THE BURN

Summer Wrap Up 2024

The SpecSeal® SBR Firestop Block is Here!

Stephen Bennett
Product Manager

SpecSeal® Firestop Blocks are intumescent bricks constructed for penetration firestopping protection. The intumescent block expands in high temperatures to impede fire, smoke, and gas passage. The bricks easily compress and conform around any penetrant stacking in a brick-like manner.

SpecSeal® Firestop Blocks may be used to seal cables, cable trays, pipes, and small, medium, or large openings temporarily or permanently. SpecSeal® Firestop Blocks may be used in both new or existing applications making short work of complex penetration firestop conditions.

Some of its features and benefits include:

- Intumescent – expands in all directions for a tough, tight seal
- Reinstallable for retrofitting of various pipes, cables, and innerducts
- Lightweight for ease of installation
- May be cut to size
- No special tools required
- Superior air leakage ratings
- No cure time -> fast application
- Dust-free, fiber-free, halogen-free, and solvent-free

IN THIS ISSUE

The SpecSeal® SBR Firestop Block is Here! *(continued)*

Here are some frequently asked questions and their corresponding answers about the product:

Where do I use it?
Ideally medium to large sized openings in fire-rated floors or walls for sealing blank openings, conduit banks, cable trays, bus ducts, and mixed/multiple penetrant openings. Blocks are great for situations where access is restricted to one side.

Why use a block instead of a pillow?
Block users tend to remain Block users and Pillow users tend to remain Pillow users. Both products are well-suited for medium to large openings. Both products provide a tight seal (low L Ratings). Although Blocks can be retrofitted, sometimes a Pillow is easier in a retrofit environment. Pillows are generally easier to install than Blocks, but avid Block enthusiasts know how to use the products effectively. Blocks can be cut to fit into smaller gaps and can also be cut to follow the contours of the penetrant surfaces, unlike Pillows. In some applications where physical security of the seal is a concern, Blocks or Pillows will be covered with wire mesh or steel plates.

What attributes of the SpecSeal® Firestop Block are noteworthy?
The material science behind this product is notable. Based on customer feedback, the Block looks and feels similar to competitive products on the market. But, by focusing on developing superior chemistry, our block has lower moisture absorption than competitive blocks along with superior hydrolytic stability. In addition, the SpecSeal Block has low temperature flexibility, harsh chemical resistance, and electrical insulation properties.

How do I ensure SpecSeal® Firestop Blocks are installed properly?
The blocks are installed to completely fill the opening around the penetrants. They are installed in a brick-like fashion, ideally building from the bottom-up in wall applications. The use of flat metal implements may aid installation by allowing blocks to slide. No compression rate is specified within the individual listings; however, this class of product is required to be firmly packed into the opening. This represents approximately 6% compression for all blocks on the market, including the SpecSeal® Firestop Block. Generally, no greater than 10% compression is possible. SpecSeal® Firestop Blocks are installed either with the 5" (127 mm) or 8" (204 mm) dimension projecting through the opening. Verify the requirement within the individual listing as ratings beyond 2 hours may require the longer dimension to project through the opening. ■

Digital Know How (What's New in FCM version 1.2.6970)

Justin Pine
Senior Manager, Software & Services

The STI Digital Team is proud to announce the release of Firestop Clash Management (FCM) version 1.2.6970! Notable updates in this release are:

- We've updated our supported Revit versions and now have support for Revit 2022-2025.
- FCM now integrates with your AccessSTI account, setting the groundwork for future integration between FCM and other STI digitial applications.
- Updated Navigation Menu with links to new resources and collateral.
- Update Notification Engine, on launch FCM will check with our servers to determine if you are on the most up to date version of FCM or it updates are available.
- We have addressed several minor bug fixes and made general improvements and optimizations across the plugin. ■

SPOTLIGHT ON UL SYSTEMS

David Vail
P.E., Project Manager & Codes/Standards

New Firestop Blocks!

STI has developed a new product geared towards installers who prefer a block material compared to a firestop pillow. Both firestop solutions are typically utilized for medium to large sized openings where retrofit capabilities and/or limited access are important considerations. Additional testing of the SpecSeal® Firestop Blocks is ongoing and to date we have developed two powerful UL 8000 Series listings, which capture multiple penetrants in concrete floor/wall assemblies via C-AJ-8338 and in gypsum walls with W-L-8145. Both systems provide up to a 2 Hr F Rating and include L Ratings with leakage rates less than 1 CFM/sq ft at both ambient and 400°F. Allowable penetrant types include metallic and nonmetallic pipes/conduits/tubes, insulated metallic pipes/tubes, cable bundles, steel duct, steel strut and steel angles. More details are provided in an article found earlier in this issue dedicated to the launch of the SpecSeal® Firestop Blocks.

Firestop Block Installation (C-AJ-8338)

Improved PEX Tubing Tuck-In System at 50 Pa!

C-AJ-2936, which was originally developed a few years ago for SDR 9 PEX tubing in concrete floors or walls, is now updated with an option for installations from below to complement the existing top side install method. A single layer of SpecSeal® SSW1000EX Wrap Strip and a 1/4 in. depth of SpecSeal® Series SSS or LCI Sealant are the only materials necessary for firestopping 1-1/2 in. or 2 in. diameter PEX tubing. The system provides an F Rating of 2 Hr and was tested with a 50 Pa pressure differential as required by many Canadian building codes for nonmetallic penetrants.

Collar with Steel Bridge Plate for Deck Assemblies!

Another system demonstrating the 50 Pa pressure differential and developed solely for Canadian markets is F-A-2419. This design makes it possible to install a firestop collar on the underside of a fluted deck assembly by spanning the flutes with a steel plate. The wrap strip collar consists of SpecSeal® SSW1000EX Wrap Strip layers installed against the underside of the steel plate. This system allows PVC, XFR and NAPSYS-HR pipe with equal F and FT Ratings of 2 Hr. When SpecSeal® SIL300 Sealant is utilized as the smoke seal at the top of the floor assembly then coverage for a W Rating is provided. Alternatively, SpecSeal® Series SSS or LCI Sealant may be installed as the smoke seal and all three materials establish L Ratings to demonstrate control of smoke migration. ■

Steel Plate Bridge Across Fluted Deck Allowing Collar Installation (F-A-2419)

Training the Trainers: The Key to Widespread Firestop Knowledge

John Zalepka
Senior Manager, Engagement & Programs

At Specified Technologies Inc. (STI), our goal isn't just to deliver firestop products but to create a network of trainers who can champion life-safety and code compliance across industries. Through a comprehensive suite of training tools—from in-person trainings to interactive webinars to the Firestop University — we equip internal employees and external partners with the knowledge they need to pass on critical firestop information. This broad-reaching effort is anchored by our Firestop Instructional Training (FIT) program, which prepares trainers to educate others effectively on best practices in passive fire protection.

Our mission is to create a ripple effect. By training the trainers, we ensure that firestop knowledge reaches the masses, promoting safer buildings and greater code compliance across the board. Every trainer we educate becomes a multiplier for fire protection.

A key to this ripple effect is keeping trainers engaged throughout their learning journey. At STI, we recognize that the most effective trainers are those who are actively involved in the learning process themselves. That's why our trainings and webinars feature tools like Kahoot! to make learning fun and interactive, while our in-person sessions foster hands-on installations and real-world applications. We want our trainers to leave with not only the knowledge but the skills to engage their own audiences.

As trainers, they need to feel confident and equipped to handle a variety of questions and scenarios. Our programs are designed to prepare them for that—whether it's walking someone through code compliance issues or demonstrating how to properly install firestop systems.

As the firestop industry evolves, so do the methods we use to prepare our trainers. STI is constantly enhancing its programs with new tools like simulations and interactive case studies that allow trainers to apply their learning in practical, hands-on ways. Additionally, the introduction of microlearning—short, focused modules—ensures that trainers can access critical information quickly and efficiently, whether it's a quick refresher or an overview of new developments.

Firestop training has to be adaptable. Our trainers need to be equipped for a world where codes and technologies are constantly shifting. By providing flexible, up-to-date training tools, we're ensuring they're always ready to lead.

At STI, our trainers are the key to bringing life-safety and code compliance to the masses. By empowering them with the right tools, platforms, and ongoing support, we ensure that the vital work of firestop education continues to spread, protecting lives and property in the process. At the end of the day, we're not just training people on firestop; we're helping build a safer world. ■

Welcome to the MP100 Curtain Wall Mullion Plug Family of Products

Eric Lacroix
Director, Strategic Accounts Construction

Why were they developed?
The MP100 mullion plugs were developed to solve the internal vertical spread of fire and gasses within the vertical mullion itself. Today's framing systems are complex and can create issues that cause the wall to fail when testing real-world, advanced two-piece glazing systems incorporating live stack joints.

What are the advantages of the MP100 mullion plug?
The MP100 mullion plug offers the following advantages:

- Flame retardant polyester polyurethane foam that meets UL 94 Classification HF-1 requirements
- New multi-player composite foam, featuring powerful STI intumescent technology, that expands 11-14 times to seal off the path for fire, smoke, and hot gases
- Requires no wet sealant or flammable foam in a can...simply install and set the units
- Leakage rated for less than 1 CFM!
- Noise Reduction Coefficient (NRC) rating of 0.75!
- ZERO VOC's
- UL Certified product

Is it a code requirement? Is this something that is required for certain wall types to pass?
There are no specific code requirements dictating mullion sealing. The intumescent mullion plug, however, has the capacity to contribute to the fire resistance of certain design listings. Additionally, the MP100 mullion plug seals open stack joints to prevent particulate, air, smoke, and sound waves from transferring through the open ends of the mullions.

What published design listings is the MP100 mullion plug listed in?
Current listings include Intertek tests STI/BPF120-13, STI/BPF120-14, STI/BPF120-15, and STI/BPF120-19 and UL test CW-D-1044. Multiple new listings are being published soon.

How is it sold and to whom?
Typically, this is installed by the CW fabricator or glazier in the field or shop but we are finding more and more uses for it per project conditions.

How do I learn more about this solution?
The best place to start is contacting the CW strategic initiatives team and discuss any opportunity you may have. ■

Sound Advice from an Old Firestop Guy – Part 1

How STC is Determined

Tim Mattox
Senior Manager of Systems & Testing Development

I remember my first visit to an acoustics laboratory. It was a beautiful summer day at Riverbank Acoustical Labs in Geneva, IL, and my engineering manager sent me to run a test to obtain an STC value for our putty pads. It was an exciting new adventure for a young engineer. At this point in my career, I had barely witnessed a fire test, let alone an STC test. I literally didn't know what an STC was, and while it was easy to figure out that STC stood for Sound Transmission Class, it didn't take me long to discover I really didn't know the first thing about sound transmission. The one comforting fact concerning my ignorance - I was not alone.

As an engineer, I've learned to ask many questions to understand problems so they can be solved. For instance, how does this number generated from testing a single 16 square inch outlet box with a putty pad in a 64 square foot wall tell me anything about the performance of my product, when my product is literally applied to 0.2% of the surface area of the wall? I was left scratching my head, but hey, at the end of the 7-minute-long test, we had a number. And with that number, we were competitive. And even better still, I didn't smell like I had been to a bonfire as I flew back home that evening.

In my opinion, it is safe to say that STC is one of the most misunderstood and, possibly, the most misapplied performance value in construction today. In firestopping, we have a similar problem with ASTM E84 testing. Many people mistake the ASTM E84 performance for a fire-resistance value. If I have been asked once, I have been asked 1000 times if fire-rated plywood can be used in place of gypsum wallboard, well you know, since it is fire-rated. And the answer is, of course, no. ASTM E84 is a flame spread test and has nothing to do with compartmentation or fire resistance. Similar to STC, ASTM E84 provides us with a single unitless number called Flame Spread Index, or FSI. FSI tells us how quickly fire spreads on a surface, not through a barrier.

Did you know there is no such thing as an STC test? It's true. It took a lot of reading and digging into the facts of the matter to understand this. STC is a strange concept to someone like me who is used to performance measurements in incremental numbers with units that are easily understood, like hours, minutes, or degrees Fahrenheit. Instead, STC offers us a number. That's all, just a number. No units. No clear understanding of what that number means. Just a number. To understand STC a bit better, we will break it down into the functions that are used to develop the single number rating we call STC.

Obtaining an STC value requires following a multi-step process. The first step in the process is to run an ASTM E90 test to obtain a group of data called Sound Transmission Loss (STL). This test is performed with a double chamber, and the test article is the shared barrier between the two chambers. One side of the double chamber is called the source room, and the other side is called the receiving room. These rooms are constructed so there is virtually no loss in sound energy, so the test specimen is isolated as the only path for sound transmission to occur. In the source room, a pink noise signal is generated and delivered at a prescribed decibel level. Because this sound originates a distance away from the test article and travels through air before impacting the test article, the impact of this sound energy is called an airborne sound. This is as opposed to impact sound, which is generated by a direct impact on the surface of the test article, such as a footstep or a chair dragging on the floor. Those sounds require a different testing program altogether. The airborne sound waves make their way to the test article, where they then permeate the test article and continue to travel through the air in the receiving room until a microphone records them.

The volume level of the sound is recorded in decibels in both the source and the receiving room at 16 different frequency levels ranging from 125 Hz to 4000 Hz. The sound transmission loss data is calculated as the difference in decibels from the source side to the receiving side and this number is plotted on a chart at each frequency. A typical Sound Transmission Loss chart is shown in Figure 1. *(next page)*

Sound Advice from an Old Firestop Guy – Part 1

How STC is Determined *(continued)*

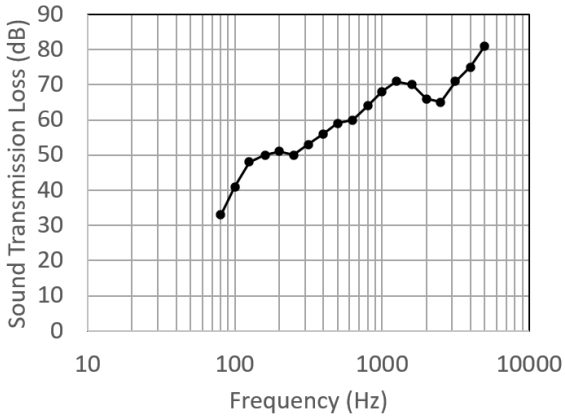


Figure 1 – Sound Transmission Loss Data

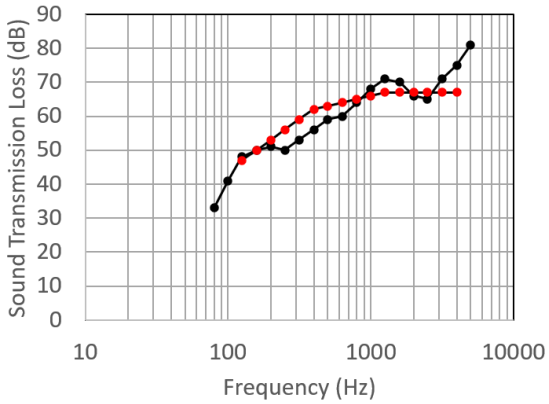


Figure 2 – Contour curve applied (Red Dots)

The first thing you will notice is that the horizontal axis grows in multiples of 10 Hz, and the vertical axis grows in increments of 10 decibels. This is because frequency measured in Hz grows logarithmically, compared to amplitude measured in decibels which grows incrementally. This is because the range of frequencies tested covers 5 octaves, and a single octave covers a range of doubled frequency. For example, the first octave tested is 125 Hz to 250 Hz. Each successive octave grows by doubling, so the next 4 octaves go from 250 Hz to 500 Hz, then to 1000 Hz, then to 2000 Hz, and ending at 4000 Hz. Because the frequency across successive octaves doubles every time, they grow at a much faster rate than the decibel level, so you have to use a logarithmic chart to show the relationship.

Once this STL data is charted, ASTM E413 Standard Classification for Rating Sound Insulation is applied as the next step of the process to determine the STC value. ASTM E413 includes a standard contour called the Contour for Calculation of Single-Number Ratings and this contour is applied to the Sound Transmission Loss data. The contour curve is always the same curve, no matter where it appears vertically on the chart. It moves as a unit until it meets the curve fitting requirements of ASTM E413 and is then plotted as shown in Figure 2.

As already stated, the contour line from ASTM E413 is moved into position until it meets the curve-fitting criteria. The curve fitting criteria are defined in terms of a measurement called "deficiencies," and a deficiency is simply the difference in decibels at each frequency from the contour curve and any STL data that lies below the contour curve. STL data above the curve do not count as deficiencies. For example, at the 250 Hz frequency mark in Figure 2 above, the STL data curve falls 6 dB below the contour, which counts as 6 deficiencies. At 1250 Hz, the STL value is about 3 dB above the contour curve and this counts as zero deficiencies. For the curve to be positioned correctly, it must meet two criteria. First, the total count of all deficiencies must not exceed 32 dB. Second, the maximum number of deficiencies at any frequency must not exceed 8dB. Once these criteria are met, the curve is positioned in its final location, and the STC can then be determined as shown in Figure 3 below:

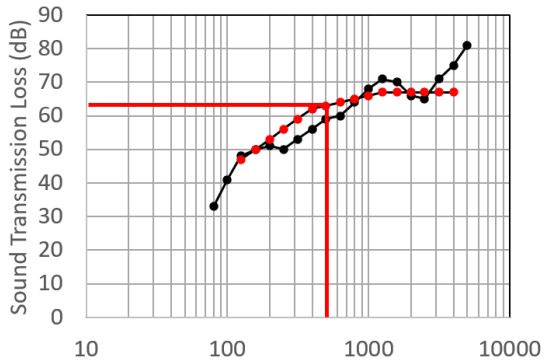
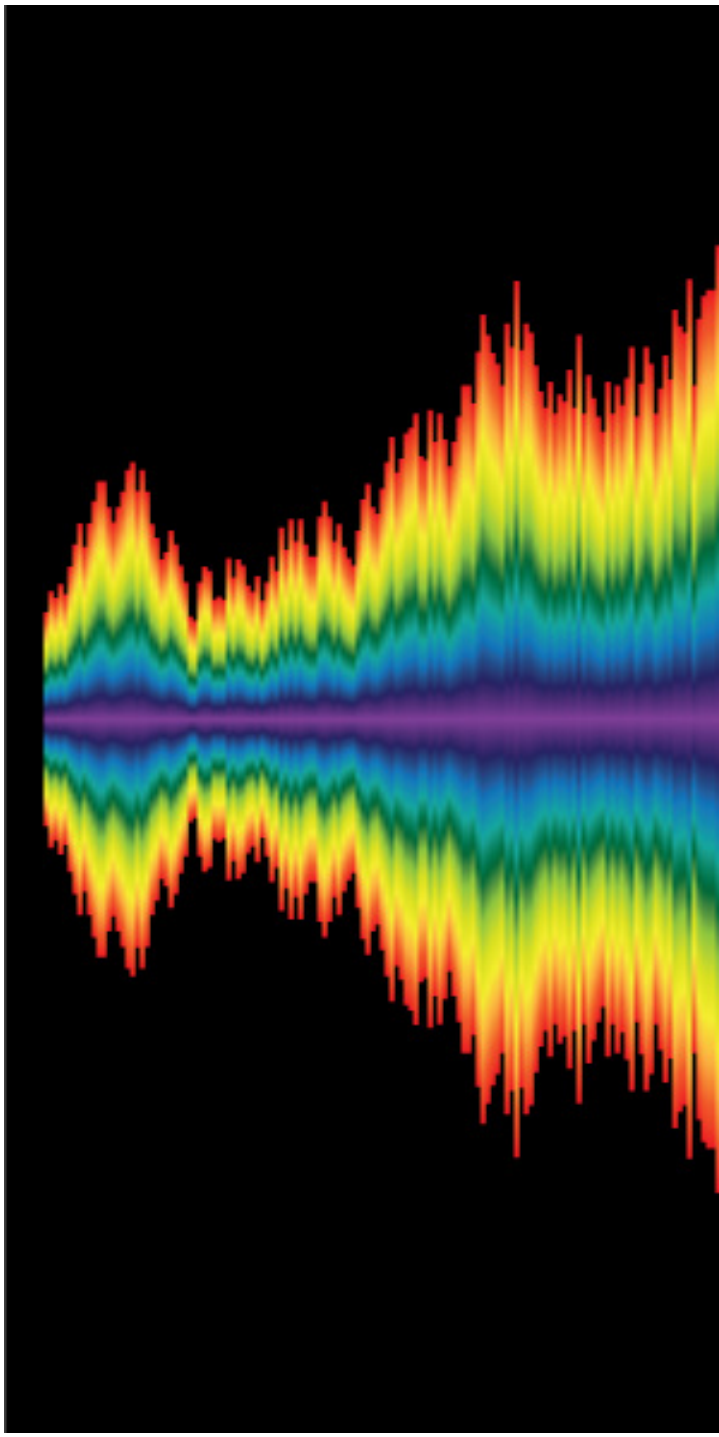


Figure 3 – Determining STC

Once the contour is settled, meeting the fitting criteria, the STC is determined by identifying the Sound Transmission Loss level on the contour curve at 500 Hz. If you look at Figure 3, it shows a vertical line drawn in red at 500 Hz. Where it crosses the contour curve, you then draw a horizontal line to the left axis. In the case of this test, the STC value is determined to be 63.

Now that we understand how STC is determined, we have a better understanding of what STC is. But I would argue that we are scratching the surface, and now we know enough to be dangerous. Some may be inclined to believe that STC correlates to the reduction of sound levels across a barrier, or in other words, if you have a wall with a tested STC value of 63, an 80 dB sound on one side would register as a 17 dB sound on the other side. Here is the problem with that. While an STC value does give you an idea of sound transmission loss expectations across a range of frequencies, because it is isolated to a single number rating, it is now independent of the frequency. If you look again at Figure 1 and see the entire STL data curve, you will notice at the lower frequencies there is less sound transmission loss than at higher frequencies. The STL at 125 Hz is about 49 dB, and on the other end of the spectrum, at 4000 Hz, the STL is about 75 dB. You can look at the STC number as sort of an average STL, but if the source of the 80 dB signal is 125 Hz, your 63 STC wall will filter out the sound and register about 31 dB on the opposite side. Whereas, if the 80 dB source signal is 4000 Hz, you can expect to hear a sound level of 5 dB at 4000 Hz on the other side. But in general, since noise is not typically singled out as an individual frequency, you can expect the effect would register to a person somewhere around 17 dB on average. That is still very impressive because, with a noise level equivalent to a vacuum cleaner on one side, the sound that makes it through to the other side would register somewhere between the volume level of a ticking watch to the sound of leaves rustling or a whisper.

This article will be continued in the next edition of the Burn… ■



Product Field Shots

LCI Intumescent Sealant for Metallic Penetrants

Project: Long Island Community Hospital
Location: Patchogue, NY
Contractor: X-Cell Insulation

LCI Intumescent Sealant for Multiple Penetrants

Project: MaineHealth Maine Medical Center
Location: Portland, ME
Contractor: National Firestopping Solutions

Want your quality work showcased here?
Send your photos to **gcarcamo@stifirestop.com,** include your company name, the project and location, and the STI products used.

Upcoming **Trade Shows**

NEHES 2024 Fall Conference
9/22/24 - 9/25/24, Stowe, Vermont
Booth #36

NECA Conference
9/28/24 - 10/1/24, San Diego, California
Booth #723

FPC 39th Annual Seminar + Expo
9/29/24 - 10/1/24, Orlando, Florida

(WHEA) Wisconsin Healthcare Engineering Association
10/1/24 - 10/2/24, Green Bay, Wisconsin

(KSHE) Kentucky Society of Healthcare Engineers
10/1/24 - 10/3/24, Owensboro, Kentucky

Facades+ Chicago
10/4/24, Chicago, Illinois

Facades+ Toronto
10/18/24, Toronto, Ontario

(OSHFM) Ohio Society for Health Care Facilities Managers
10/31/24, Dublin, Ohio

(WSSHE) Washington State Society for Healthcare Engineering Annual Conference
10/30/24 - 11/1/24, Kennewick, Washington

Facades+ Los Angeles
11/7/24 - 11/8/24, Los Angeles, California

Midwest Healthcare Engineering Conference & Tradeshow
11/11/24 - 11/12/24, Indianapolis, Indiana
Booth #25

Greenbuild 2024
11/12/24 - 11/15/24, Philadelphia, Pennsylvania
Booth #1033

Arc | US Architectural Forum
11/21/24 - 11/24/24, San Antonio, Texas
Booth #500

Facades+ Seattle
12/5/24, Seattle, Washington

MEET THE TEAM

Charlynn Clayton

CAD Supervisor

What is your role at Specified Technologies Inc. and how long have you been here?

I am the CAD Supervisor for the CAD Services Department. I have been working at STI for eight years.

What is one bucket list item of yours?

I want to take a vacation to Sechelt Bay, Canada with my extended family. I went there with my wife and some of my family several years back and would love to give that experience to my kids, nieces, and nephews, as well.

What project have you worked on in your career that you are most proud to have been a part of?

I have been a part of so many rewarding projects since starting with STI, but the one that I am most proud of due to the positive impact it has had on my team's morale was the implementation of Kumospace. With the people on our team working from several different states, it was easy to feel isolated. With the addition of Kumospace, it doesn't matter where we are physically, we can go to a colleague's office to collaborate, or just ask questions and download about the day. It has brought our team together and we are more cohesive than ever. We are better when we work together.

What is your favorite part about working in the firestop industry?

Everything we do in this industry, from researching, testing, and producing, to training, installing, and supporting, is done with the safety of people and communities in mind. What we do matters – that's my favorite part.

What is one fun fact about yourself?

A fun fact about me is that I enjoy creating digital art. I've made a couple of t-shirt designs for my friends and family.