

2021 TECHNICAL MEETING & TRADE SHOW

December 3-6, 2021 • Hyatt Regency Grand Cypress • Orlando, FL

Sports Fencing ASBA Manuals & ASTM Standards

Alex Levitsky

Global Sports & Tennis Design Group

RA, Member NCARB since 1996

ASTM Member F08 & F14

ASBA Contributor since 1995

RSI Tennis Industry Service Award

Rolf Huber

Canadian Playground Advisory

Member CSA Z614 since 1991

Member F08.12, 23, 52, 63, 65 & F14 & F15 & F24

ISO-Head of US delegation 2011-2016,

Canada 2016-present





SPORTS FENCING

ASBA Manuals & ASTM Standards

Alex Levitsky GlobalTennisDesign.com Rolf Huber PlayGroundAdvisory.com

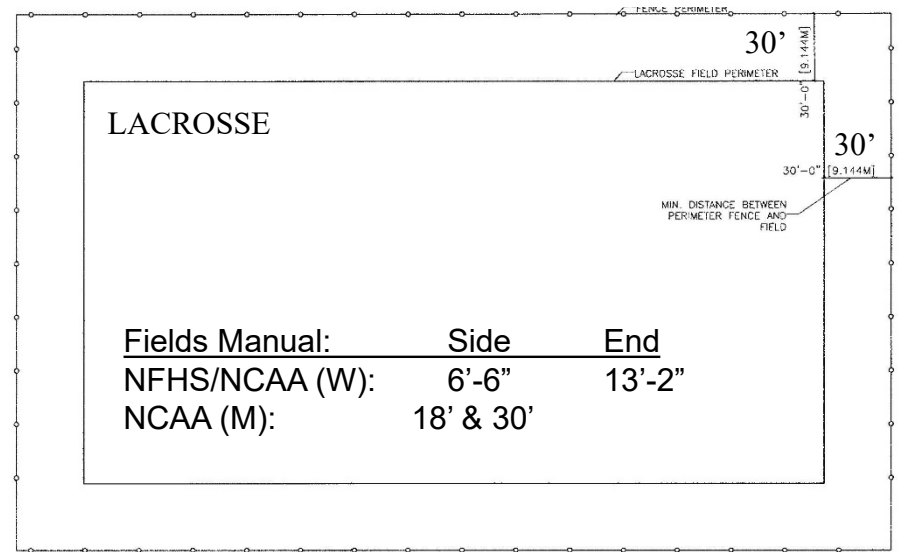
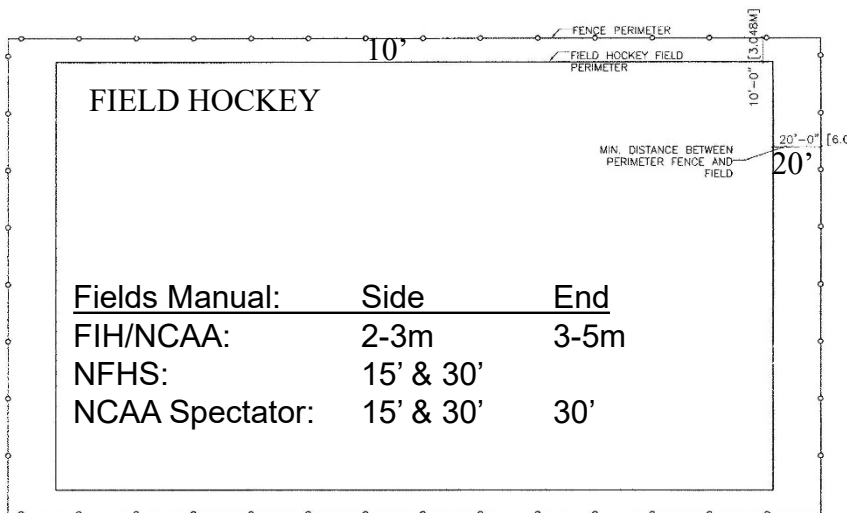
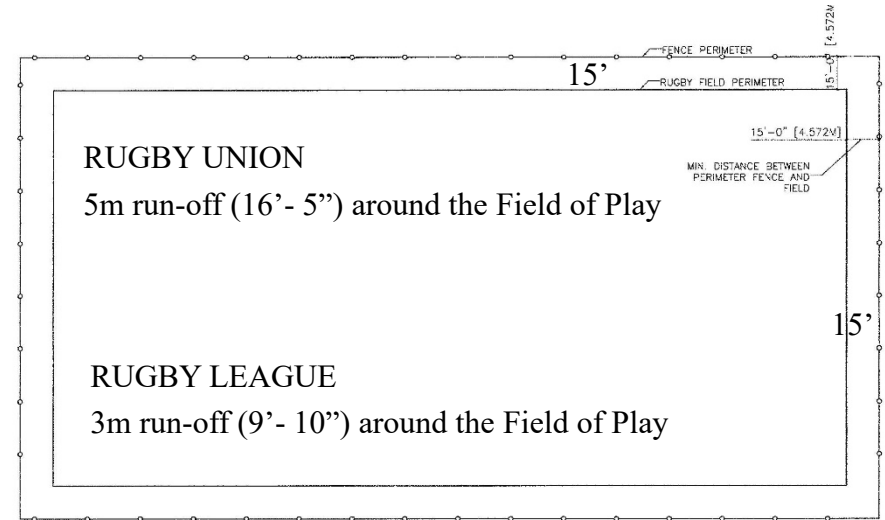
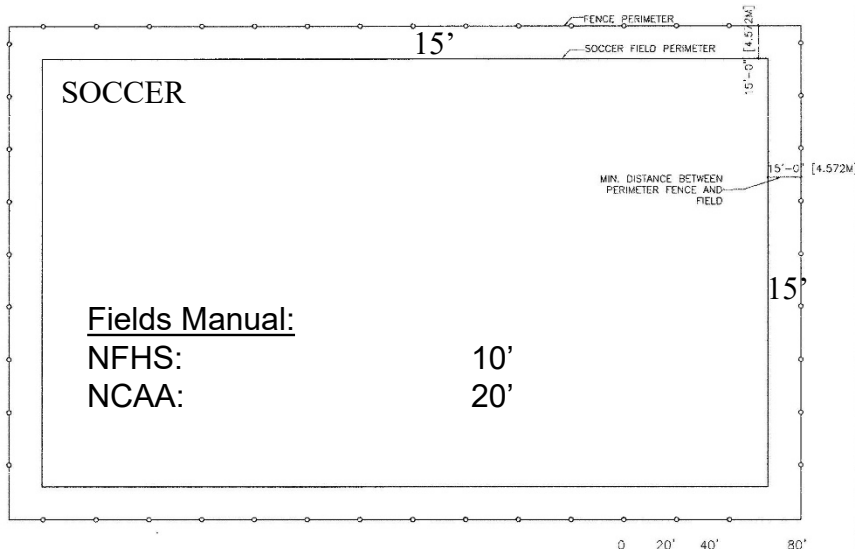
ASBA & ASTM COORDINATION IS IMPORTANT

Eliminating inconsistencies in the documents they publish is important to both the ASBA and the ASTM. It reduces the liability of the sport facility owners, designers and builders.

In 2010 the ASBA Fields Manual was published. It included illustrations of the different types of fields and on any fields, a dashed line indicated an "spectator restraining line" that served as an unimpeded buffer area immediately adjacent to the field. Unfortunately, the ASTM had published a Standard Practice (F2631) for installing fences for outdoor sports fields in 2007 that included illustrations of fields with fence line locations that were different. In 2011, I communicated the ASBA's concerns and we got involved and started a dialog that lead to a Work Item in 2012 to try to resolve the conflicts. In 2016, the Standard was withdrawn. It took 6 years, but we were able to solve the problem.

That's why the ASBA has monitored ASTM activity since it's earliest years and has been actively involved since 2006.

From ASTM F2631-07 (Withdrawn 2016)



Field Run-Offs Were Inconsistent

SPORTS FENCING

1 Changes in Fence Recommendations in ASBA MANUALS

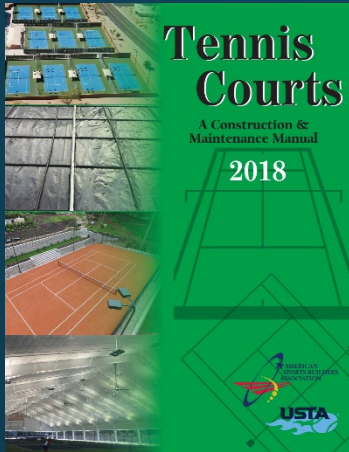
- 1.1 Tennis Manual
- 1.2 Track Manual
- 1.3 Fields Manual
- 1.4 Pickleball Manual
- 1.5 Other References
- 1.6 How to Participate

2 ASTM Fence Standards

- 2.1 About the ASTM
- 2.2 ASTM Standards
- 2.3 Standards to Follow
- 2.4 Current Standards
- 2.5 Standards in the Works
- 2.6 How to Participate

Chapter 12

In the 2018 Tennis Manual

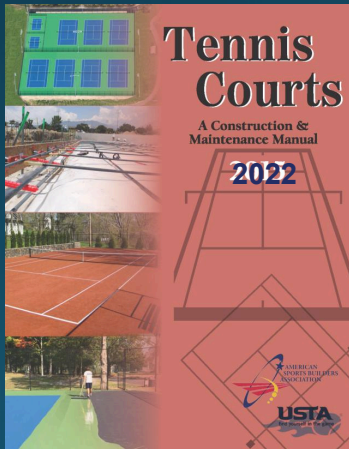


10 ft high fence for hard courts and 8 ft for soft courts and 12 ft for rooftop & high altitude.

Seaside fencing should be coated fencing.

Wood posts are typically 4 in x 4 in.

Changes in the 2022 Manual



10 ft common fence but 8 ft can be appropriate for most conditions; hard and soft.

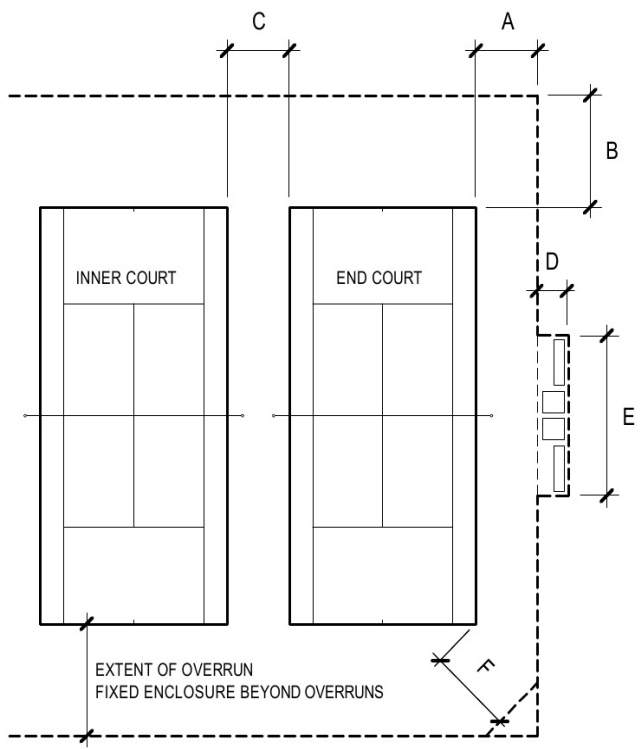
Seaside fencing should be engineered for climate conditions and wind loads. Refer to local Codes.

Wood posts should be 6 in x 6 in.

Fence Layout

At a minimum, the fence should serve as a backstop. For security, a tennis fence may surround the entire court, including an area for seating. The Manual's theme is: "Less is More."

The location of Gates should be both convenient and safe. On tennis courts, gates near the tennis net are preferred. Every court should have its own individual gate entry.

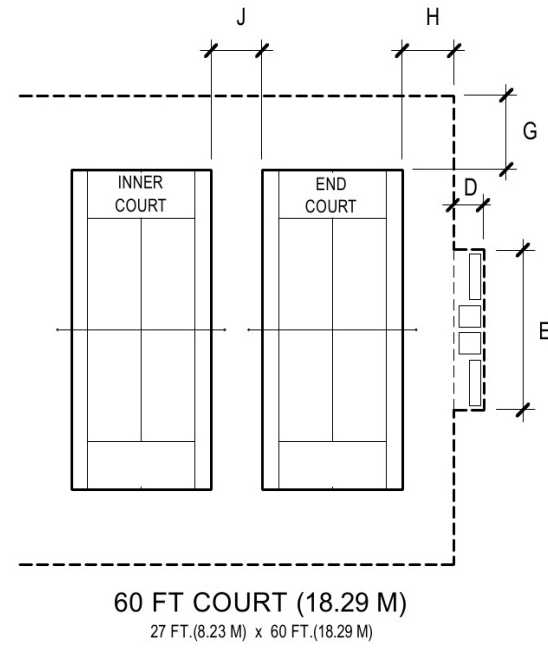


78 FT COURT (23.77 M)
36 FT.(10.98 M) x 78 FT.(23.78 M)

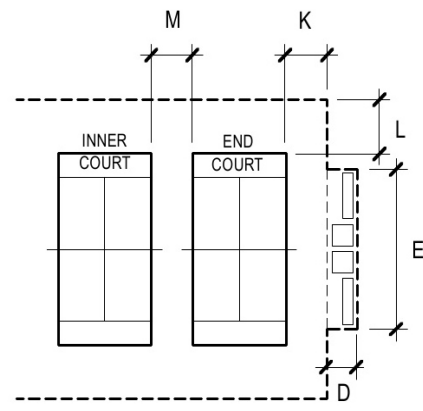
	MINIMUM	PREFERRED	COMPETITION	STADIUM
A =	10 FT.(3.05 M)	12 FT.(3.66 M)	15 FT.(4.57 M)	22 FT.(6.4 M)**
B =	18 FT.(5.49 M)	21 FT.(6.40 M)	27 FT.(8.23 M)	31 FT.(9.4 M)**
C =	10 FT.(3.05 M)	15 FT.(4.57 M)*	18 FT.(5.49 M)	
D =		6 FT.(1.83 M)	10 FT.(3.05 M)	10 FT.(3.05 M)
E =		30 FT.(9.15 M)	30 FT.(9.15 M)	FULL LENGTH
F =	16.25 FT.(4.95 M)	Allowed diagonal reduction on corners of recreational courts.		
G =	14 FT.(4.27 M)			
H =	10 FT.(3.05 M)	A, G, K - UNOBSTRUCTED OVERRUN FROM SIDELINE TO FIXED OBJECTS.		
J =	10 FT.(3.05 M)	B, H, L - UNOBSTRUCTED OVERRUN FROM BASELINE TO FIXED OBJECTS.		
K =	8 FT.(2.44 M)	C, J, M - UNOBSTRUCTED OVERRUN BETWEEN COURTS.		
L =	10 FT.(3.05 M)			
M =	8 FT.(2.44 M)			

* - 18 FT. FOR COLLEGIATE PLAY OR COURTS WITH DIVIDER NET
** - REQUIREMENT VARIES WITH TOURNAMENT

SEE USTA OR ITF FOR ADDITIONAL INFORMATION REGARDING COURT DIMENSIONS

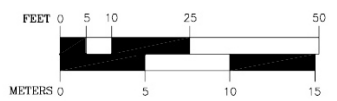


60 FT COURT (18.29 M)
27 FT.(8.23 M) x 60 FT.(18.29 M)

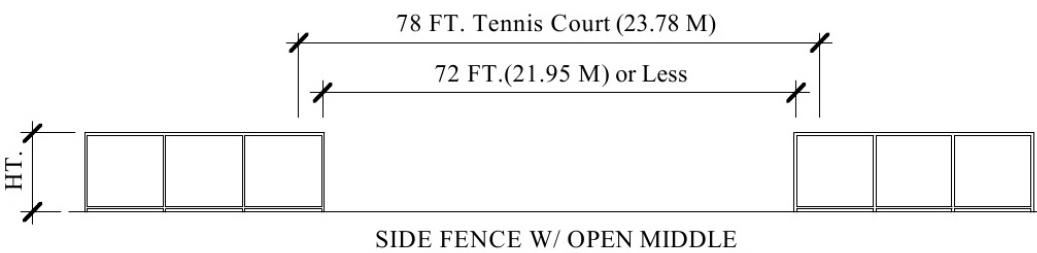
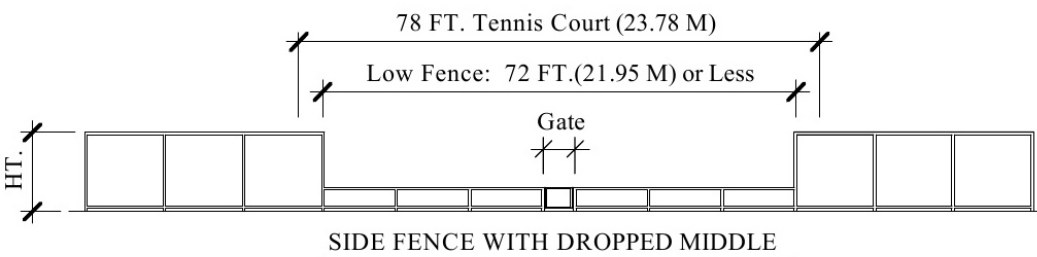
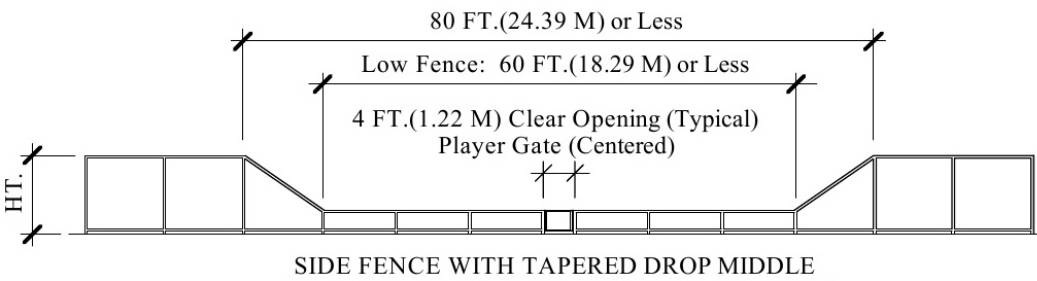
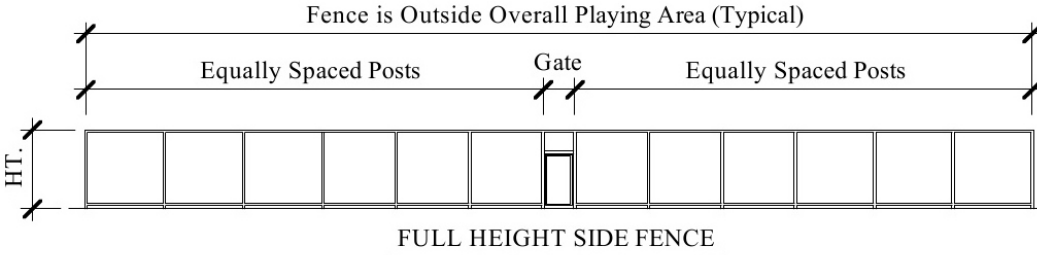


36 FT COURT (10.98 M)
18 FT.(5.49 M) x 36 FT.(10.98 M)

TENNIS - Playing Areas



RECOMMENDED OVERRUN DIMENSIONS



HT. - Fence Heights:

HIGH FENCES

>10 FT.(3.05 M)	Where Area Outside the Courts is Inaccessible (Rooftops, Etc.)
10 FT.+ (3.05 M)	Hard Courts and Courts Near Property Lines, Roads, Etc.
8 FT.+ (2.44 M)	Soft Courts (Clay, Fast Dry, Infilled Turf) with Accessible Areas Adjacent.
5 FT.+ (1.52 M)	Natural Gras with Extended Areas Behind the Base Lines.

LOW FENCES

3.5 FT.+/- (1.07 M)	Spectator Standing Room and Where Guardrails are Required.
3 FT.(0.92 M) to 3.5 FT.(1.07 M)	Between Courts and Along Side Lines.

Fence Heights

1.1

The fence should respond to both the needs of the players on the court, as well as outside functions such as spectator seating, shade shelter locations, storage areas & site conditions.

In tennis, the backstops are typically 10' high for hard courts, and 8' for soft courts. Fences for grass courts are often only 5' high and fence for rooftops, and other site conditions are 12'.

The most recent Manual recommends considering 8' high fences for more hard courts and limiting the low fences to a height of 3'-6".



GOLF BALLS



**ADJACENT
VEGETATION**



ROOFTOPS

1.1

Adjacent Site Conditions may dictate a 12' or higher fence. Netting is an option for extending the height. Consider maintenance.

Chapter 16: **Accessories**

In addition to Chapter 12, Chapter 16 addresses windscreens, divider nets, practice walls, scoreboards, shade canopies and electronic devices that can all be mounted to fence posts .

As a rule, it is best to mount as many of these accessories as possible to independent structural members. But if the fence is to take the load, engineer the fence to handle it.



Type of Fence

The majority of fence around courts are Chain Link Fabric with Steel Framework. But there are many other options for both Fabric and Framework.

For the Fabric:

- Welded Mesh
- Windscreen Material
- Netting
- Wood Lattice

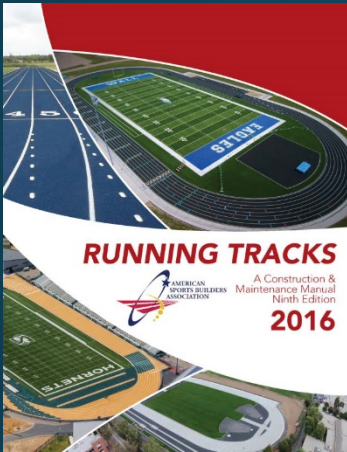
For the Framework:

- Wood – Partially
- Wood – Completely

All have ASTM Standards that apply.



In the 2016 **Track** Manual



Chapter 5

4 ft high fence with a top rail around the outside perimeter of the track.

1 meter (39.36 in) of an obstacle-free zone between the fence and track (NCAA)

Pedestrian gates 3 ft to 4 ft wide.



Changes in the **2019** Manual

Added:

All gates should be equipped with lockable hardware.

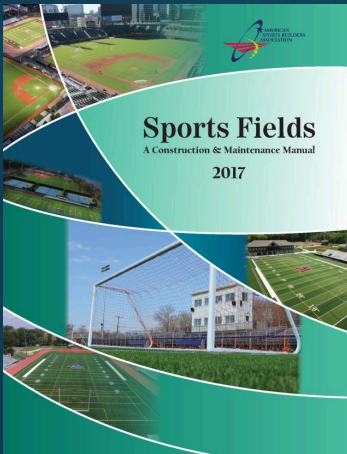


Track Fences

The keys of a traditional track fence include:

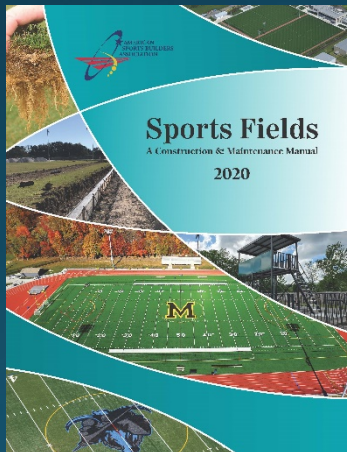
- One (1) meter setback of the fence from the first lane.
- Basic 4' high fence with attention to detail is the simple standard.
- A fine alternative 42" high fence with the fabric ending before the top rail.
- No sharp edges or protrusions on either side of the fence.
- Gates that open out, away from the track activity.

In the 2017 **Fields** Manual



Chapter 7

- Fence Heights: Baseball, Soccer, Field Hockey, Lacrosse, Football & Rugby fence heights: 8 ft recommended, 4 ft – 6 ft common (tops should be padded or guarded)
- Fence From Field: Check setbacks and regulations.
- Pedestrian Gates: 3 ft to 4 ft wide. Located in response to traffic flow.
- Double Gates: One per field enclosure.

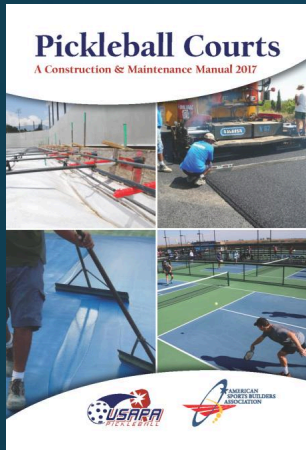


Changes in the **2020** Manual

- Fence Heights: No change.
- Fence From Field: No change.
- Pedestrian Gates: No change.
- Double Gates: No change.

The 2020 Fields Manual

The Fields Manual is not generous in fence layouts and fence details, as they relate to different types of fields. The Manual has fourteen (14) fields illustrated. Of those, the football fields (L-3, L-4) shows restraining and limit lines, but does not note how a fence should relate to them. Similarly, the NFHS, NCAA soccer fields and NFHS field hockey (L-5, L-6 & L-12) show a spectator restraining line but don't mention where a fence is best placed. The FIFA soccer field (L-7) , NFHS lacrosse field (L-8) and the Rugby field (L-11) drawings have no runoffs shown and make no suggestion regarding fencing. The NCAA men's lacrosse field (L-9) shows limit lines but again, no mention of fencing. The NFHS/NCAA women's lacrosse field (L-10) drawing is encircled by a dashed line, but offers no description of what it represents or what dimension it is from the sideline and end lines. The NCAA/FIH field hockey field drawing includes three different setback line (minimum and recommended unobstructed space, and the NCAA spectator line). Not clear where the fence would fit. Finally, the three baseball/softball fields (L-14, L-15 & L-16) drawings all locate the backstop, but do not address the outfield or along the foul lines. There's plenty of room for additional guidance.



In the 2017 **Pickleball** Manual

- Fence Height: 8 ft
- Low Fences: 3 ft to 5 ft high.
- Side Fences: 16 ft on 60 ft Court, 20 ft on 64 ft Court
- Remaining Sides: 3 ft 6 in to 4 ft high
- Fence Wire: 9 gauge, 11 gauge (Residential)
- Footing: Wind not mentioned.

Chapter 5



Changes in the **2020** Manual

- Fence Height: 7 ft to 8 ft
- Low Fences: 3 ft 6 in high.
- Side Fences: 16 ft
- Remaining Sides: 3 ft 6 in
- Fence Wire: 9 gauge
- Footing: Consider wind load.



1.4 Pickleball Fences

1 High fence behind the base lines when possible.

2 Windscreens make for a great backdrop.

3 Pad the tops of the low fences.

4 Low fences along the sidelines is good for spectators.

5 For wheelchair play having the fences further apart is recommended.

6 High fences at the perimeter are recommended when security is an issue.

Fence posts fail when improperly sized or poorly maintained.

1.5



A good fence requires a strong
fence post and good foundation.

1.5



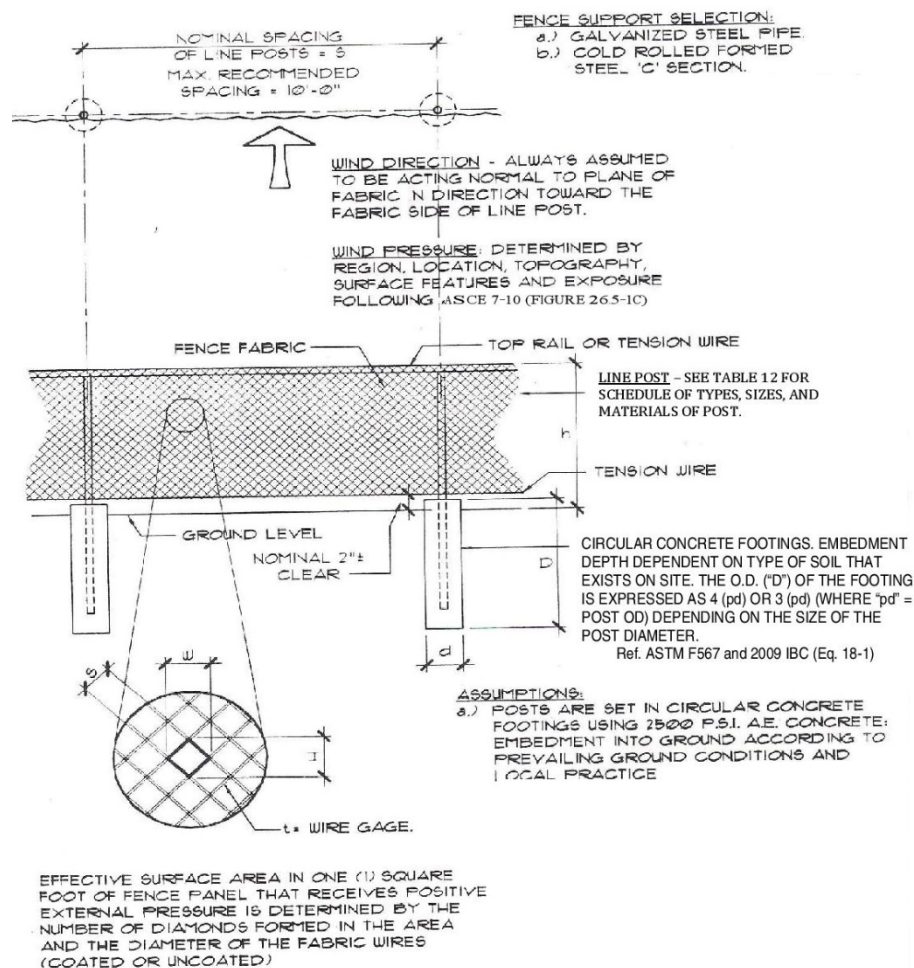
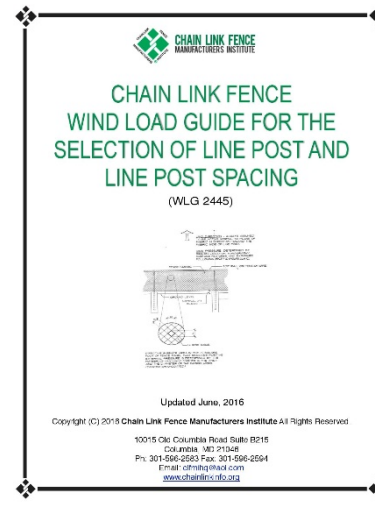


FIGURE 1
LINE POST SPACING GUIDE DETAILS

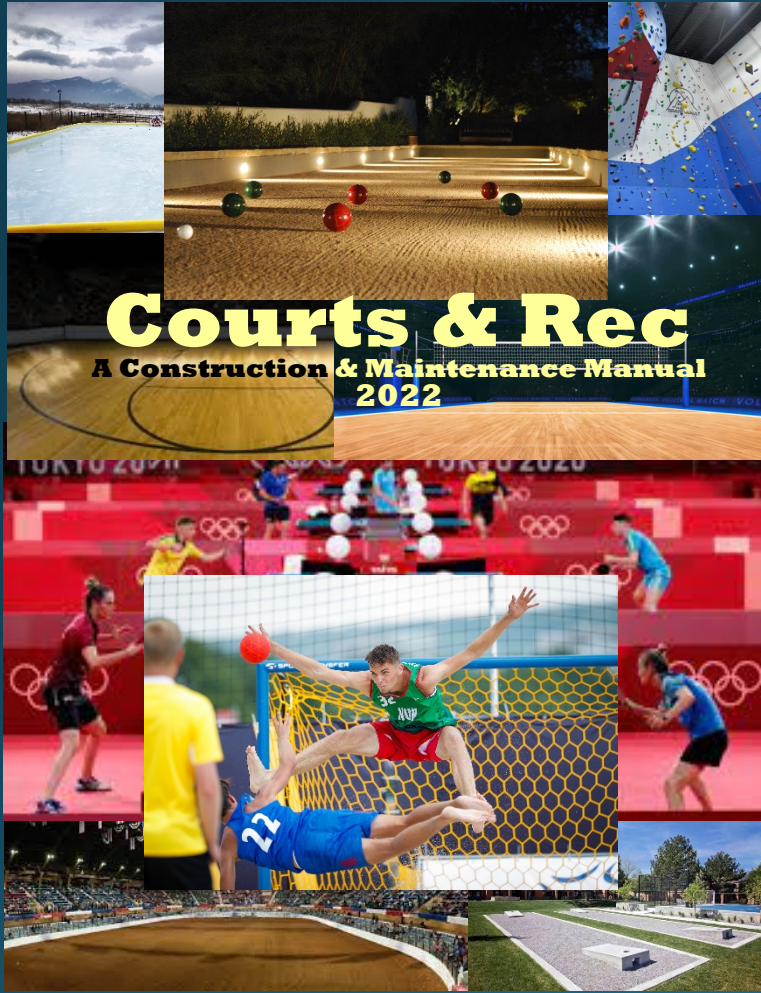
The **CLFMI** is another good reference , especially for sizing and spacing fence posts. It takes into account:

- Wind Regions,
- Wind Exposure Category,
- Fence Fabric Size,
- Soil Conditions,
- Ice Exposure, and
- Special Conditions.

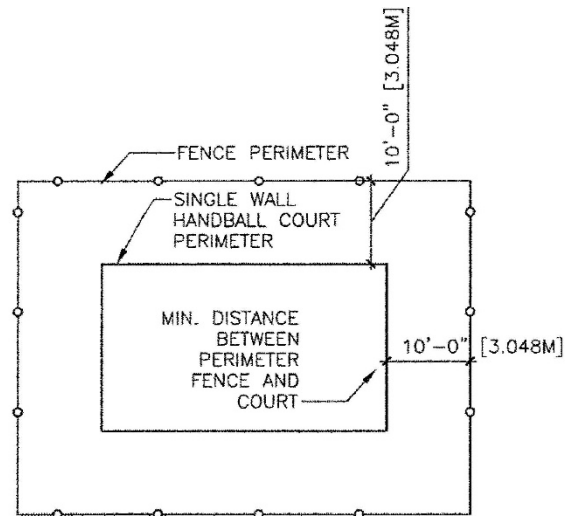
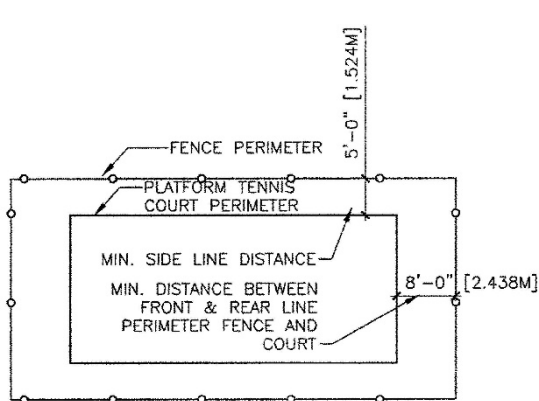
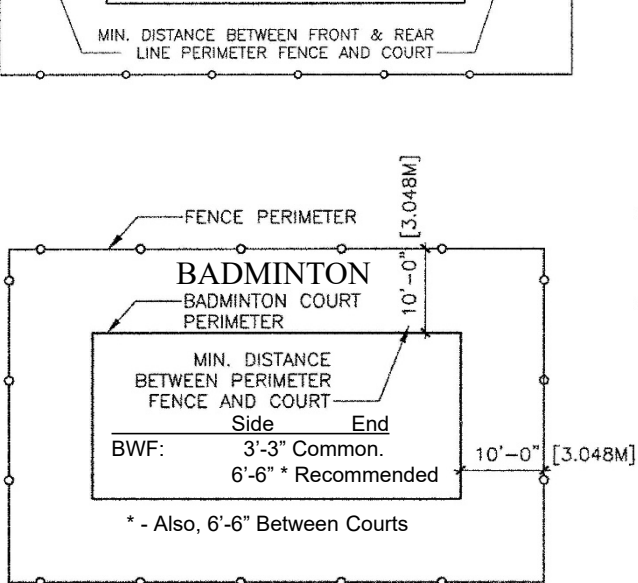
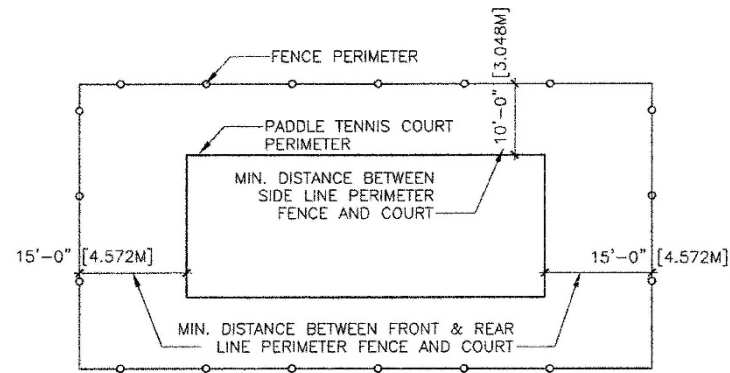
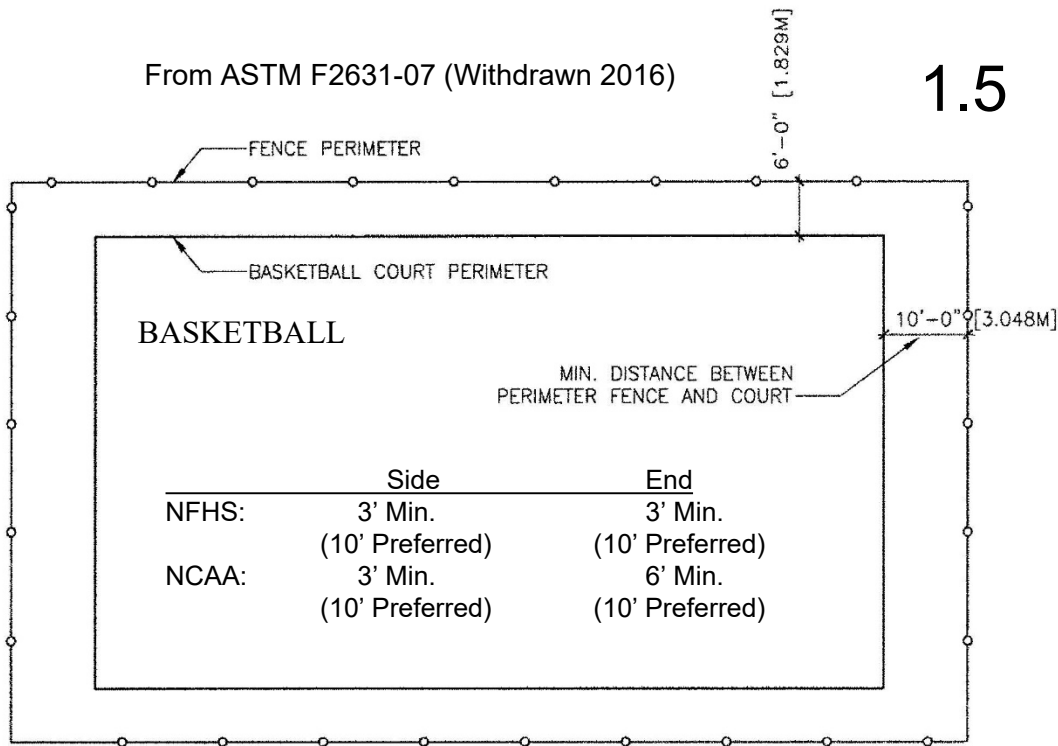
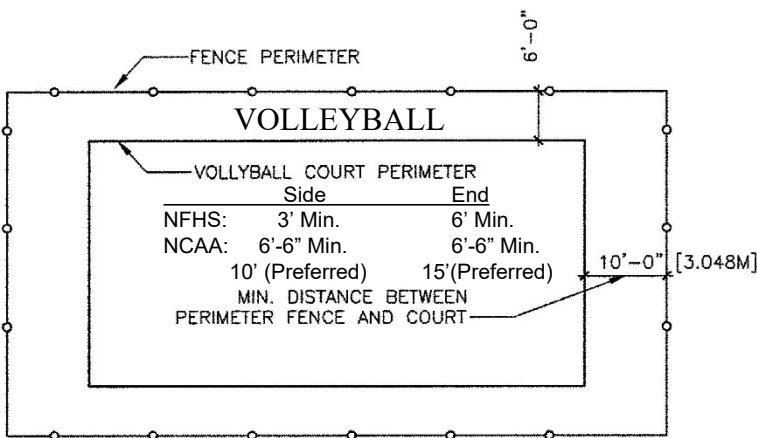
The same size fence in two distinctly different locations could have fence posts that are dramatically different.



All New Courts & Rec Manual



Expected out in 2022, the Courts & Rec Manual shall take the place of the discontinued “Indoor Sports Surfaces” manual, last published in 2014. It is expected to include a wide range of courts not addressed in the other ASBA Manuals, and even touch on areas that are dedicated for particular recreational activities. We cannot give you a detailed description yet; it is a work in progress.



Court Run-Offs Were Inconsistent

We should soon have a Manual for Basketball, Handball, Futsal, Bocce & many other courts.

1.5



How Do You Stay Updated? Join In!

1. Meet members, new and old.
2. Share your ideas and ask plenty of questions.
3. Pick up the updated ASBA Manuals.
4. Take part in the Technical Meeting Sessions.
5. Come to the Winter Meeting to participate in the review of the Manuals.
6. Stay in touch with your fellow members that have been active in the ASBA work.

2021 TECHNICAL MEETING & TRADE SHOW

December 3-6, 2021 • Hyatt Regency Grand Cypress • Orlando, FL

Sports Fencing

ASBA Recommendations & ASTM Standards

About ASTM: Who or What is ASTM?

- ASTM has over 12,500 standards globally. Defined and set by volunteers, they improve the lives of millions every day. Combined with innovative business services, the ASTM enhances performance and helps everyone have confidence in the things they buy and use.
- ASTM is 120 years old and has 30,000 volunteers in 140 countries.
- ASTM Standards are highly regarded around the world, and are one of the most common Standards referenced in construction documents.



Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Standards: What Are Standards?

- ASTM Standards are documents that have been developed by its members, meet the requirements of ASTM procedures and regulations, and are only published after a transparent but rigorous approval process.
- This is important – ASTM does not judge or rule on the content of the standards, that is the role of the members. That is why the membership is balanced to maximize diversity and keep vested interests from dominating the deliberation. The diversity insures that the technical content is properly and thoroughly vetted.

Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Standards: Are ASTM Standards Laws or Regs?

NO. Standards are voluntary. ASTM and Governments do not monitor their use. BUT ASTM standards are often mandated in other documents such as Specifications, Contracts, Maintenance Requirements and Warranties.

- ASTM F1487 (playgrounds), F1292 (playground surfacing) and F1951 (playground surfacing - firmness and stability) are all in the DOJ 2010 ADA Standards on Accessible Design – Federal Law.
- CPSC Handbook for Public Playground Equipment and ASTM Playground standards are mandated in many states under Public Health and School Regulations.
- NSF50 is a requirement for swimming pools.



Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Standards: Can ASTM Standards Be Cited In Lawsuits?

ABSOLUTELY. Even if you, the owner, operator, consultant or contractor, did not know the Standards exist.

- The premise is - you should have known. Therefore, know which standards apply and which do not. It could cost you dearly if you do not.
- One excellent way to stay updated is to participate.

Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Standards: What Are the Types of Standards?

There are six (6) types of ASTM standards:

- **Specification (S)**
- **Test Method (TM)**
- **Practice (P)**
- **Guide (G)**
- **Classification (C)**
- **Terminology (T)**

Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Standards:

Specification

- **Specification**, n —an explicit set of requirements to be satisfied by a material, product, system, or service.

DISCUSSION—Examples of specifications include, but are not limited to, requirements for; physical, mechanical, or chemical properties, and safety, quality, or performance criteria. A specification identifies the test methods for determining whether each of the requirements is satisfied.

Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Standards:

Test Method

- **Test Method**, *n*—a definitive procedure that produces a test result.

DISCUSSION—Examples of test methods include, but are not limited to: identification, measurement, and evaluation of one or more qualities, characteristics, or properties. A precision and bias statement shall be reported at the end of a test method. (Refer to Section A21 on Precision and Bias.)

Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Standards:

Practice

- **Practice, n** —a definitive set of instructions for performing one or more specific operations that does not produce a test result.

DISCUSSION—Examples of practices include, but are not limited to: application, assessment, cleaning, collection, decontamination, inspection, installation, preparation, sampling, screening, and training.

Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Standards: Guide

- **Guide, n** —a compendium of information or series of options that does not recommend a specific course of action.

DISCUSSION—A guide increases the awareness of information and approaches in a given subject area.

2021 TECHNICAL MEETING & TRADE SHOW

December 3-6, 2021 • Hyatt Regency Grand Cypress • Orlando, FL

Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Standards:

- **Classification**, *n*—a systematic arrangement or division of materials, products, systems, or services into groups based on similar characteristics such as origin, composition, properties, or use.
- **Terminology standard**, *n*—a document comprising definitions of terms; explanations of symbols, abbreviations, or acronyms.

Other Standards



Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Fence Committee Standards To Follow

You should follow the fence standards that are related to your work. For Sport Fencing, the following are commonly included:

- F537 Wood Fence (S)
- F552 Terminology (T)
- F567 Installation (P)
- F626 Fittings (S)
- F668 Fabric Coats (S)
- F900 Gates (S)
- F934 Polymer Color (S)
- F969 Tennis (P)
- F1043 Pipe Coat (S)
- F1083 Zinc Coating (S)
- F1183 Alum Fabric (S)
- F1345 Alum & Wire (S)
- F1487 Playground (S)
- F1553 CLF (G)
- F1664 PVC & Wire (S)
- F1908 Swim Pool 1 (G)
- F2000 Baseball (S)
- F2049 Play Area (S)
- F2409 Swim Pool 2 (G)
- F2453 Wire Mesh (S)
- F2698 Skate Park (G)
- F2699 Water Spray (G)
- New Pickleball (G)

2021 TECHNICAL MEETING & TRADE SHOW

December 3-6, 2021 • Hyatt Regency Grand Cypress • Orlando, FL

Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Standards Also Related to Sport Fencing:

A 90M-21	Test Method for	Weight of Coating on Steel with Zinc or Zinc-Alloy
A 123M-17	Specification for	Zinc Coatings on Iron & Steel Products
A 153M-16a	Specification for	Zinc Coatings on Iron & Steel Hardware
A 385M-20	Practice for	High-Quality Zinc Coatings
A 392-11a(2017)	Specification for	Zinc-Coated Steel CLF Fabric
A 428M-21	Test Method for	Weight of Coating on Iron or Steel with Aluminum
A 491-11(2017)	Specification for	Aluminum-Coated Steel CLF Fabric
A 817-12(2017)	Specification for	Metallic-Coated Steel Wire for CLF Fabric
A 824-01(2017)	Specification for	Metallic-Coated Steel Tension Wire for CLF
A 1011M-18a	Specification for	Steel
B 6-18	Specification for	Zinc
B 117-19	Practice for	Operating Salt Spray Fog Apparatus
D 412-16(2021)	Test Method for	Vulcanized Rubber & Thermoplastic Elastomers
D 792-20	Test Method for	Specific Gravity of Plastics by Displacement
D 1735-14	Practice for	Testing Water Resistance of Coatings
D 2240-15(2021)	Test Method for	Rubber Property-Hardness
E8/E8M-21	Test Methods for	Tension Testing of Metallic Materials
E 376-19	Practice for	Measuring Coating Thickness



Sports Fencing

ASBA Recommendations & ASTM Standards

Are You Looking At a Current Standard?

- All ASTM standards are to be revised, reissued or withdrawn on a **5 year cycle**. If a standard has not been revised or reissued within 8 years of its last publication, it is automatically withdrawn.
- A Standards status is included in the Title. The last 2 digit at the end of the Title are the last two digits of the year of the most recent reissue. Example: F0969-11(2016) standard shall require a review in 2021, while F1043-18 shall require a review in 2023. But if you see a Standard being used with the last 2 digits of the number at the end of the Title being 13 or less, be sure to investigate. That standard, if not updated, would have been withdrawn.

2021 TECHNICAL MEETING & TRADE SHOW

December 3-6, 2021 • Hyatt Regency Grand Cypress • Orlando, FL

Sports Fencing

ASBA Recommendations & ASTM Standards

Current Standards: How Current Is a Standard?

You should keep track of fence standards that may change soon. Here is when the following might be changing:

- F537-01(2019) **2024**
- F552-14(2019) **2024**
- F567-14a(2019) **2024**
- F626-14(2019) **2024**
- F668-17 **2022**
- F900-11(2017) **2022**
- F934-96(2017) **2022**
- F969-11(2016) **2021**
- F1043-18 **2023**
- F1083-18 **2023**
- F1345-10a(2019) **2024**
- F1487-17 **2022**
- F1553-11(2017) **2022**
- F1664-08(2018) **2023**
- F1908-08(2018) **2023**
- F2000-19 **2024**
- F2049-11(2017) **2022**
- F2409-10(2016) **2021**
- F2698-08(2018) **2023**
- F2699-08(2018) **2023**
- New Pickleball **2021**



2021 TECHNICAL MEETING & TRADE SHOW

December 3-6, 2021 • Hyatt Regency Grand Cypress • Orlando, FL

Sports Fencing

ASBA Recommendations & ASTM Standards

Fence Standards In the Works

Here are the fence standards being worked on NOW:

- | | | | | |
|------------------------|-------------------------|----------------|----------|---------------|
| • F537-01(2019) | Wood Fence (S) | WK75171 | Contact: | Rolf Huber |
| • F969-11(2016) | Tennis (P) (G) | WK75172 | Contact: | Alex Levitsky |
| • F1908-08(2018) | Swim Pool 1 (G) | WK75173 | Contact: | Rolf Huber |
| • F2000-19 | Baseball (S) (G) | WK75174 | Contact: | Ed Norton |
| • F2049-11(2017) | Play Area (S) | WK75179 | Contact: | Rolf Huber |
| • F2698-08(2018) | Skate Park (G) | WK75175 | Contact: | Rolf Huber |
| • F2699-08(2018) | Water Spray (G) | WK75176 | Contact: | Rolf Huber |
| • NEW | Pickleball (G) | WK77433 | Contact: | Alex Levitsky |



How do you participate? Join ASTM

- Go to www.astm.org
- Click on “Get Involved” and then click on “Membership”
- On the membership page click on “Join Now”
- You will want to become a participating member for US\$75.00
- You will check out after paying with Credit Card.
- Then you establish your own member page

Sports Fencing

ASBA Recommendations & ASTM Standards

Joining ASTM the Fence Committee

- Once you have joined ASTM you have the option to join committees and sub-committees that are of interest to you. **For Sport Fencing, join F14 Committee and F14.10 Special Application Fences sub-committee.**
- You will receive agendas, minutes, be able to participate in work items, attend meetings (person to person or via Web) and Ballots on items at the sub-committee and committee level.
- You do not have to attend meetings, but you **MUST VOTE**. You will receive a ballot notice and you do have to at a minimum vote to abstain. Failure to vote 3 times & your subcommittee membership is terminated.



Sports Fencing

ASBA Recommendations & ASTM Standards

Join Other ASTM Sport-Related Committees

In addition to the Sport Fencing sub-committee, sport facility builders and designers might consider joining the F08 Sport Committee and some of the following sub-committees:

- F08.52 (Playing Surfaces)
- F08.63 (Playground Surfacing)
- F08.64 (Natural Playing Surfaces)
- F08.65 (Artificial Turf Surfaces/Systems)
- F08.66 (Sports Facilities)

When you join, if you select Volume 15.07, it contains all surfacing-related standards. That's hundreds (\$) in standards for free!



Sports Fencing

ASBA Recommendations & ASTM Standards

ASTM Standards Summary

- Understand the ASTM Standards that are Part of Your Work.
- Keep On Top of Updates.
- Know What Your Liability Is for Including or Excluding a Standard.
- Participate in the Standards Process.

“If You Do Not Like a Standard – Work to CHANGE IT.”

QUESTIONS?

