KINETICS Noise Control

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Comparative Analysis: UL Design L583 for IsoMax

Confusion hinders the proper selection and construction of UL Designs for fire-rated, wood-framed floor-ceiling assemblies: *Which UL Design should I choose? What is the proper spacing of sound isolation clips? What happens if I want fiber glass in the cavity for noise control? Which assembly is the most cost effective?* Our competitors tout the number of UL Designs in which they are listed as evidence their product is superior. Initially, Kinetics Noise Control (Kinetics) pursued this strategy. Research and development of the only spring ceiling hanger (ICW) to achieve a one-hour rating (UL Design L581) enlightened our approach to creating simple to select and construct one-hour rated assemblies for IsoMax (UL Design L583). Just as with the ICW spring ceiling hanger, Kinetics worked with UL to create a brand new design for noise control floor-ceiling composites. Our approach was to build the weakest acceptable construction i.e., hardest to pass, using the minimum amount of sound clips (IsoMax) and then *actually* burn the assembly (instead of submitting for engineering reviews as if often done for acceptance in multiple designs). Using UL Design L583, designers can incorporate IsoMax onto any wood structural framing member currently available for wood-framed construction e.g., engineered wood I-beams, parallel chord trusses, and conventional wood joists, to achieve a one-hour floor-ceiling design. Kinetics offers one simple design (L583) that both covers noise control AND achieves a one-hour fire rating. No competitor can offer the same.

Construction of other UL Design composites typically excludes batt insulation in the cavity (not ideal for noise control), uses a single layer of gypsum board (again, not ideal for noise control), and requires that drywall butt joints be supported with significantly more isolation framing members e.g., resilient channel or sound clips (often overlooked/misunderstood by the installer). Construction of these assemblies is unwieldy and, if properly executed, slow, creating unnecessary expense to the owner. The attached summary offers the reader a simple comparative analysis illustrating these **key features**: fewest isolation clips, batt insulation in cavity, double layer gypsum board for sound control, no extra clips required at drywall butt joints. Kinetics makes one-hour rated floor-ceiling composite design and construction for noise control simple and less costly.

Model IsoMax:

Fire-Rated Floor/Ceiling Assembly

	Model IsoMax by Kinetics Noise Control	Non-IsoMax Assembly	Non-IsoMax Assembly
UL Design	**L583**	L528	L576
Rating (Hrs)	1	1	1
Finish Rating (Min)	58	22	25
Sub-flooring	23/32" plywood T&G	23/32" plywood T&G	23/32" plywood
Finish Flooring	None	None	**1x4 T&G lumber**
Structural Member	**Parallel Chord Trusses, or Wood "I" Joist, or Wood and Steel Trusses, or 2x10 and Larger Joists**	Parallel Chord Trusses	Parallel Chord Trusses
Insulation	**6-1/4" fiber glass blanket draped over furring channel**	Adding fiber glass in cavity **REQUIRES 2nd layer of drywall ***	Adding 3.5" fiber glass **REQUIRES tighter clip spacing and twice as many joists**
Furring Channel Spacing (o.c.)	24"	24"	16" (12" w/ fiber glass)
Clip Spacing (along furring channel)	48"	48"	48" (12" w/ fiber glass)
Butt Joints	Along existing furring channel	**Extra clips and furring channel REQUIRED at butt joints**	**Extra clips and furring channel REQUIRED at butt joints**
Clips Needed **	**35 IsoMax**	**70** (**113** w/ fiber glass)*	**87** (**285** w/ fiber glass)
Furring Channel Needed (LF) **	**115.5**	**179.5** (**267.5** w/ fiber glass)*	**229** (**278.5** w/ fiber glass)
Gypsum	2 layers, 5/8" Type C	1 layer, 5/8" Type C (2 layers, w/ fiber glass)*	1 layer, 5/8" Type C

***From UL BXUV.GuideInfo – Fire Resistance Ratings – ANSI/UL 263**
Part III Floor-Ceilings and Roof-Ceilings, Section 18: Blanket Insulation:

Unless specifically described in a design, the addition of insulation in the concealed space between the ceiling membrane and the floor or roof structure may reduce the hourly rating of an assembly by causing premature disruption of the ceiling membrane and/or higher temperatures on structural components under fire exposure conditions.

Insulation in G500, L500 and P500 Series Designs — For 1-hour rated G500, L500 and P500 series assemblies, fiberglass insulation, either loose-fill, batts or blankets may be added to the plenum or joist space above the gypsum wallboard provided an additional layer of gypsum wallboard is added to the assembly. The gypsum wallboard should be of the same type as shown in the individual designs. The base layer of wallboard should be attached with the fastener type and spacing as described in the design. It is not necessary to tape the joints of the base layer. The finish layer of gypsum wallboard should also be attached with the fastener type and spacing as described in the individual design. The length of the fasteners should be increased by a minimum of the wallboard thickness of the additional layer. The joints in the finish layer should be finished as described in the design.

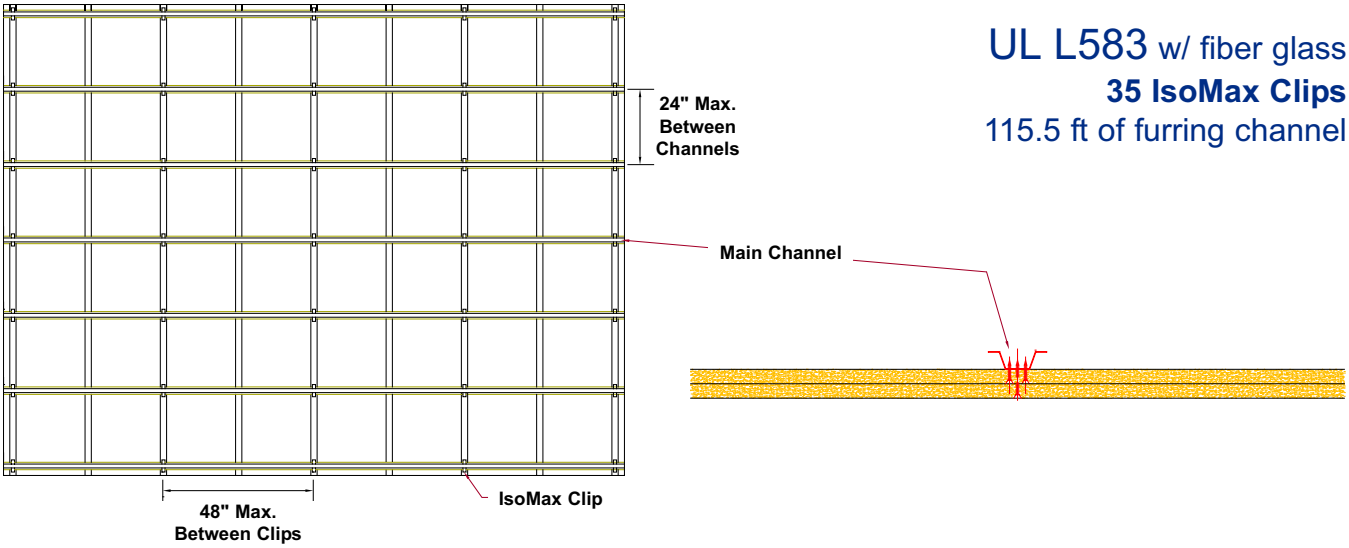
Other methods of adding insulation in the plenum or joist cavity are not permitted unless indicated in the individual designs.

****Clip and furring channel requirements based on 16.5 ft by 12.5 ft rectangular spaced room**

UL L583 w/ fiber glass

35 IsoMax Clips

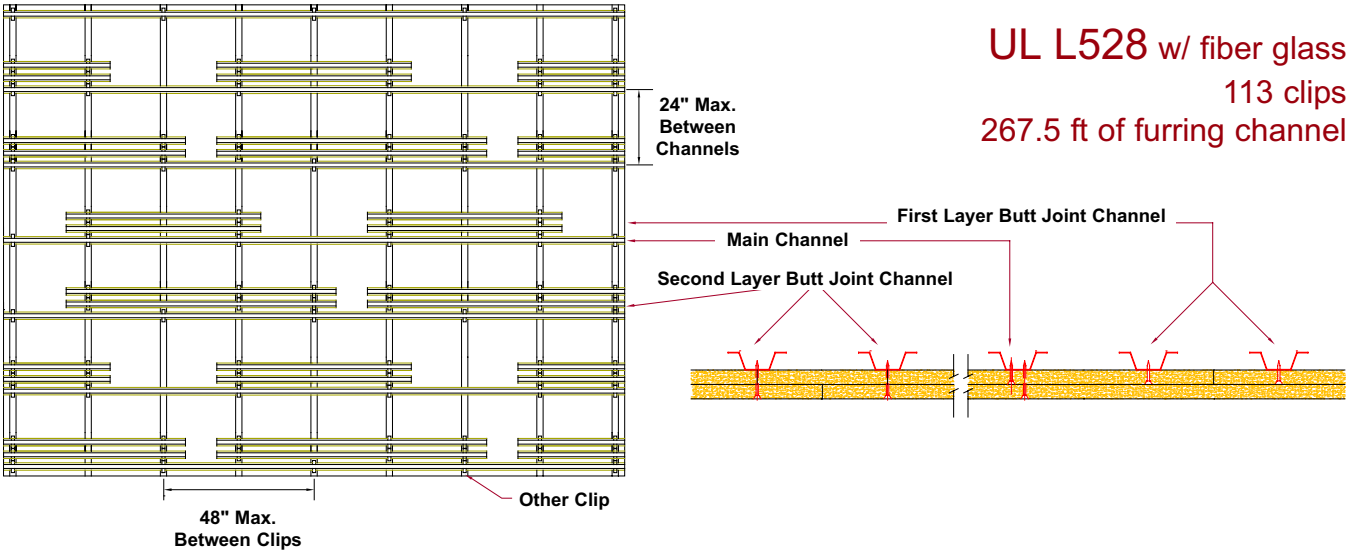
115.5 ft of furring channel



UL L528 w/ fiber glass

113 clips

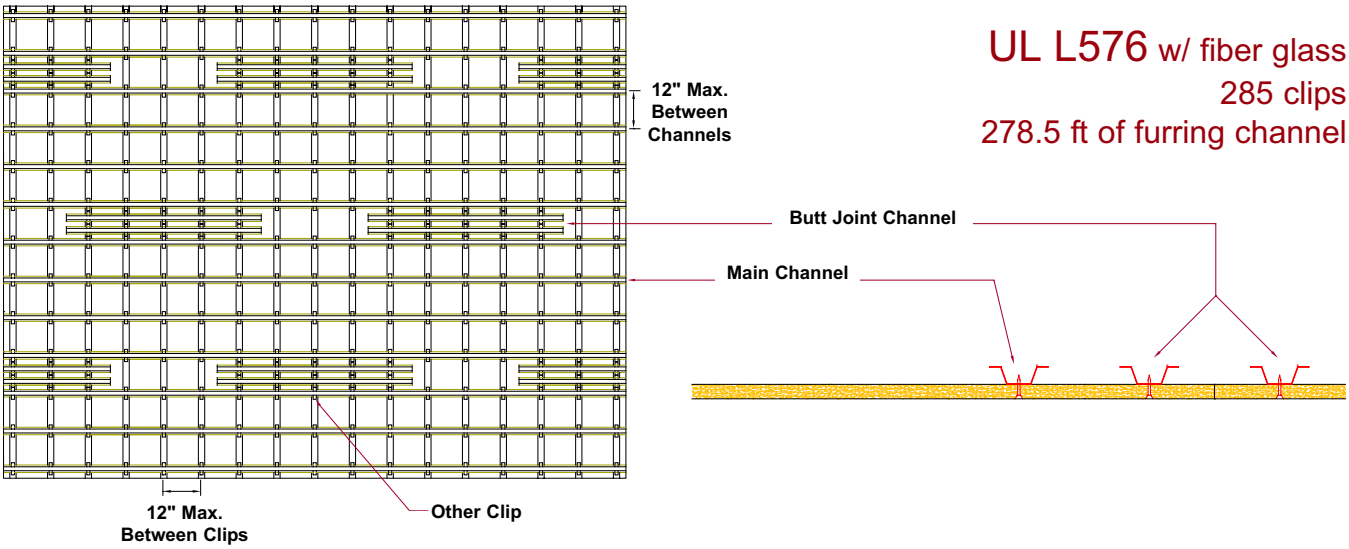
267.5 ft of furring channel



UL L576 w/ fiber glass

285 clips

278.5 ft of furring channel



The above construction practices should be reviewed with your local Code Official before construction. To get a copy of the UL Fire Resistance Directory Call (847) 272-8800, Ext. 42612 or 42622, or write to Underwriter's Laboratories, Inc., Publications Stock, 333 Pfingsten Road, Northbrook, IL 60062. There is a cost for the directory, so inquire first.

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