. Watered down paint on a house will have the same problems as watered down acrylics on a tennis court. You need to specify that they be applied per manufacturer's specifications and be prepared to either audit the correct application or trust the reputation and integrity of the firm that you have hired. You must know that the work will be done correctly and that if there are ever any problems, this firm will take care of them.

When you have your court(s) color coated, it is important that you get a written, minimum one-year guarantee which covers peeling, flaking, delamination or surface cracking (don't confuse this with cracking of the asphalt).

Color coating is a place where it pays to use premium grade materials and experienced personnel. Consequently, your best value will normally not be the lowest bidder. Inferior materials or quality materials incorrectly applied will be characterized by sand working loose, a rapid fading of the brightness of the colors and wearing of the materials.

REPAIRING CRACKS, UPHEAVALS AND DEPRESSIONS IN COURTS

When you get cracks in an asphalt court, it is vital to understand that you are looking at a symptom, rather than the problem. Patching a crack and recolor coating is going to temporarily hide the symptom, but will do nothing to prevent it from recurring. You might optimistically disagree with the preceding statement, but we can assure you it is 100% accurate, even though a court will look perfect after patching and recolor coating. The cracks will return!

The following represents a listing of the types of cracks that you may encounter, followed by a brief description of each. Following these "definitions", you will find that the next section explains the most probable causes of each of the types of cracks and the alternatives with respect to repair or renovation.

- **HAIRLINE CRACKS** – very narrow, both sides of the crack level; the crack has been there for a long time and has not grown in either length or width;
- **VERTICAL DISPLACEMENT CRACKS** – cracks of varying widths where one side of the crack is higher than the other;
- **UPHEAVAL CRACKS** – a crack of varying width where both sides are uplifted;
- **DEPRESSIONS** – low spots that are saucer shaped in varying sizes;
- **UPHEAVALS** – high spots, like an upside-down saucer, with the areas of varying sizes;
- **LINE CRACKS** – cracks that are primarily on, adjacent to or follow the playing lines;
- **NET POST AND CENTER TIE DOWN CRACKS** – circular cracks around these areas;
- **GROWING CRACKS OF SIZABLE LENGTH** – varying width, growing in width and can be measured as being wider when the slab is cold and narrower when the temperature is higher;
- **CRACKS THAT ARE PARALLEL TO AN EDGE OR END OF A COURT** – these cracks are clearly parallel to an edge or end of the court and over a period of time they develop into multiple rows, a few or several inches apart, and reach back into the court surface;
- **CRACKS THAT SEEP WATER** – varying widths and length; water comes out of the cracks for a few days after it rains and there are normally slight stain marks left from where the water has evaporated and left calcium or other deposits;

- **NICKEL SIZED UPHEAVALS THAT BLEED** – these range from dime to quarter sized upheavals (bumps) that grow; eventually, the top breaks open and they bleed and stain the court with a brownish red color;
- **SLIGHT UPHEAVALS THAT HAVE AN OPEN HOLE CAVITY** – they start out as described just above and ultimately become slight upheavals with an open core, much like a miniature, collapsed volcano.

We will deal first with concrete courts and then address asphalt courts. Concrete courts that develop cracks seldom become vertical displacement or very wide as the steel rebar reinforcement holds the slab together. An exception to this is where a major root has been growing for a significant period of time. This can cause vertical displacement upheavals and bend the rebar (and sometimes actually break it), and in the upheaval process, the cracks can become relatively wide. If the crack is relatively short in length (not all the way across a section of court), it normally means that it has not become an expansion crack, one with significant movement related to temperature changes. These cracks can normally be completely sealed using a specialized concrete epoxy adhesive that bonds both sides of the crack together. The joint itself becomes stronger than other sections of the concrete. After the epoxy is applied, color coating completely hides the repair.

If a concrete court has developed an expansion crack that opens and closes with temperature changes, an epoxy application will only cause the court to crack again right next to where the original crack was located. The movement of the slab is not to be denied. In this instance, you fill the crack with a permanently pliable waterproof material that has a sanded upper coating. This material bonds to both sides of the crack and the sand permits the surfacing materials to bond to it. This pliable material allows the crack to expand and contract, yet maintain a watertight seal to stop entry of water to stimulate soils movement.

HAIRLINE CRACKS are very narrow and, typically, relatively short in length. These cracks (that have not grown in some time), can normally be filled with an asphalt emulsion material which usually prevents their return. In many instances, they are caused by the evaporation of oils and binders in the asphalt. The surface material has shrunk and cracked. These cracks are surface cracks and usually do not go all the way through the asphalt slab. This type of cracking is prevented in driveways, roadways and parking

lots by slurry sealing that keeps the asphalt "tight". The color coating and surfacing materials on a tennis court perform a similar function.

VERTICAL DISPLACEMENT CRACKS are dangerous on a court because tripping becomes a major hazard. They are almost always the result of underlying soils movement, caused by expansive soils having varying degrees of moisture. This action has pushed up the surface, broken the asphalt and the course of "least resistance" is to allow one side of the crack to be lifted. The message is, that you have underlying soils problems and moisture is getting into the soils. Because the rupturing of the asphalt is so complete, temporary grinding down and patching is virtually guaranteed to fail. You need to address the moisture getting under the court (the least expensive approach) and/or digging out the court, reworking the soils and putting down new asphalt or you can consider remedial moisture remedies and what is called an **OVERLAY** (see later discussion below).

UPHEAVAL CRACKS are usually indicative of root damage. This is a root growing under the slab and lifting the asphalt to the point of cracking. The upheavals and cracks normally have a pattern that can be followed to determine the location of the offending tree. We recently had a mystery court with classic upheaval cracks (indicating roots) but we found nothing but lawn adjacent to the court. Later, the owner "remembered" that a tree had been removed a few years earlier. The solution is removal of the asphalt, excavation of the root (you can't leave it to rot and collapse the asphalt), compaction of all of the soils and then hot patching with new asphalt. Attempting to bond new asphalt to old almost invariably means that a crack will appear between the two surfaces.

DEPRESSIONS can be paving defects that were not fixed at the time of surfacing or, more likely, caused by underlying soils that have settled. Underground soils will settle because they were not properly compacted in the first place, or because water is flowing into them and erosion or natural compaction is taking place. The good news is, that if it isn't water related, once the settlement has taken place and stabilized, the depression on the court can be filled in a number of different ways and then be followed by color coating without a high incidence of recurrence. Carefully investigate depressions along the side of a court area as these can also indicate settlement of a hillside or some other type of earth movement problem.

UPHEAVALS in many cases are underground soils that have expanded, but not enough to crack the surface. Look to soils moisture related problems or excavation and remedial soils work. If the situation has stabilized, it is possible to grind down the uplifting or heat up the asphalt to remove a sufficient amount to level the area, followed by color coating. The other major cause of upheavals is underground growth of a root or some form of plant life.

LINE CRACKS are normally the result of the application of too much line paint which causes a heat differential from the lines dramatically reflecting more sunshine (and therefore more heat) than the adjoining surfaces. The resulting varying rates of expansion cause the asphalt to crack. If the cracks are limited to the surface (i.e. not through the entire slab) they can normally be repaired and recolor coated. If the lines are applied correctly, there is hope that they will not reappear.

NET POST AND CENTER TIE DOWN CRACKS are caused by the concrete footing coming flush to the surface. Thus, the adjoining asphalt and concrete with different rates of expansion soon crack. Normal patching and color coating soon has these returning. Best solution is to thoroughly clean the cracks, widen them to about 2/16" and fill them with a permanently pliable waterproof material (upper surface containing sand) that can accommodate the expansion/contraction movement without reopening and admitting water.

STRAIGHT GROWING CRACKS OF SIZABLE LENGTHS might have started out as a "cold joint" (when the court was built a portion of asphalt cooled before the adjoining layer was placed next to it) or it might have been created by soils movement. In almost all cases it is soil movement that has found "the weakest link in the chain", a seam between two sections of asphalt. This has caused a relatively straight-lined crack. Irregular cracks of considerable length are unrelated to any paving issues and are simply underlying soils movement that has cracked the surface. Once these cracks are above a certain size, you can never patch them and keep them sealed because they have become entirely separate slabs as far as concerns expansion and contraction. Even pliable sealant in them will be ruptured. Again, you need to look at water related issues, remedial soils work and consider an **OVERLAY** (see later text).

CRACKS PARALLEL TO ONE END OR AN EDGE OF A COURT are where they are because they are signaling that adjacent and underlying soils are moving and causing the cracking. They

fall into three general categories: those that are water related, those that are hillside related, or a combination of the two. If the area adjoining the court is relatively level, the cracks are telling you where the water is coming from. It is coming in from the edge of the court, soaking back in under the slab, causing the soils to expand and contract and subsequently cracking the asphalt. Solve the water intrusion and you will have taken a big step toward solving the cracking.

If the edge of the court near these parallel cracks is a downward sloping hillside or embankment, put a level on the fence posts. The chances are you will find that they are leaning outward. What is happening is that the embankment is slowly settling and as it settles, it is moving the edge of the court out and slightly downward. This action causes the cracking and the settlement. Soils such as this might not have been properly compacted, or they are moving because the sloped embankment is too steep and, in all likelihood, these soils are getting water into them. As the water gets into these adjacent soils (runoff from the court or from under slab water flow) it facilitates expansion/contraction movement that is also impacted by gravity, which causes it to settle down and outward.

Address the water issue and you will address the settlement. Downward and outward settlement can be resolved by a retaining wall, with either piers or a foundation down into solid material.

CRACKS THAT SEEP WATER are a clear indication of what is called hydrostatic pressure. That is, water getting in under the slab and pushing up. Patching of these cracks is difficult because you not only have the normal problems of asphalt patching, but you also have the underside water pressure. Search for how the water is getting there and sometimes you can solve the issue by vertically drilling in under the court and inserting a perforated drain line to bleed the moisture out of the soils. Again, attach the underlying problem, not the symptom.

NICKEL SIZED UPHEAVALS are caused by what is called "reactive aggregate" in the asphalt. This aggregate has iron ore or a closely related compound in it and moisture in the asphalt has seeped into the aggregate and it has begun to rust. As it rusts, it expands, causing the uplifting. It will eventually pop open with a slight opening and the rust will start to drain out. This rust stains the court and the staining will continue until all of the

material has drained out and these become slight upheavals that have an open hole cavity.

SLIGHT UPHEAVALS THAT HAVE AN OPEN HOLE CAVITY – The first thing to accept is that there is water under the court (hydrostatic pressure) which is forcing its way into the slab. The second issue is that the asphalt contains reactive aggregate. Color coating over the stains will look good for a few months, but the stains will bleed through again. The first step is to address how the water is getting under the court. The next step is to examine the court during the early morning or late afternoon, or by flashlight, conditions which will more clearly reveal the uplifting. Each uplifting needs to be dug out, the reddish/brown powdery material cleaned out and the cavity patched before recolor coating. It is labor intensive, but it is the only way to permanently get rid of the problem, provided you have solved the source of the water intrusion.

STATEMENT ABOUT CRACK PATCHING ON ASPHALT COURTS

From time to time, a variety of repair people have come up with creative "gimmicks" to fix cracks in asphalt. These include epoxies, reheating the cracks (by torch, laser or some other means), etc. The bottom line is that these kinds of repairs have a dismal track record. If any of these approaches really worked, one of the first things you would see is extensive testing and use of these methods by FDOT and other cities and counties which maintain thousands of square miles of asphalt. These are the people who really know asphalt and they know what works and what doesn't. Epoxies don't work because the sides of an asphalt crack are very difficult to bond to and getting something to stick to a crumbling surface is next to impossible. Even if you can get it to stick to the outer layer, it soon separates very easily from the next inner layer.

The reheating gambit also overlooks two proven facts: the aggregate in asphalt is the strongest part of it, and it is almost impossible to bond new (or reheated) asphalt to old asphalt and have it strong enough to overcome soils movement or expansion and contraction pressures which caused cracking in the first place. We have seen numerous installations of "reheated" or "laser heated asphalt" courts that have retraced within months of doing this relatively expensive work. Once asphalt cracks, other than the exceptions stated herein, if the underlying causes are not addressed, the cracks are going to come back. Even after addressing the underlying issues, patched or reheated

asphalt will still tend to reopen because these cracks have become expansion joints. Short of taking out the offending soils and cracked asphalt and starting over from scratch.

BENT FENCING

Fencing can appear to be bent if settlement is taking place when the fence foundations are starting to lean out. This can be remedied by solving the reason for the settlement. Fence posts that have been bent because of high winds need special attention. Just pulling on them tends to put a new bend just above the first bend, which leaves them unsightly. The answer is to "sleeve" them. The sleeve is a new pipe with an outside diameter that is just slightly smaller than the inside diameter of the existing bent posts. The sleeve should be if the existing post and when you use a block and tackle to pull on the bent posts, the sleeve reinforces all the pipe above the bend, so that your bending pressure is concentrated in correcting the bend. As the post straightens, the sleeve slides down inside the original post, you cut off the top and replace the cap and you have not only straightened out the problem, but you have permanently reinforced the fence posts.

PREVENTIVE MAINTENANCE VS. REPAIR AND RENOVATION

As with most things, building them correctly in the first place provides the lowest cost form of ownership. This is closely followed by regular maintenance and attention to preventive maintenance. A case in point is when cracks first appear in a court. If they are immediately sealed, you can stop water from seeping into the cracks, which reduces the deterioration of the asphalt itself and the damage caused by the seepage into the underlying soils. Whether you have a single court or are responsible for 20 courts, they represent a significant outlay of capital. Intelligent maintenance can protect and preserve the investment.

CONCLUSION

We thank you for having taken the time to review far more information about tennis courts than you ever wanted to know. Retain this ebook for future reference and call

Armor Courts at **561-501-0885** or [visit our website](#), "the hard court experts" whenever you need court related assistance. We offer complete court local free evaluations and proposals that will get you court back in shape.