AFSA45
WORKING SUCCESSFULLY WITH INDEPENDENT DESIGNERS
Presented by: Steve Leyton
SAN ANTONIO, TX
AFSA
American Fire Sprinkler Association

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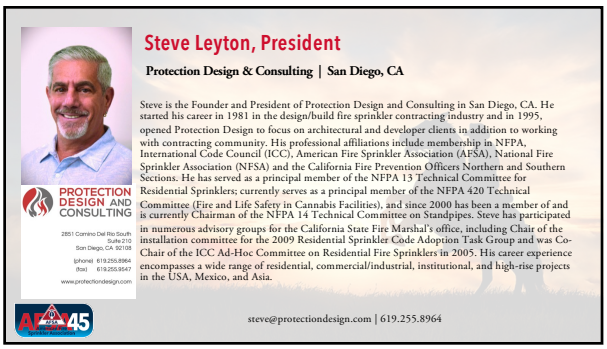
Steve Leyton, President
Protection Design & Consulting | San Diego, CA
Steve is the Founder and President of Protection Design and Consulting in San Diego, CA. He started his career in 1981 in the design/build fire sprinkler contracting industry and in 1995, opened Protection Design to focus on architectural and developer clients in addition to working with contracting community. His professional affiliations include membership in NFPA, International Code Council (ICC), American Fire Sprinkler Association (AFSA), National Fire Sprinkler Association (NFSA) and the California Fire Prevention Officers Northern and Southern Sections. He has served as a principal member of the NFPA 13 Technical Committee for Residential Sprinklers; currently serves as a principal member of the NFPA 420 Technical Committee (Fire and Life Safety in Cannabis Facilities), and since 2000 has been a member of and is currently Chairman of the NFPA 14 Technical Committee on Standpipes. Steve has participated in numerous advisory groups for the California State Fire Marshal's office, including Chair of the installation committee for the 2009 Residential Sprinkler Code Adoption Task Group and was Co-Chair of the ICC Ad-Hoc Committee on Residential Fire Sprinklers in 2005. His career experience encompasses a wide range of residential, commercial/industrial, institutional, and high-rise projects in the USA, Mexico, and Asia.
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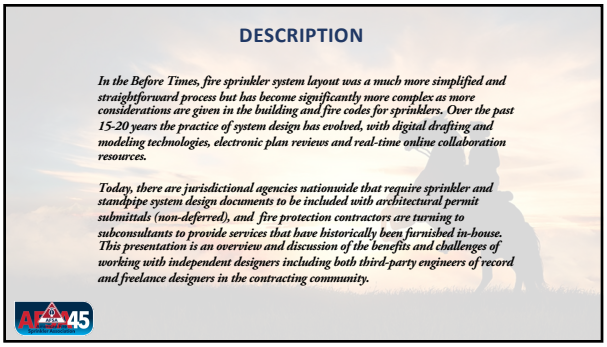
DESCRIPTION
In the Before Times, fire sprinkler system layout was a much more simplified and straightforward process but has become significantly more complex as more considerations are given in the building and fire codes for sprinklers. Over the past 15-20 years the practice of system design has evolved, with digital drafting and modeling technologies, electronic plan reviews and real-time online collaboration resources.
Today, there are jurisdictional agencies nationwide that require sprinkler and standpipe system design documents to be included with architectural permit submittals (non-deferred), and fire protection contractors are turning to subconsultants to provide services that have historically been furnished in-house. This presentation is an overview and discussion of the benefits and challenges of working with independent designers including both third-party engineers of record and freelance designers in the contracting community.

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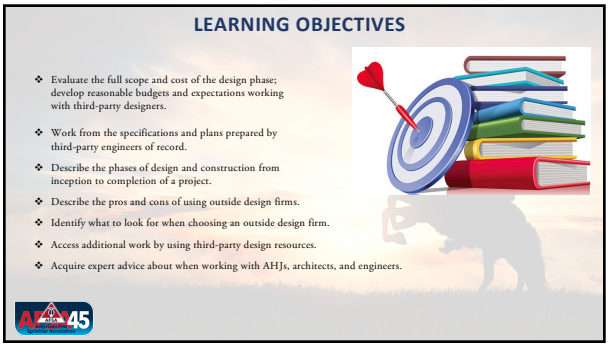
LEARNING OBJECTIVES
Evaluate the full scope and cost of the design phase; develop reasonable budgets and expectations working with third-party designers.
Work from the specifications and plans prepared by third-party engineers of record.
Describe the phases of design and construction from inception to completion of a project.
Describe the pros and cons of using outside design firms.
Identify what to look for when choosing an outside design firm.
Access additional work by using third-party design resources.
Acquire expert advice about when working with AHJs, architects, and engineers.

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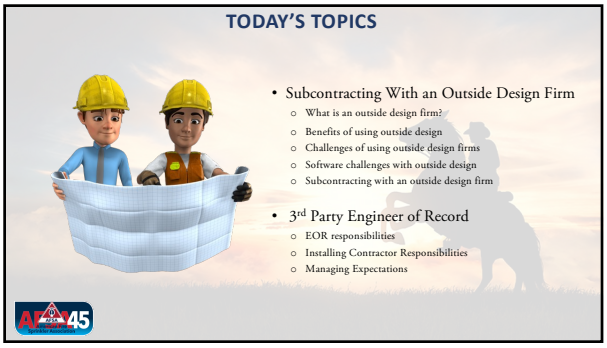
TODAY'S TOPICS
Subcontracting With an Outside Design Firm
What is an outside design firm?
Benefits of using outside design
Challenges of using outside design firms
Software challenges with outside design
Subcontracting with an outside design firm
3rd Party Engineer of Record
EOR responsibilities
Installing Contractor Responsibilities
Managing Expectations

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HOW DID WE GET HERE?

- Westward expansion created booming antebellum economy, especially along the Mississippi. Until the Civil War…
- Reconstruction re-focused industry in New England. Electrification added new hazards to industrial processes; frequent fires caused $$ millions in losses
- Factory Mutual (now FM Global) founded 1835, amplifies focus on fire prevention in 1886
- John Freeman of FM becomes President of Manufacturers, Rhode Island and Mechanics Mutual Fire Insurance Companies of Providence. Underwriting consortium leads to creation of what became known as the "Factory Mutual System"
- Underwriters Laboratories founded 1894

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BIRTH OF NFPA AND A NEW SPRINKLER STANDARD

- 1895 meeting at Underwriters Bureau of New England in Boston. Attendees include Factory Mutual, New England Insurance Exchange, Factory Insurance Association (later IRI), Boston Board of Fire Underwriters, Frederick Grinnell.
  - Stakeholders endorse fire sprinkler standards.
  - Already-proven technology
  - No standards of care or means of enforcement; system designs are not consistent
- March 18 & 19, 1896 Committee on Automatic Sprinkler Protection meets to create standard for fire sprinkler design and installation
- In late 1896, the committee publishes a new standard, ***"Rules and Regulations of the National Board of Fire Underwriters For Sprinkler Equipments, Automatic and Open Systems"***

NFPA®

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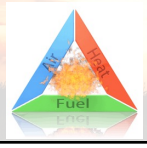
HOW SPRINKLERS WERE BROUGHT TO MARKET

- Sprinkler requirements driven by insurance standards, not code.
- Installations often required after projects well underway.
- First code mandates may have been cinema halls, 1920's in Dallas, TX



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HOW SPRINKLERS WERE BROUGHT TO MARKET

- Architectural standards led to separation of fire sprinklers from other design disciplines and construction trades.
  - Architects contracted to design "per code" using standard form (AIA) documents; still in nearly identical practice today.
  - GC standard form (AGC) contracts based on architectural documents.
  - Sprinklers not included in permit sets, most often "furnished by owner".

The American Institute of Architects

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HOW SPRINKLERS WERE BROUGHT TO MARKET

- Sprinkler contractors developed design practices and performed work in-house.
- Owners and general contractors solicited proposals.
- Deferred submittals to ***insurers.***
- As sprinklers came into the codes, deferred submittal practice carried over to municipal AHJ's.
- Our industry uses a 125-years old business model.

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CONTRACTOR RELATIONSHIPS WITH DESIGNERS

- What should contractors expect when hiring outside designers?
- What can the outside designer expect from the hiring contractors?
- Questions are encouraged on topic; please don't wait until the end.

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WHAT IS AN "OUTSIDE DESIGN FIRM"?

- Any person or company that provides drafting, layout, hydraulic and/or seismic calculations, to a contractor for installation by that contractor's forces. An outside designer is typically not considered a W-2 employee of the contractor
- IRS has specific rules defining a subcontractor that MUST be followed but…

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BENEFITS OF USING OUTSIDE DESIGN FIRMS

- Reduce burden on your already-buried staff.
- Increasing design department capacity without significantly increasing long term overhead.
- Assure that critical schedule deadlines are met.
- Acquire expertise for a specific project/sector.
- Modeling building systems in Revit.
- Reduce direct cost impacts of training and learning curve.

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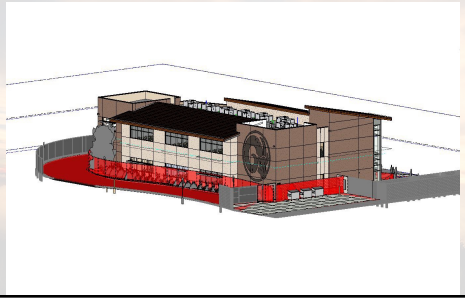
WHAT'S REVIT?



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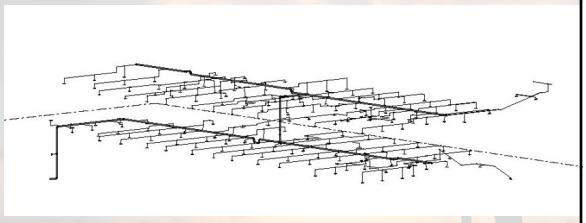
HOLISTIC SYSTEM DESIGN



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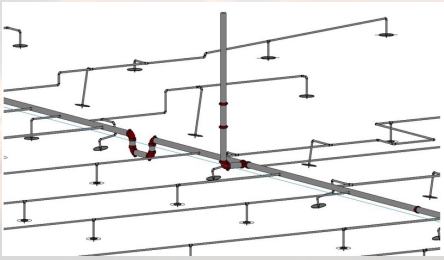
OBJECT BASED, PARAMETRIC 3D



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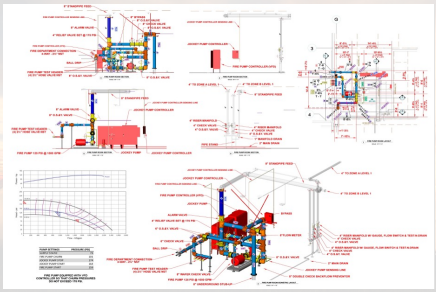
3D DRAFTING MAKES PRETTY PICTURES



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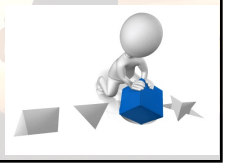
CHALLENGES OF USING OUTSIDE DESIGN FIRMS

- Where do I find these outside designers?
- How do I know if they are they any good?
- Will the product be delivered on time?
- Will I be happy with the product?
- Outside designer's schedule and priorities may not exactly match the hiring contractor.



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THE BIGGEST CHALLENGE

- Was the estimate based on using in-house or outside design resources?
- Did you set your budget with input from your outside resource?
- What is "fair market value" for design?
  - All professional service firms have overhead costs
  - Professional Liability insurance, software licenses, other resources
- Are you contracting for specialized expertise?
- Can you do this work in-house or is the outside designer an essential part of your capabilities on this project?

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SOFTWARE COMPATIBILITY

- Are contractor and designer using the same software platform?
  - How to resolve when they aren't
  - This may even be as basic as the edition (year) of program
- Is there a written contract?
- What is in the scope of the contract?
  - Schedule – especially design/build contracts
  - Submittals
  - Stock Listing
  - Changes to drawings
  - As-built drawings
  - Future tenant improvements

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HOW TO RECRUIT RESOURCES

- Word of mouth
- Software websites
- Designer Hub
- Trade publication advertising
- Former employees
- Rehab centers and halfway houses; 12-step meetings; cannabis dispensaries (Western states only)

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WHAT CAN CONTRACTORS EXPECT FROM DESIGNERS?

- Quality control and designs that fit
- Pre-design meeting
- Professional communication
  - Who will be speaking for the contractor?
- Professional Liability insurance (errors/omissions)
- Timely response to exchanges of information
- Progress submittals per contract and schedule

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WHAT CAN CONTRACTORS EXPECT FROM DESIGNERS?

- Pre-design meeting.
- Professional communication.
- Provide all media (files) required to complete the work.
  - Furnish updates or links to design team files.
- Timely responses to requests for information.
- Prompt payment – should be scheduled in contract.
- Reasonable lead time with benchmark submittal dates.

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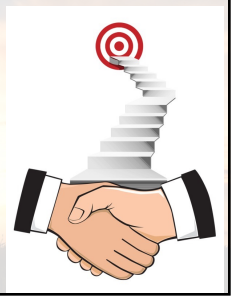
RELATIONSHIPS WITH 3RD PARTY ENGINEERS

- What is a 3rd Party Engineer, i.e. the Engineer of Record (EOR)?
- What is the installing contractor's scope when working off 3rd party plans?
- How to form a partnership so both parties benefit from this relationship?



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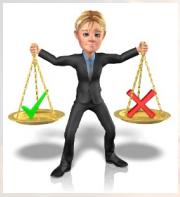
WHY IS THERE A MARKET FOR 3RD PARTY DESIGN



- Is there anything wrong with deferred submittals? Does the status quo need fixing?
- Contractor challenges:
  - Incomplete or inaccurate design basis at bid.
  - Balancing requirements of multiple AHJ's without adequate notification or owner/insurance criteria.
  - Working from behind starting at Day 1.
  - Sole source supply usually means sole source liability.

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WHO'S PUSHING FOR NON-DEFERRED SUBMITTALS?

- Project Owners and Developers:
  - Poorly served by architects and generic specifications from ME's.
  - Civil Engineers not knowledgeable regarding fire protection, NFPA 24.
  - Encumbered by "low bidder" designs and materials if spec's aren't well-written and enforced.
  - Schedules often not met.
- Jurisdictional Agencies:
  - Building and sprinkler designs aren't connected at plan review; creates field inspection conflicts and delays.
  - Plan review lead times often push approval of deferred submittals past pipe-on-job dates.
  - Starting work before approval and permit puts contractor at risk.
  - Appeals, equivalencies and AMMR upgrades must be accounted for and confirmed.

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BENEFITS OF NON-DEFERRED SUBMITTALS

- Engineered approach takes out the guesswork:
  - Design team coordination enhanced; proactive vs. reactive process.
  - AHJ receives clear and concise design criteria.
  - Contractor bids on specific work scope.
  - Owner is protected from cut corners and "low bidder" design practices.
- Non-deferred plans approved before work starts.

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CHALLENGES OF NON-DEFERRED SUBMITTALS

- Lack of skill set in the engineering community:
  - Weak specs, unconstructable, inefficient and non-compliant designs.
  - Temptation for multi-discipline firms to add fire protection revenue streams.
  - Architects dangle FP work as incentive.
  - Over-specification to CYA.
- Potential for high value CO's.
  - Contractors compelled to toss bid docs.

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DEFERRED VS. NON-DEFERRED

- Standard practice in A/E community is a 3-phase design sequence, with incremental coordination
  - Schematic Design (15%)
  - Design Development (20%)
  - Construction Documents/Approval (65%)
- Construction Administration Services
  - Bidding
  - Requests for information; construction changes
  - Submittal Reviews
  - Inspections
  - Closeout
  - Typically 10-25% of overall contract value

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WHAT WORKS WITH NON-DEFERRED SUBMITTALS?

- 3rd party accountability serves owner's interest.
  - Bureaucratic agencies get added layer of insulation.
  - Fits into CM-at-risk models on public projects.
- Architects ***need*** to be led through fire protection decision tree.
  - Sprinkler types, piping options, riser entry options, structural issues.
  - Allowances for installation of FP piping.
  - Seismic ceiling clearances, separations.
  - Standpipe risers.
- Owner and architect can specify "more the minimum".
- Unencumbered FP move-on.

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WHAT WORKS WITH NON-DEFERRED SUBMITTALS?

- Code formulas can be complicated; sprinkler system type can affect how/if buildings are fire rated, allowable height and area, smoke removal requirements, more…
- Coordination of multiple disciplines, especially with Revit/360.
  - Architect and interior designer.
  - Civil – public/private separation.
  - Electrical – pumps, lighting, etc.
  - Anchorage to structure – some AHJs require sign-off by SEOR.
  - Special conditions – wide span decks, lightweight steel framing.

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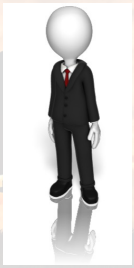
BUT CONTRACTORS CAN DO ALL THAT…

- Designers design, contractors install.
  - Contractors don't budget for circular, multi-phase design process; some projects spend a year or more in design.
  - Competition, historical pricing drag down value of design in contracting communities.
  - Large projects suck resources from in-house design teams.
  - No CA – no owner representation during construction



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ADDING VALUE TO BOTH SIDES OF THE TEAM

- Bid and CA services serve both owner and contractor.
  - Fair and competitive bidding, reduced bid scatter.
- Consultant is the owner's best ally if contractor goes off the rails.
  - Change requests – entitlement and value.
  - Assure that installation is per approved plans.
- A good consultant is also the contractor's best ally.
  - Completion of conforming project on time.
  - Delays more are costly than additive changes to both owner and contractor.
  - Fair consideration to CO entitlement and value.

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WHAT'S EXPECTED OF THE CONTRACTOR

- Bid/install per approved plans and specs.
- Make a committed decision to partner.
- Prepare submittals.
  - Request CAD files for shop drawings.
  - Undertake construction team coordination.
  - Verify constructability.
  - RFI conditions/issues that require clarification.
  - Propose solutions – prepare complete and lucid RFIs!
  - Propose materials substitutions as applicable.
  - Install per approved plans.

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HOW THIS BENEFITS THE CONTRACTOR

- Bidders/installing contractor entitled to clarification of work, complete, constructable and code-compliant plans.
- EOR is responsible for resubmittals where construction changes are required.
- Change orders treated fairly when entitled.
  - Despite appearances to the contrary, nobody expects perfection, all projects carry reserves.
- Keep additive change requests reasonable.
  - Don't seek additive CO for non-impact changes.
  - Don't seek inflated labor values and list prices for materials because we know they're not accurate.

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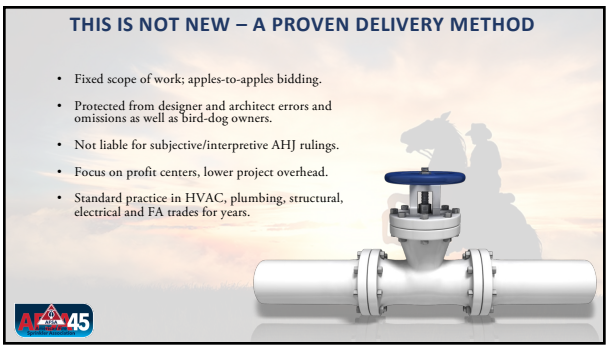
THIS IS NOT NEW – A PROVEN DELIVERY METHOD
Fixed scope of work; apples-to-apples bidding.
Protected from designer and architect errors and omissions as well as bird-dog owners.
Not liable for subjective/interpretive AHJ rulings.
Focus on profit centers, lower project overhead.
Standard practice in HVAC, plumbing, structural, electrical and FA trades for years.

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QUESTIONS, COMMENTS, SUGGESTIONS

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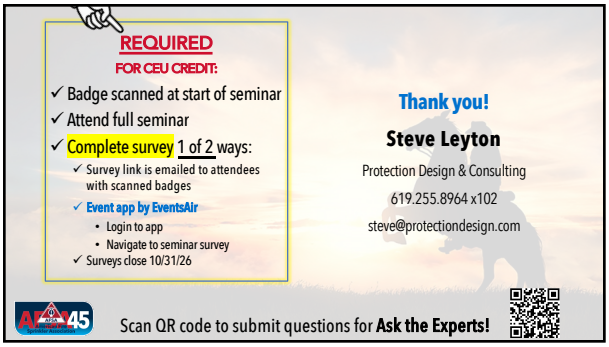
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✓ Badge scanned at start of seminar
✓ Attend full seminar
✓ Complete survey 1 of 2 ways:
✓ Survey link is emailed to attendees with scanned badges
✓ Event app by EventsAir
• Login to app
• Navigate to seminar survey
✓ Surveys close 10/31/26
Thank you!
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Scan QR code to submit questions for Ask the Experts!

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2027 Training Schedule

WEBINARS

1/6	Updates to NFPA 20
1/20	Calculating Pressure Reducing Hose Valves
2/3	Consumer Alert: Nitrogen in Sprinkler Systems
2/17	Reviewing Hydraulic Calculations
3/3	Updates to NFPA 13, 2028 Ed.
3/17	Updates to NFPA 13R & 13D, 2028 Eds.
4/7	Topic Coming Soon
4/21	NFPA 25: Roles & Responsibilities
5/5	Standpipe Flow Test Procedures
5/19	Storage 101
6/2	NFPA Technical Meeting - Voting Guide
6/16	Topic Coming Soon
6/30	Topic Coming Soon
7/7	Updates to NFPA 14, 2027 Edition
7/21	Adjacent Hazards & Design Methods
8/4	Acceptance Testing
8/18	Modifications to Existing Systems
9/22	Topic Coming Soon
10/6	Seismic 101
10/20	Proposed Updates to NFPA 25, 2029 Ed.
11/3	Evaluating Fire Pump Flow Tests
11/17	Top 10 Tech Reviews
12/1	Designing Water Storage Tanks
12/15	Pump Room Layout

PROGRAMS

Feb 9 - Mar 5 Apr 20 - May 14 Aug 3 - Aug 27** Oct 26 - Nov 19	Beginning Design School*
Apr 26 - May 7 Nov 1 - 12	Intermediate Design School*
Feb 8 - 10** Apr 12 - 14 Jul 12 - 14 Oct 11 - 13	Sprinkler Hydraulics Calculations Workshop
Apr 19 - 21 Oct 18 - 20	Advanced Hydraulics Calculations Workshop
Feb 11** Apr 30 Jul 23 Sep 24	Introduction to the Fire Sprinkler Industry
Mar 1 - 3 May 17 - 19 Aug 16 - 18 Oct 18 - 20**	NFPA 25 Essentials Workshop
Jun 7 - 10 Sep 20 - 23	Experienced Inspector Skills Lab
Mar 4 - 5 May 20 - 21 Aug 19 - 20 Oct 21 - 22**	NFPA 25 Fire Pump Workshop
Spring Summer Fall	ITM Inspector Development Program* *This program is 20 months.*

** Hybrid course **At General Air Products Lab, Exton, PA*

AFSA46

September 8-11	Manchester Grand Hyatt San Diego, CA

For More Details Visit:
firesprinkler.org

AFSA
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Dates subject to change. Programs subject to minimum registrations.

rev 9/14/2026

Virtual Instruction Path (VIP)

for Sprinkler Fitting Apprentices

Level 1 - Begins January 2027

Level 2 - Begins February 2027

Level 3 - Begins January 2027

Level 4 - Begins March 2027

www.firesprinkler.org/VIP

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HANDS-ON WORKSHOPS FOR 2027

FEATURING AFSA'S TRAINING LAB

NFPA 25 Essentials Workshop

Mar | May | Aug | Oct

Description: Understand roles, responsibilities, and NFPA 25 ITM procedures through hands-on testing of wet systems, dry systems, and fire pumps.

NFPA 25 Fire Pump Workshop

Mar | May | Aug | Oct

Description: Develop practical NFPA 25 fire pump ITM skills, including no-flow and full-flow testing, water supply graphing, and performance evaluation.

Introduction to the Fire Sprinkler Industry

Feb | Apr | Jul | Sep

Description: This course is designed for those new to the industry. An introductory, wide-ranging 8-hour course that provides a broad overview of core fire sprinkler industry concepts for those new to the field.

Experienced Inspector Skills Lab NEW

Mar | Sep

Description: Take your ITM expertise beyond the basics. Designed for experienced technicians, this course combines focused classroom instruction with hands-on system lab training to strengthen your application of current NFPA 25 inspection, testing, and maintenance requirements. Refine fire sprinkler testing practices, improve documentation, deliver more consistent service, and help reduce liability while reinforcing knowledge commonly covered on certification exams.

Learn more about AFSA's fire sprinkler lab featuring functional risers, a spray room, fire pumps, and an interactive classroom.

firesprinkler.org/lab