

## ELITE™ Custom Fabric System (CFS) Engineered Listening Environment

### THE ELITE™ ADVANTAGE

The ELITE Custom Fabric System (CFS) offers your client the finest acoustical treatments for critical listening environments like Residential Theaters and Conference Rooms. Each installation is custom designed to meet the needs of the end user, both acoustically and aesthetically. This section will take you through the entire process of quoting, selling, ordering, and coordinating the installation of the ELITE-CFS. Always feel free to call or email us at [eliteinfo@auralex.com](mailto:eliteinfo@auralex.com) with any questions you may have along the way. We have a full staff of Acoustical Engineers and Product Specialists who are ready to handle any questions about our entire product line.

### THE ELITE™ SYSTEM

This system is designed to meet the needs of the discerning customer who wants the best of both worlds; sonic perfection AND an elegant appearance. Each installation is designed from the ground up by Auralex Engineers. The finished look is a smooth fabric surface, usually from floor to ceiling, and will often have 45° angles in at least two of the corners, to incorporate bass trapping. The acoustical components of the system are all hidden behind the fabric, and include:

**Absorption** - 1" to 4" Commercial-grade SonoFiber™ has superior performance than other commonly used materials and is cleaner and easier to install. Fire-rated Class A with a Flame Spread index of 10 and a Smoke Developed index of 20.

**Diffusion** - Proprietary Auralex diffusion products, including DST-R, a lightweight EPS panel installed in an array to provide smooth, flutter-free reflection of higher frequencies. Fire rated Class A.

**Bass Trapping** - Proprietary Auralex products, including M-LENRD Bass Traps. This industry leading absorber provides excellent control of low frequencies, and is installed in corners. Flame retardant is formulated into the polyurethane foam. Self-extinguishing. SonoFiber in thicker quantities may be used if Class A rating is required.

The ELITE fabric retention channel provides secure mounting of fabric, a clean finished appearance and allows for fabric replacement. It is extremely versatile, and adapts to a wide variety of installation scenarios such as inside corners, outside corners, two tone walls, multiple segments, 45° angles, and even curves.

Finally, the fabric itself. There are hundreds of patterns and colors to choose from, all suitable for acoustic treatment and Fire Rated Class A. This reference guide includes samples of the most popular and easy to install fabrics that are available (*see fabric panel cards at the back of this guide*). The entire *Guilford of Maine* panel fabric book will be made available to you as needed. You may also browse all of the selections at [www.guilfordofmaine.com/samplecenter](http://www.guilfordofmaine.com/samplecenter), make selections and request swatches.

The ELITE-CFS by Auralex is offered as a turnkey system. Once all materials are specified, they are delivered to the dealer or jobsite together. When the installers arrive, everything they need is onsite, ensuring a timely installation and minimizing any disruption to other contractors. The engineering will be based on the unique details of the room, the audio equipment to be used, and the customer's personal taste. The goal is create the perfect listening environment for the anticipated use, be it audiophile, cinema, studio, conference room, house of worship, or other application. The dealer plays a limited, but very crucial, role in this process. The details of the dealer's responsibilities are found on pages 4-5 in this guide.

## QUOTING THE ELITE™ SYSTEM

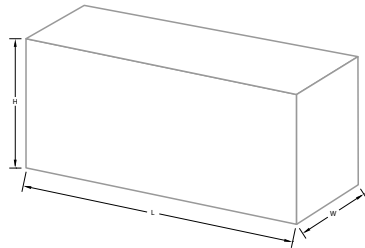
For most rooms, the total installed price can be estimated by simply calculating the total area of all walls, floor to ceiling. We will call this model a "typical room".

Based on the size and shape of the room, and the application, Auralex will specify the proper mix and location of absorption, diffusion, and bass trapping, as well as the quantity of fabric, retainer, adhesives, hardware, etc. All of these materials, including shims for offsetting electrical and low voltage boxes, speakers, and artwork, are included in the "typical room" package.

**A typical room** is a rectangular space, with a flat ceiling. To estimate the installed price for a typical rectangular room, add the lengths of all four walls and multiply by the ceiling height, then determine the selling price based on the published dealer cost and suggested selling price. The actual treated area will be less, because of windows and doors, but the additional labor and retainer required to go around these obstacles makes up for the reduced area of treatment. Only significantly large untreated areas, like entire walls, will be deducted from the price calculation.

### Example:

$$(2L+2W) \times H = \text{Total Wall Area in Ft}^2$$



**A non-typical room** is any space that is non-rectangular, has vaulted or angled ceiling surfaces, multi-level floors, unusual corners or windows, or unusual build-ins for equipment or storage. Auralex Engineers may determine that the complex characteristics of the room will result in additional installation expense, so it is imperative that the details be reviewed prior to establishing final pricing. Based on accurate drawings, and photos, Auralex can provide pricing within a few business days, and usually within 24 hours.

## FABRIC CHOICES

Work with your customer to select from the available fabrics (*see fabric panel cards at the back of this guide*). You may choose from the entire Guilford of Maine panel fabric catalog, with the exception of the following styles: CROSSROADS-ARM and ARM 4135, CROSSROADS-TO AND FRO 4136, GROOVE 3497, AND HOPSCOTCH 2823. Also, some panel fabrics work well over acoustical treatment, but exhibit high frequency attenuation when used to conceal loudspeakers. Make sure to discuss this in advance if speakers are to be covered. You can be confident of the best acoustical performance when choosing from the fabrics displayed in this reference guide; FR701, The Premium Collection, and The Select Collection.

Fabric choices may also be viewed at [www.guilfordofmaine.com/samplecenter](http://www.guilfordofmaine.com/samplecenter). Dealers may register at this site, browse the selections with their customer, and order swatches directly from the manufacturer.

**IMPORTANT NOTE:** Interior room treatments are designed to control early reflections, excess ambience and low frequency anomalies within the listening space. They do very little to control the transmission of sound into or out of the room. Since this is a very real concern in many situations, it is important to make it clear to customers that they should expect no significant sound isolation from this type of treatment. Our full line of construction products, which address this critical issue and have been used successfully in a wide variety of applications, can be found later in this Custom Installer Reference Guide. If this is an issue that may be of concern to the customer, we will specify the necessary combination of products to give them a predictable level of isolation from adjacent rooms. You will then be able to add these products, or the entire wall construction phase, to your quote.

## Custom Installer Reference Guide

### DETAILS, DETAILS...

No two installations are the same. Each room has its own set of details that must be addressed to ensure perfect results. The following items should be reviewed thoroughly for each proposed installation. Attention to these points well in advance saves time, energy and shipping expenses, as the project progresses.

**1. Wall surface:** must be solid, smooth and flat. If the proposed wall surface is anything other than standard gypsum board (Drywall, Sheetrock®), this must be discussed with Auralex in advance. Block, brick, and plaster walls generally need to be covered with drywall on furring strips prior to ELiTE treatment. Wall surface must be free of any pre-existing adhesive, and not have any finish that is prone to cracking or peeling.

**2. Trim:** Some thought should be put into how the ELiTE-CFS treatment is going to interface with door and window trim, baseboard, crown moulding, and chair rail. There are two distinct approaches to this question, and each requires different preparation -

a. The ELiTE-CFS is installed independent of all millwork. In this scenario, ALL trim is in place prior to the ELiTE treatment. The ELiTE retainer is set directly adjacent to the trim. Remember that our retainer brings the surface out 1½" from the existing wall surface, so it may actually be "taller" than the millwork.

b. Shimming out for ALL trim, 1¾", prior to ELiTE-CFS. Retainer is then framed directly to the shim. Shim may allow for trim to overlap the treatment by up to ⅛", covering a single edge of the retainer channel, but still permitting future adjustment of fabric tension. See drawings in the next section for details. An easy way to fabricate the shim is by laminating 7/16" OSB and ¾" Particle board for a total thickness of 1¾".

**NOTE:** If bass trapping is to be used in the system, it is most efficient for the corner struts to be installed prior to ELiTE installation, especially if shim for millwork is to be installed. See drawings in the next section.

**3. Electrical and lighting fixtures:** All electrical boxes must be extended 1½" out from the wall surface to make plates land flush on treatment. Auralex will provide the shim frame around the extension, and cut the opening in the fabric. The same procedure is needed for wall lighting and any thing else that penetrates the fabric finish. Permanent fixtures such as white boards and cabinetry should be in place so that ELiTE-CFS can be framed around them. Installers cannot frame blindly where something is "going to be".

**4. Blocks:** blocks are placed for mounting pictures, external speaker mounts, video screens, and much more. Installing 1½" blocks prior to ELiTE treatment will allow these types of items to be attached to a solid base after the fabric is stretched. They should be clearly noted on drawings in advance, or already be in place and approved prior to ELiTE installation. If any pre-ELiTE installation of 1½" shim is desired, stock is available through most cabinet shops.

**5. Site provided items:** If installers are traveling by air to do your installation, please provide the following, either directly or through your carpenter or other sub-contractor:

- a. Two ladders of appropriate size
- b. A workbench of some type, may be sawhorses and plywood—just so they have an elevated flat surface to work on
- c. A 6 foot level/straight edge, for layout and marking
- d. Adequate work lighting, if full normal lighting is not usable
- e. Broom and shop vacuum

## IMPORTANT FACTS

The ELiTE-CFS is marketed as a turnkey product. The pricing includes engineering, materials, and complete installation. Auralex is committed to doing everything possible to keep the ELiTE-CFS easy to quote and easy to sell. There are, however, a few responsibilities that must be handled on the dealer level to ensure that the process goes smoothly and efficiently. Please make sure you have a complete understanding of these points when quoting the system, and coordinating the installation. Of course, if you have any questions, feel free to check with the ELiTE team by calling 800-708-3348.

### Preparation

**1. Drawings:** An accurate installation starts with good drawings. Our Engineering Department creates plans for the installers which show every detail of the system. For best results, the dealer should provide us with complete plans of the room, ideally in AutoCAD® format. This allows us to detail the installation based on original plans. If CAD drawings are not available, please discuss in advance how Auralex will receive accurate drawings. Plans should indicate type and placement of all A/V equipment and furniture. It is imperative that Auralex has all of the necessary information to create perfect jobsite drawings. Installation will not be scheduled until drawings are complete and approved by the dealer.

**2. Photos:** In order for Auralex to fully understand the characteristics of the room, a full set of photos should be submitted as early on in the process as is feasible. The preferred format is digital files (*jpg, gif, tif, bmp, eps*) sent by E-mail to [eliteinfo@auralex.com](mailto:eliteinfo@auralex.com). To minimize confusion, file names should be changed to describe each shot, for instance "eastwall.jpg", or "northwestcornerdetail.bmp". This provides the highest level of accuracy for engineering purposes. If a digital camera is not available, standard photographic prints may be sent, with details noted on the back.

**3. Site survey:** The dealer should be familiar with the jobsite, and inspect it carefully in regard to the items shown on the previous page, "DETAILS, DETAILS...". It should be clear how all of these issues apply to the job in question. Any questions or concerns should be relayed to the ELiTE team in a timely fashion.

**4. Pre-Installation Checklist:** The dealer is responsible for completing a checklist and submitting it to Auralex prior to the installation date. It will be E-mailed or faxed to the dealer, and returned via fax to Auralex at (317)585-2995.

### Materials Handling

In order to ensure that ELiTE-CFS materials are at the jobsite when needed, they will generally be shipped to the dealer in advance, then delivered to the jobsite by the dealer. This allows delivery to be timed correctly, and gives the dealer an opportunity to inspect the site along with the ELiTE installer. **NOTE:** Shipping costs are paid by the dealer, as part of the final payment, and this expense should be considered when quoting the job to the customer. Auralex will make every effort to ship materials via the least expensive carrier, at least one week prior to installation. Delays in shipment due to incomplete or inaccurate information, change orders, or other problems, will likely result in quicker, more expensive, shipping arrangements.

### Misc. Support

ELiTE-CFS installers are generally self-sufficient, and have everything they need to complete the job. Occasionally, however, there will be minor things that come up that could turn into major diversions from the task at hand. In many cases, we will ask for a trim carpenter to be on hand for the first day of installation, and someone from the dealer to be available after that. When the installers fly to the jobsite, the items shown on the previous page must be provided to ensure a perfect installation.

### Final Walk-through

Upon completion, the installation should be inspected and approved before the installers leave the jobsite. The Acceptance Form will be E-mailed or faxed to the dealer before the job is done, and is to be faxed back to Auralex to verify that the work was completed and approved.

## Custom Installer Reference Guide

### ACOUSTICAL GOALS

Great sound is our passion, not just an incidental (*and unpredictable*) byproduct of an attractive "theme" treatment system. For your reference, we have included a very general overview of how we approach these common applications of the ELITE-CFS.

### RESIDENTIAL THEATERS/CONTROL ROOM/CRITICAL LISTENING ENVIRONMENTS

Every entertainment space is different, and every client has their own opinion as to what is the perfect sound. However, we have established a very general set of parameters, or goals, we work toward, in the typical Residential Theater or audiophile setting.

In most Residential Theater rooms, we strive to:

- Minimize early reflections; reflections that arrive at the main listening position within the first 50 to 80 milliseconds. Conforming to the "Haas Criteria" is usually safe.
- Minimize late reflection anomalies such as flutter echoes. This can be accomplished with absorption and/or diffusion. Any late reflection anomalies should be at least 15-20 dB below the direct sound in order to be unnoticeable.
- Minimize as many low frequency issues as is feasible, depending on the physical characteristics of the room, and décor considerations. In general,  $\pm 3$  dB from 100 Hz to 300 Hz and  $\pm 5$  dB from 20Hz to 300Hz are usually be considered reasonable goals, but will depend on size of room, sound source selection, budget, etc. – in many cases these frequency ranges have frequency response curves much better than these figures.
- Achieve a room mode distribution that is *good* based on the "Bonello criteria".
- Achieve a background noise of "NC-30" or lower. This requires addressing noise sources within the room, as well as sound transmission coefficients for the walls, ceiling, and floor systems.
- Finally, a subjective evaluation of the room by experienced listeners, including the client, characterizing the room sound as "Excellent".

### CONFERENCE/PRESENTATION ROOMS

In this type of application, the acoustical treatment is intended to provide optimal speech intelligibility. Although many of the criteria may be similar to those listed above, there will likely be more broadband absorption, to minimize reflections of all kinds.

### SANCTUARIES AND OTHER LARGE SPACES

Very large rooms typically have long reverberation times (RT's) and for some applications, this is acceptable. However, as musical styles and sound reinforcement evolve, this excessive ambience may become problematic. We work with the dealer and client to determine the appropriate acoustical goals, then base our treatment proposals on proven acoustical theory, extensive computer modeling (*such as Fitzroy calculations*) and in some cases, onsite measurement. The end result is a room that is perfectly tuned for its intended use. ELITE-CFS is also an ideal solution for implementing a fabric covering over speaker enclosures, thus minimizing their overall impact on the aesthetics of a House of Worship.

## TECHNICAL OVERVIEW

ELITE-CFS by Auralex, with its versatile fabric retention channel, is a complete acoustical treatment system; combining the finest acoustical treatment with the aesthetics and flexibility of a fabric surface. Since the assembly is done onsite, there is no guesswork—no pre-fab panels that may or may not fit—and since each system is custom designed by Auralex Acoustical Engineers, the result is a listening environment that is optimized for the end user, be it a Residential Theater, recording studio, conference room, or any other application. A properly designed room treatment will include one or more of the following elements:

### Absorption

### Diffusion

### Bass Trapping

Once the acoustical treatment has been specified, there are still many other details to be discussed, especially in regard to how the system interfaces with doors, window, and trim. Our goal is to make the system work perfectly with the overall appearance, and specific details, of the room.

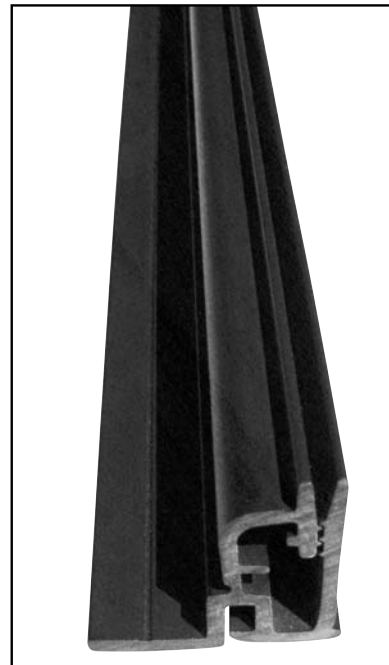
The following is a brief overview of the system's components, a description of how they work in the real world, and suggestions regarding trim.

This proprietary retention channel (*patent pending*) is the result of several years of R&D, and provides a variety of improvements over previous designs.

It is a custom extruded channel, made of tough PVC plastic. It allows installation in virtually any situation, including inside corners, outside corners, 45° angle corners, etc.

The retention groove is capable of gripping fabric from both directions, allowing for clean seams, and multi-color designs. Fabric may be replaced if torn or stained.

ELITE-CFS may be installed as a freestanding surface, or integrated into baseboard and other trimwork. See pages 9 and 10 for details.





## Custom Installer Reference Guide

### ACOUSTICAL COMPONENTS

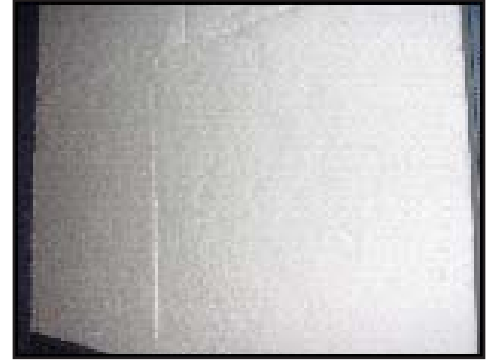
#### ABSORPTION

For general acoustical absorption, Auralex has chosen 1" SonoFiber for a number of reasons:

- Better overall broadband absorption/isolation
- Class A flame retardancy
- Resists Microbial Growth
- No Fiberglass/Formaldehyde
- Ease of installation, no harsh particulates

Overall NRC = 0.80 - Absorption coefficients shown below:

125Hz	250Hz	500Hz	1kHz	2kHz	4kHz
0.08	0.31	0.79	1.01	1.00	0.99



#### DIFFUSION

Diffusion is an important element in critical listening environments, especially Residential Theaters. It provides a randomized scattering of high frequencies, minimizing flutter echoes without making the room too dead.

The result is a more natural sound and enhanced stereo imaging. The ELITE-CFS uses the Auralex DST-R panels arranged in an array for efficient diffusion of higher frequencies.



#### BASS TRAPPING

This important element is often absent from even the most upscale treatment systems. Effective low frequency control is imperative in order to eliminate bass build-up and keep the overall sound tight and accurate. The ELITE-CFS incorporates bass trapping at no extra charge. This is usually achieved by using our highly acclaimed LENRD® Bass Traps, in vertical corners, concealed by fabric.

Sabins per unit shown below:

125Hz	250Hz	500Hz	1kHz	2kHz	4kHz
2.59	4.19	6.82	7.10	6.88	6.43



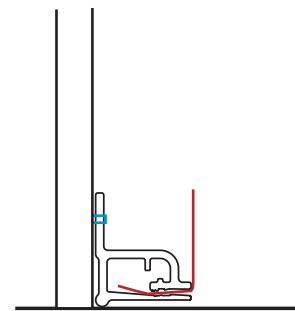
## MILLWORK INTERFACE OPTIONS

The ELiTE system is highly versatile and allows for a variety of design options, especially in regard to its ability to be integrated with baseboard, chair rail, crown moulding, and other trim elements. It is important that this aspect of the room design be discussed well in advance, as some layouts will result in additional materials and installation labor. When quoting the system, the question of trim should be addressed with the client—and the ELiTE Team will be happy to work with you to help them decide which approach should be taken. Some of the most common scenarios are shown here, but feel free to ask about the feasibility of other ideas that may come up.

### FLOOR TO CEILING, NO TRIM

In the most basic installation, the ELiTE treatment goes from floor to ceiling, with no trim at all, other than existing door and window edges. In this case, vertical retainer holds fabric from both directions, and sections of fabric are 4–5 feet wide. Top and bottom retainer may or may not be wrapped, depending mainly on the color of fabric and the choice of flooring materials. The room should be free of all trim work so retainer may be installed as close as possible to floor and ceiling.

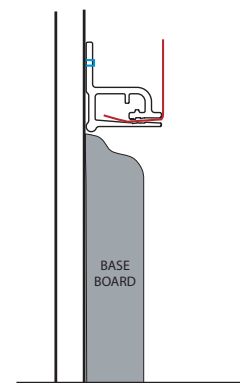
Installed on bare wall, no baseboard



### ADJACENT TO EXISTING BASEBOARD

It is also easy to install the system adjacent to existing trim, including baseboard. In this case, untreated wall surfaces may be painted to match the trim, as there may be small areas left exposed, especially if door or window trim is uneven or incorporates rosettes on the corners.

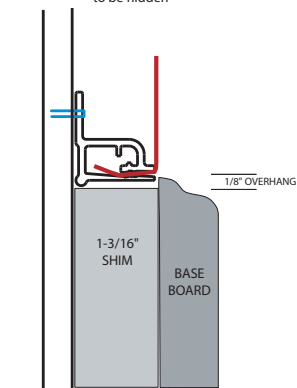
Installed above existing baseboard



### BASEBOARD SHIMMED TO OVERLAP RETAINER

In most cases, the cleanest, most attractive look is accomplished by installing shim at the baseboard position, sized properly to allow the final trim to overlap the ELiTE treatment by  $\frac{1}{8}$ " , which conceals the retainer, but allows future access to the retention slot. If floor is to be carpeted, shim should be mounted to allow baseboard to be properly mounted above subfloor.

ELiTE installed with shim to support baseboard, allowing edge of treatment to be hidden





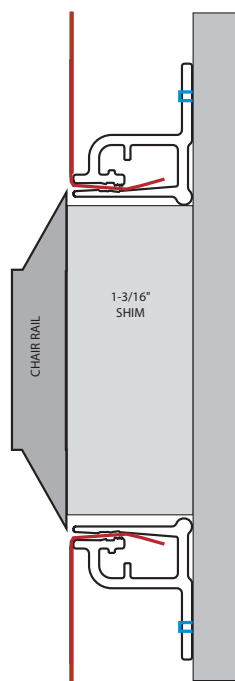
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### CHAIR RAIL

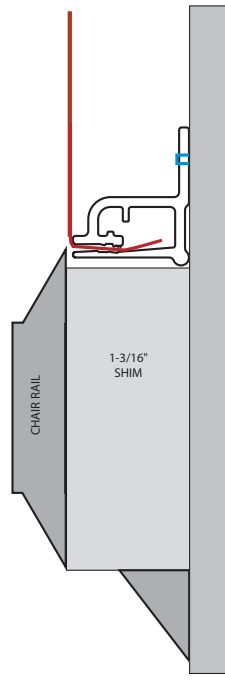
ELiTE will work well with any chair rail, as long as it is properly shimmed in advance of retainer installation. Interfacing with trim of this kind may result in additional materials and labor, and therefore expense. Always discuss trim options with Auralex in advance.

Here are some examples of how this works with the ELiTE system.

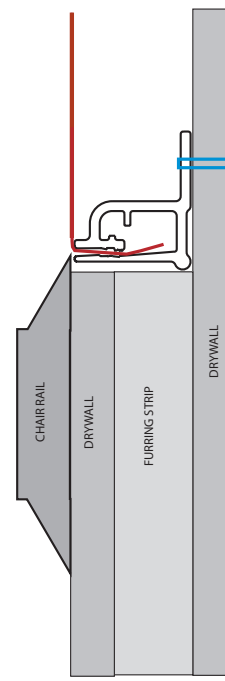
1. Fabric above and below
2. Fabric above only, with trim returning to original wall plane
3. Fabric above only, with wall built out to match profile of ELiTE



CHAIR RAIL WITH FABRIC ABOVE AND BELOW



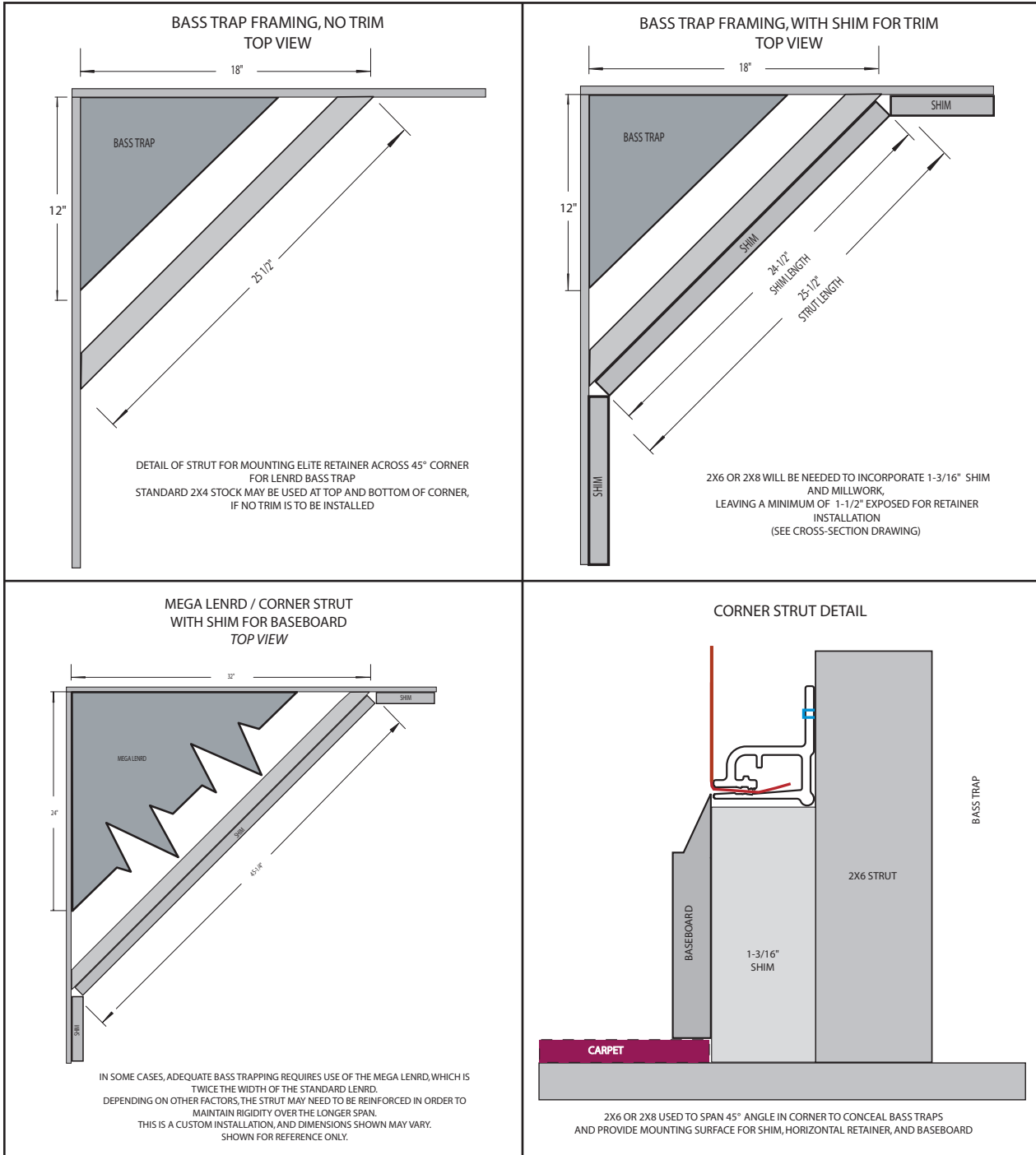
USING SHIM TO ALLOW TRIM TO SLIGHTLY OVERLAP RETAINER



FURRING OUT DRYWALL SURFACE BELOW CHAIR RAIL FOR FLUSH VERTICAL SURFACE

**CORNER STRUTS FOR BASS TRAPPING**

In most cases, corner struts must be installed prior to ELiTE installation. This is especially important if shim is to be used for subsequent baseboard, chair rail, or crown moulding. Please refer to the following drawings for proper specifications; Every situation is a little different, so you will want to work directly with the ELiTE team on these details.



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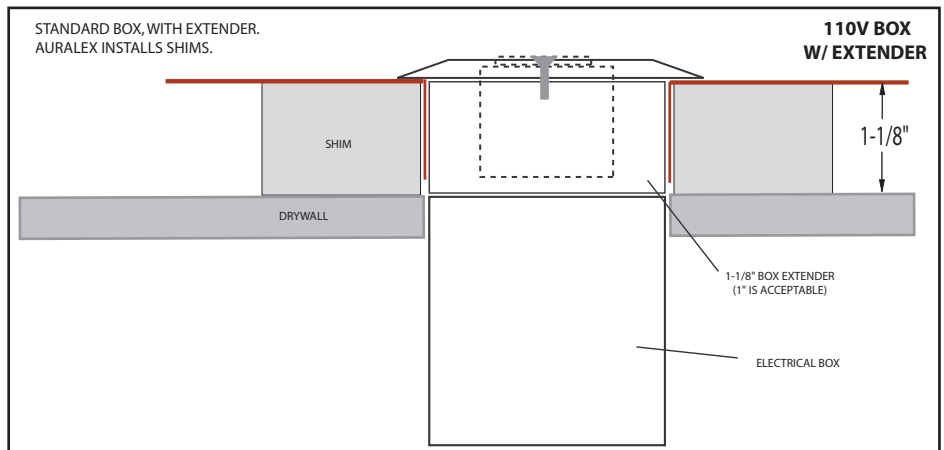
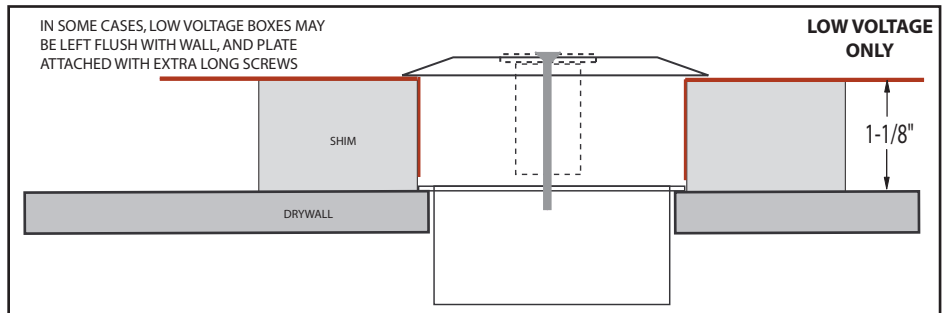
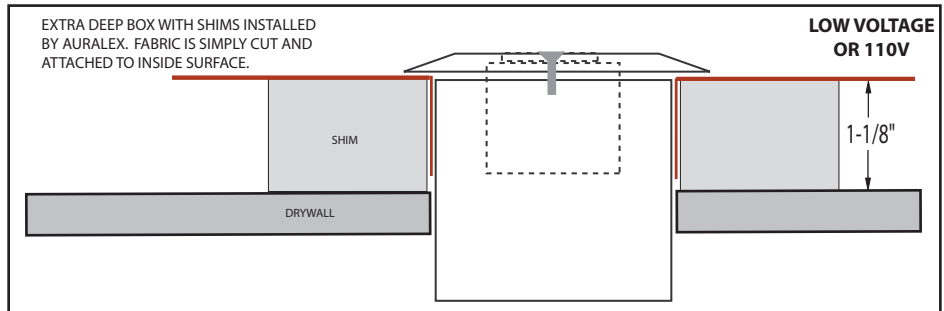
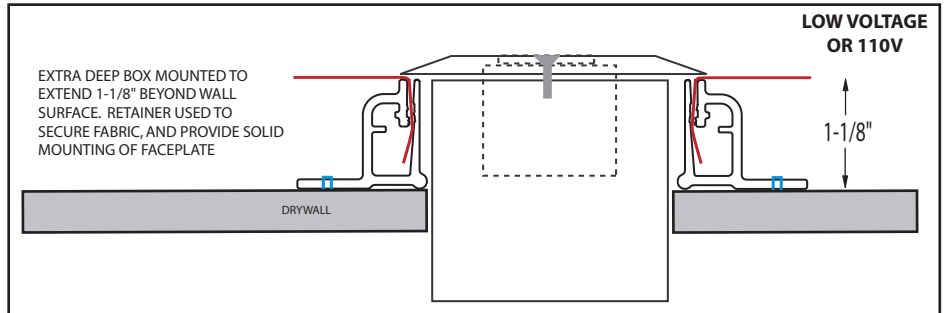
**ELECTRICAL AND LOW VOLTAGE BOXES**

In order to make all faceplates flush with the ELiTE fabric surface, there must be a solid base for them to rest on, over the stretched fabric. In most cases, the tallest edge of all junction boxes must be 1" to 1 1/8" above the drywall surface. This should be done as part of the standard room preparation for ELiTE installation. Shown here are some examples of how junction boxes and faceplates are handled for an ELiTE installation.

ELITE™ Custom Fabric System

Side view of trim detail for intersection of vertical wall and 45° angle ceiling.

**NOTE:** shim is not installed directly into the intersection of the surfaces. This type of detail should be coordinated carefully with Auralex.



## MILLWORK PREP PHOTO GALLERY

Here are some examples of a variety of trim scenarios properly done. Always feel free to contact Auralex if you have any questions about the preparation of a room.



Baseboard, chair rail and crown moulding correctly shimmed. **NOTE:** if carpet is to be installed, shim must be sized to allow baseboard to be set up the appropriate distance from the subfloor, while still overlapping the retainer by only  $\frac{1}{8}$ ". The retainer is always installed directly adjacent to a solid edge, either ceiling, floor, door jam, or pre-installed shim.

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### MILLWORK PREP PHOTO GALLERY (CONT.)



Horizontal seam joins vertical retainer adjacent to metal door frame. Note that frame is already set out to be flush with ELITE. In this case, painted frame nearly matches retainer, so no additional trim was used. Standard door trim could have been installed



Vertical corner prepared for LENRD® bass trapping, and ELITE finish. Note that struts at top, bottom, and middle are wide enough to accommodate shim for trim, as well as ELITE retainer. The result is a perfect 45° angled corner, with crown, chair rail, and baseboard all overlapping 1/8" of the ELITE retainer, and landing flush to the final fabric surface.