

Comprehensive test information
on fire-rated assemblies
incorporating CGC products
and systems



Fire-Resistant

Assemblies

SA-100



One of the most critical issues for architects is ensuring that building design addresses fire safety issues. This resource lists fire-resistant assemblies using CGC products and systems, as well as the related evaluation reports. The results of acoustical tests are also included, where relevant.



Fire Safety

User's Guide

Use this brochure to determine fire ratings for CGC products and systems.

This brochure provides:

- Comprehensive information about fire-rated assemblies
- Product and system attributes to help you identify the system that meets your project requirements for life safety, structural performance and acoustics
- Easy access to CGC's technical information or to specific data

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Fire Protection

CGC is the undisputed leader among building material manufacturers in providing products and systems designed to keep people safe from fire.

Fire safety properties are described in terms of fire resistance, surface-burning characteristics and noncombustibility.

Fire Safety

Building assembly's fire resistance	The period of time the assembly will serve as a barrier to the spread of fire and how long the assembly can function structurally after it is exposed to a fire of standard intensity as defined by CAN/ULC S101 and ASTM E119. Sometimes this is also called the assembly's fire endurance.
Flame spread	The measure of a material's relative burning behavior. Both the flame spread and smoke developed are measured in accordance with CAN/ULC S102M, and ASTM E84.
Noncombustible material	A material that will not burn or contribute any appreciable amount of fuel to a fire, as determined through CAN/ULC S114 and ASTM E136.
Class A designation	Refers to material that may ignite but will not sustain a flame. Class A products will not generate excessive visibility-obscuring smoke, an important factor in designing safe egress for building occupants. Class A is not a fire-resistance designation.

Fire-Rated

Fire-resistance ratings have long been used by UL/ULC, ASTM and building codes to measure the performance of various constructions for fire containment purposes. As applied to elements of buildings, the fire-resistance rating classifies the ability of an assembly to confine and isolate fire within a zone comprised of fire resistance-rated walls, ceiling and floor assemblies. The ratings relate to fire tests designed to determine how quickly fire can raise the temperature to unacceptable levels. Fire-rated assemblies are tested and certified in their entirety. These designs are identified in the ULC and UL Fire Resistance Directory, which is updated yearly and can be referenced at the Underwriters Laboratories of Canada website at www.ULC.ca, and the Underwriters Laboratories web site at www.ul.com.

Fire Resistance

All ULC and UL assemblies listed in this folder are certified for use in Canada and comply with CAN/ULC S101 for fire resistance. The Standards Council of Canada recognizes ULC and UL as accredited testing and certification organizations for certification of materials and systems to Canadian standards.

For More Information

	If you have additional questions regarding fire protection, use the following resources:
CGC Literature	CGC <i>Gypsum Construction Handbook</i>
Industry Resources	Underwriters Laboratories of Canada, List of Equipment and Materials, Fire Resistance Underwriters Laboratories, Inc. Fire Resistance Directory, Volume One

Selector Overview

The sections listed below correspond to the different types of assemblies in which CGC products are tested.

Each section is arranged sequentially according to fire ratings, the criterion that most often governs selection. Each entry within a section contains a reference to the source for more information within the Architectural Reference Library binder.

	Pages	
A	Partitions	10-24 Steel-framed, including non-loadbearing, loadbearing and chase walls; wood-framed, including non-loadbearing, loadbearing and chase walls; area separation walls; shaft walls; and masonry walls. Includes gypsum base and veneer finishes, gypsum drywall, cement board and conventional lath and plaster.
B	Floors/Ceilings	25-43 Steel-framed, including steel bar joist framing, steel C-joist framing, and steel truss; wood-framed, including dimensional lumber, engineered joist and truss; and structural concrete.
C	Roof/Ceilings	44-50 Steel-framed, including steel bar joist framing, steel C-joist framing, steel truss and steel roof deck; wood-framed, including dimensional lumber, engineered joist and truss; and structural concrete.
D	Horizontal Membrane	51 Shaft wall used in a horizontal plane.
E	Structural Fireproofing	52-55 Column, beam, through-penetration walls and floors, and joists. Basic methods of protecting columns and beams with gypsum base and veneer finishes, mineral fireproofing, and gypsum drywall.
F	Exterior Walls	56-59 Steel-framed, including loadbearing and non-loadbearing; and wood-framed, including loadbearing. Includes exterior curtain wall assemblies.

Test Certification

Test Conditions and Certification

Fire and sound tested assemblies listed in this Selector are based on characteristics, properties and performance of materials and systems obtained under controlled test conditions as set forth in the appropriate ULC and ASTM Standards in effect at the time of test. These listings are short summaries to serve as a compilation and guide of construction assemblies available in the selection process. For complete information on construction details and components used in these systems, refer to the individual Folder reference.

CGC Inc. will provide information for published fire, sound and structural data covering systems designed and constructed according to its published specifications. Tests are conducted on Company products assembled to meet performance requirements of established test procedures specified by various agencies. System performance following any substitution of materials or compromise in assembly design cannot be certified and may result in failure under critical conditions.

Sound tests are conducted under controlled laboratory conditions according to ASTM procedures. Comparable field performance depends on building design and careful attention to detailing and workmanship.

Certain sound tests, conducted in accordance with ASTM methods, measured sound transmission of 11 frequencies. These data have been retained in this Selector to serve as a guide to the designer. Based on experience, the STC values are very close to those obtained for the assembly under current methods at 16 frequencies.

Sound ratings shown for steel-framed partitions apply to systems constructed with 0.5 mm (25 gauge) steel studs 610 mm (24") o.c., unless otherwise noted. Heavier gauge studs are more rigid and may not provide the same sound ratings.

Loading Conditions

All load bearing assemblies, with exception of steel columns, are required to be loaded to their full design capacity during tests for fire resistance as required in CAN/ULC S101 and ASTM E119. The 2005 edition of the National Building Code of Canada now references the Third Edition of CAN/ULC S101-04 that requires applied loads be calculated under Limit States design principles. The previous edition referenced in the 1995 National Building Code of Canada permitted the use of Working Stress or Limit States principles for calculation of applied loads. In some cases there may be a significant difference between these calculations of applied loads. In these cases ULC and UL are amending their on-line and subsequent printed directories to provide guidance in the "Guide Information" section and notating individual designs that may require investigation as to "Load Restriction" or "Reduction" of the design. **This applies to both ULC and UL designs as well as assemblies certified by other Standards Council of Canada recognized agencies such as Intertek (Warnock-Hersey International)**

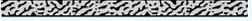
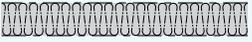
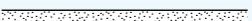
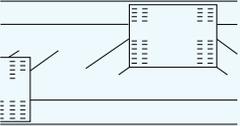
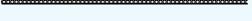
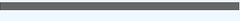
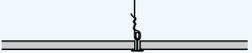
Abbreviations

In the Selector, the following abbreviations may be used. Estimated fire ratings are based on an engineering evaluation by qualified professionals.

acoust	acoustical	fin	finish or finished	oz	ounce
alt	alternate	fireprfg	fireproofing	partn	partition
alum	aluminum	fixt	fixture	pcf	pounds per cubic foot
appl	applied	flr	floor	perim	perimeter
att	attached	freq	frequency	plywd	plywood
atten	attenuation	ft	foot or feet	prot	protected or protection
betw	between	fur	furring	qtr	quarter
bd	board	ga	gauge	recom	recommended
cem	cement	galv	galvanized	reg	regular
chan	channel	hex	hexagonal	rel	relocatable
clg	ceiling	horiz	horizontally	resil	resilient
col	column	hr	hour	run	runner(s)
com	common	ht	height	SAFB	sound attenuation fire blankets
conc	concrete	insul	insulating or insulation	sep	separate
contin	continuous	int	interior	separ	separated
conv	conventional	lamin	laminated	stag	staggered
corrug	corrugated	lbr	lumber	stl	steel
cr	cold rolled	lightwt	lightweight	struc	structural
ctd	coated	max	maximum	subflr	subfloor
dbl	double	met	metal	susp	suspended or suspension
Des	Design	min	mineral or minimum	T&G	tongue and groove
ea	each	nom	nominal	unfin	unfinished
equiv	equivalent	noncomb	noncombustible	vert	vertically
est	estimated	o.c.	on center	wd	wood
exp	exposed	opp	opposite	wt	weight (kg/m ² lb./sq. ft.)

Agencies	Fire	Agencies	Sound	Sound Ratings	
ASTM	American Society for Testing and Materials	BBN	Bolt, Beranek and Newman	CAC	ceiling attenuation class per ASTM procedures
CEG	Consulting Engineers Group	CK	Cedar Knolls Acoust. Laboratories	IIC	impact insulation class per ASTM procedures
GA	Gypsum Assoc. (Fire Resistance Design Manual GA-600)	G & H	Geiger & Hamme	STC	sound transmission class per ASTM procedures
OSU	Ohio State University	KAL	Kodaras Acoustical Laboratories		
U of C	University of California	RAL	Riverbank Acoustical Laboratories		
UL	Underwriters Laboratories Inc.	SA	Shiner & Assoc.		
ULC	Underwriters Laboratories of Canada	USG	USG Corporation		
WHI	Warnock Hersey International				

Legend

	Architectural Elements			Architectural Elements		
	Component	Cross Section	Profile	Component	Cross Section	Architectural Material Symbols
<p>This legend contains the symbols used throughout the Architectural Reference Library to represent various architectural elements. Profile and cross-section views are shown where appropriate, along with architectural material symbols.</p>	C-H studs			Polystyrene insulation		
	Z-furring			Blanket insulation		
	Engineered joist			Solid wall		
	Decking			Plywood		
	Decking			Cement board		
	Lath			Poured gypsum		
	Wood truss			Gypsum board or plaster		
	Wood joist or stud			Veneer finish		
	Steel joist or stud			Tile		
	Steel truss			Concrete or precast concrete		
	Resilient channel			Ceiling panel		
	Furring channel					

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Partitions

Steel Framed



1 Hour Fire-rated Construction		Non-loadbearing		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK® FIRECODE® Core Gypsum Panels or GRAND PRIX® FIRECODE Core Abuse-Resistant Gypsum Base, or FIBEROCK® Panels – 92 mm (3-5/8") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. – joints finished • optional veneer plaster 	ULC Des W453 or W407 or UL Des U419 or U465	40	USG-860808	SA700 SA920	A-1	
			49	SA-870717 Based on 75 mm (3") SAFB in cavity			
			51	RAL-TL-90-166 Based on 15.9 mm (5/8") FIRECODE C Core panels and 75 mm (3") SAFB, and veneer finish surface SAFB 635 mm (25") wide, creased to fit cavity			
	<ul style="list-style-type: none"> • 15.9 mm (5/8") GRAND PRIX FIRECODE Core Gypsum Base one side – 89 mm (3-1/2") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. • 12.7 mm (1/2") DUROCK® Cement Board other side – 75 mm (3") SAFB • CGC Plaster Bonder over cement board and treated joints • joints treated with CGC™ setting-type joint compound and paper tape • DIAMOND® veneer basecoat with IMPERIAL finish plaster 	UL Des U404			SA920 SA934	A-2	
	<ul style="list-style-type: none"> • 15.9 mm (5/8") DUROCK Cement Board or 15.9 mm (5/8") GRAND PRIX FIRECODE Core Gypsum Base – 89 mm (3-1/2") 0.8 mm (20 gauge) studs, 400 mm (16") o.c. – 75 mm (3") SAFB • CGC Plaster Bonder over untreated joint areas • joints treated with CGC setting-type joint compound and paper tape • CGC Plaster Bonder over cement board and treated joints • DIAMOND veneer basecoat with veneer or conventional finish 	UL Des U407			SA920 SA934	A-3	
	<ul style="list-style-type: none"> • 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels – 64 mm (2-1/2") 0.5 mm (25 gauge) studs 610 mm (24") o.c. – 38 mm (1-1/2") SAFB – joints finished 	ULC Des W453 or W408 or UL Des U419 or U448	47	SA-831001		A-4	
	<ul style="list-style-type: none"> • 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels – 64 mm (2-1/2") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. – 38 mm (1-1/2") SAFB – joints finished 	ULC Des W453 or W408 or UL Des U419 or U448	41	RAL-TL-69-148 Based on same construction without THERMAFIBER SAFB	SA920	A-5	
			50	SA-800504			
<p>Note All products are not available in all markets. Consult your CGC Sales Representative for details.</p>							

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Partitions

Steel Framed



1 Hour Fire-rated Construction		Non-loadbearing	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
wt. 5 	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 92 mm (3-5/8") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. 75 mm (3") SAFB Resilient channel one side spaced 610 mm (24") o.c. optional veneer plaster 	ULC Des W453 or UL Des U419 or U451	50	RAL-TL-87-156	SA920	A-6
			54	RAL-TL-83-216 Based on 15.9 mm (5/8") thick panels		
wt. 7 	<ul style="list-style-type: none"> 19.1 mm (3/4") SHEETROCK ULTRACODE® Core Gypsum Panels 42 mm (1-5/8") 0.5 mm (25 gauge) studs 610 mm (24") o.c. joints finished UL Des U451 has panels applied over Resilient channel one side 	ULC Des W453 or UL Des U496 or U451				A-7
clg. wt. 5 	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 150 mm (6") 0.8 mm (20 gauge) steel studs 610 mm (24") o.c. 125 mm (5") SAFB Resilient channel one side spaced 610 mm (24") o.c. 	ULC Des W453 or UL Des U419 or U451	56	RAL-TL-87-139	SA920	A-8
			56	RAL-TL-84-141 Based on 15.9 mm (5/8") thick SHEETROCK FIRECODE C Core Gypsum Panels		
wt. 14 	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board and 6 mm (1/4") ceramic tile 92 mm (3-5/8") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. 75 mm (3") SAFB alternate design 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, one side 	ULC Des W419 Alternate Design W423 or UL Des U442	48	SA-840321	SA934	A-9
			50	SA-840313 Based on alt design		
wt. 7 	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board one side 92 mm (3-5/8") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. 75 mm (3") SAFB 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels, other side 	UL Des U457	47	USG-840222 Based on 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels	SA934	A-10
1-1/2 Hour Fire-rated Construction						
wt. 7 	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 92 mm (3-5/8") 0.8 mm (20 gauge) studs 610 mm (24") o.c. 75 mm (3") SAFB Resilient channel one side spaced 610 mm (24") o.c. 2 layers gypsum panels face layer joints finished optional veneer plaster 	UL Des U452	58	RAL-TL-83-215	SA920	A-11
			59	RAL-TL-84-140 150 mm (6") 0.8 mm (20 ga) struc studs and 125 mm (5") THERMAFIBER SAFB		

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Partitions

Steel Framed



2 Hour Fire-rated Construction		Non-loadbearing		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
wt. 11 	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels one side 12.7 mm (1/2") or 15.9 mm (5/8") DUROCK Cement Board 89 mm (3-1/2") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. 75 mm (3") SAFB CGC Plaster Bonder over Cement Board and treated joints face layer joints treated with CGC setting-type joint compound and paper tape optional veneer plaster 	UL Des U404			SA920 SA700	A-12	
wt. 9 	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels each side 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. face layer joints finished optional veneer plaster 	ULC Des W453 or UL Des U419 or U412	50	USG-840817 Based on 92 mm (3-5/8") stud assembly without mineral wool batt	SA920	A-13	
			52	SA-860932 Based on lamin. face layer, 38 mm (1-1/2") mineral wool batt and 64 mm (2-1/2") studs			
			54	CK-654-40 Based on 64 mm (2-1/2") studs, screw-attached face layer and 38 mm (1-1/2") mineral wool batt			
			55	SA-800421 Based on 92 mm (3-5/8") studs and 38 mm (1-1/2") mineral wool batt			
wt. 11 	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, or FIBEROCK Panels 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. face layer joints finished optional veneer plaster 	ULC Des W453 or UL Des U419 or U411	48	BBN-770408 Based on 92 mm (3-5/8") studs and 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels	SA920	A-14	
			56	USG-840818 Based on 92 mm (3-5/8") studs and 75 mm (3") mineral wool batt			
wt. 11 	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, or FIBEROCK Panels 64 mm (2-1/2") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. joints finished 	ULC Des W453 or UL Des U419	51	GA-WP-1548 Based on 64 mm (2-1/2") mineral wool batt in cavity	SA929	A-15	
			56	USG-840819 Based on 50 mm (2") mineral wool batt in cavity			
wt. 7 	<ul style="list-style-type: none"> 19.1 mm (3/4") SHEETROCK ULTRACODE Core Gypsum Panels 89 mm (3-1/2") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. 75 mm (3") SAFB joints finished 	ULC Des W453 or W440 or UL Des U419 or U491	50	USG-910617		A-16	

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Partitions

Steel Framed



2 Hour Fire-rated Construction		Non-loadbearing		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
wt. 7 143 mm (5 7/8")	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 92 mm (3-5/8") 0.8 mm (20 gauge) studs 610 mm (24") o.c. 75 mm (3") SAFB Resilient channel one side spaced 610 mm (24") o.c. single-layer gypsum panels screw-attached to studs double layer screw-attached to channel face layer joints finished optional veneer plaster 	ULC Des W453 or UL Des U419 or U453	59	RAL-TL-84-136 Based on 15.9 mm (5/8") thick panels, 150 mm (6") 0.8 mm (20 gauge) structural studs, 125 mm (5") mineral wool batt	SA920	A-17	
			60	RAL-TL-87-140 Based on 12.7 mm (1/2") thick panels, 150 mm (6") 0.8 mm (20 gauge) structural studs, 125 mm (5") mineral wool batt			
wt. 9 125 mm (5")	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 64 mm (2-1/2") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. 25 mm (1") SAFB Resilient channel one side, spaced 610 mm (24") o.c. double layer gypsum panels screw-attached to channel, 2 layers screw-attached to steel studs face layer joints finished optional veneer plaster 	ULC Des W453 or UL Des U454	57	USG-871207 Based on 15.9 mm (5/8") thick panels	SA920	A-18	
			60	RAL-TL-87-154			
			61	RAL-TL-83-214 Based on 15.9 mm (5/8") thick panels			
			63	RAL-TL-87-141 Based on 150 mm (6") 0.8 mm (20 gauge) structural studs and 125 mm (5") mineral wool batt			
wt. 11 156 mm (6 1/8")	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, or FIBEROCK Panels 92 mm (3-5/8") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. joints finished Insulation optional 	ULC Des W451 or UL Des U408					A-19
wt. 45 100 mm (4")	<ul style="list-style-type: none"> STRUCTOCORE™ 1.1 mm (18 gauge) steel panels attached to 1.1 mm (18 gauge) steel perimeter angles 19.1 mm (3/4") minimum coverage STRUCTO-BASE Gypsum Plaster sanded at 2:1 by weight in two coats IMPERIAL Finish Plaster applied 1.5 mm (1/16") thick 	UL Des U476			SA1119 SA920 SA929	A-20	
wt. 18 156 mm (6 1/8")	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board and 6 mm (1/4") ceramic tile base layer 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 92 mm (3-5/8") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. 75 mm (3") SAFB face layer joints taped alternate design 2 layers 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels, one side 	UL Des U443	56	SA-851016 Based on alternate design	SA934	A-21	
			58	SA-851028			

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Partitions

Steel Framed



3 Hour Fire-rated Construction		Non-loadbearing		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>wt. 13 117 mm (4 5/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. optional veneer plaster 	ULC Des W453 or W417 or UL Des U419 or U435	59	SA-830112 Based on assembly with 38 mm (1-1/2") mineral wool batt in cavity	SA920	A-22	
<p>wt. 13 117 mm (4 5/8")</p>	<ul style="list-style-type: none"> 19.1 mm (3/4") SHEETROCK ULTRACODE Core Gypsum Panels 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. face layer joints finished optional veneer plaster 	ULC Des W453 or UL Des U419 or U435				A-23	
<p>wt. 11 168 mm (6 5/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 92 mm (3-5/8") 0.8 mm (20 gauge) studs 610 mm (24") o.c. 75 mm (3") SAFB Resilient channel one side, spaced 610 mm (24") o.c. face layer joints finished 	ULC Des W453 or UL Des U419 or U455	61	RAL-TL-87-153 Based on 15.9 mm (5/8") thick panels	SA920	A-24	
			62	RAL-TL-83-213 Based on 15.9 mm (5/8") thick panels			
			63	RAL-TL-84-138 Based on 15.9 mm (5/8") thick panels, 150 mm (6") 0.8 mm (20 gauge) structural studs and 125 mm (5") THERMAFIBER SAFB			
			64	RAL-TL-87-142 Based on 150 mm (6") 0.8 mm (20 gauge) structural studs and 125 mm (5") THERMAFIBER SAFB			
			65	RAL-TL-84-150 Based on 15.9 mm (5/8") thick panels, 150 mm (6") 0.8 mm (20 gauge) structural studs, 125 mm (5") THERMAFIBER SAFB, acoustical sealant bead between panels and studs, dabs 200 mm (8") o.c. between panel layers on stud side			
<p>wt. 13 181 mm (7 1/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 92 mm (3-5/8") 0.8 mm (20 gauge) studs 610 mm (24") o.c. 75 mm (3") SAFB Resilient channel one side, spaced 610 mm (24") o.c. face layer joints finished 	ULC Des W453 or UL Des U419 or U455	63	RAL-TL-87-152		A-25	
			65	RAL-TL-87-143 150 mm (6") 0.8 mm (20 gauge) structural studs, 125 mm (5") THERMAFIBER SAFB			
<p>wt. 55 125 mm (5")</p>	<ul style="list-style-type: none"> STRUCTOCORE 1.1 mm (18 gauge) steel panels attached to 1.1 mm (18 gauge) steel perimeter angles STRUCTO-BASE Gypsum Plaster sanded at 2:1 by weight in two coats IMPERIAL Finish Plaster applied 1.5 mm (1/16") thick 	UL Des U476			SA1119 SA920 SA929	A-26	

A

Partitions

Steel Framed



4 Hour Fire-rated Construction		Non-loadbearing		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
wt. 17 	<ul style="list-style-type: none"> 4 layers 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels, each side 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. optional veneer plaster 	ULC Des W453 or W417 or UL Des U419 or U435	62	SA-830113 Based on assembly with 38 mm (1-1/2") mineral wool batt in cavity	SA920	A-27	
wt. 13 	<ul style="list-style-type: none"> 2 layers 19.1 mm (3/4") SHEETROCK ULTRACODE Core Gypsum Panels, each side 64 mm (2-1/2") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. 50 mm (2") SAFB face layer joints finished 	ULC Des W453 or W441 or UL Des U419 or U490	56	SA-910907		A-28	
1 Hour Fire-rated Construction		Chase Walls					
wt. 6 	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, each side or FIBEROCK Panels 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. in 2 rows 15.9 mm (5/8") gypsum panel gussets or steel runner braces spanning chase screw-attached to studs optional veneer plaster 	UL Des U420	52	RAL-TL-76-155 Based on 89 mm (3-1/2") insulation one side	SA920	A-29	
wt. 8 	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, or FIBEROCK Panels 64 mm (2-1/2") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. in two rows spaced minimum 25 mm (1") apart-laterally braced insulation optional 	ULC Des W454 or UL Des U493				A-30	
wt. 17 	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board and 6 mm (1/4") ceramic tile 42 mm (1-5/8") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. in two rows with horizontal braces 38 mm (1-1/2") SAFB alternate design 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, one side 	UL Des U404	60	SA-840515 Based on 75 mm (3") THERMAFIBER SAFB and alternate design	SA934	A-31	
wt. 7 	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board 42 mm (1-5/8") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. in two rows with horizontal braces 38 mm (1-1/2") SAFB 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 	UL Des U458	57	SA-840505 Based on 92 mm (3-5/8") 0.5 mm (25 ga) steel studs and 75 mm (3") mineral wool batt in cavity	SA934	A-32	
2 Hour Fire-rated Construction							
wt. 12 	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, each side or FIBEROCK Panels 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. in two rows spaced 156 mm (6-1/4") apart 15.9 mm (5/8") gypsum panel gussets or steel runner braces spanning chase screw-attached to studs face layer joints finished 	UL Des U420	52	RAL-TL-76-162		A-33	
			57	RAL-TL-76-156 Based on 89 mm (3-1/2") insulation one side			

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Partitions

Steel Framed



2 Hour Fire-rated Construction		Chase Walls	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
<p>wt. 12 143 mm (5 5/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, or FIBEROCK Panels 64 mm (2-1/2") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. in two rows spaced minimum 25 mm (1") apart-laterally braced insulation optional 	ULC Des W454 or UL Des U493				A-34
<p>wt. 18 305 mm (12")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board and 6 mm (1/4") ceramic tile base layer 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs 400 mm (16") o.c. in two rows with horizontal braces 38 mm (1-1/2") SAFB alternate design 2 layers 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels, one side 	UL Des U444	65	SA-841112	SA934	A-35
			62	SA-841102 Based on 75 mm (3") THERMAFIBER SAFB and alternate design		
3 Hour Fire-rated Construction						
<p>wt. 13 206 mm (8 1/4")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs 610 mm (24") o.c. in two rows steel truss member gypsum panel gussets or steel runner braces spanning chase screw-attached to studs face layer joints finished 2 hr. rating applies with 2 layers panels each side 1 hr. rating applies with single layer 15.9 mm (5/8") panels each side 	UL Des U436				A-36
<p>wt. 13 206 mm (8 1/4")</p>	<ul style="list-style-type: none"> 19.1 mm (3/4") SHEETROCK ULTRACODE Core Gypsum Panels 42 mm (1-5/8") 0.5 mm (25 gauge) studs 610 mm (24") o.c. in two rows steel truss member gypsum panel gussets or steel runner braces spanning chase screw-attached to studs face layer joints finished 	UL Des U436				A-37
45 Minute Fire-rated Construction		Loadbearing	(Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)			
<p>wt. 5 114 mm (4 1/2")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels or 15.9 mm (5/8") FIBEROCK AQUA-TOUGH Interior Panel or 15.9 mm (5/8") FIBEROCK AR Gypsum Interior Panel 89 mm (3-1/2") 0.8 mm (20 gauge) steel structural studs 610 mm (24") o.c. 	UL Des U423 or U425	47	SA-861001 Based on 75 mm (3") mineral wool batt in cavity		A-38
1 Hour Fire-rated Construction						
<p>wt. 6 121 mm (4 3/4")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or FIBEROCK Panels 89 mm (3-1/2") 0.8 mm (20 gauge) steel structural studs 610 mm (24") o.c. optional veneer plaster 	UL Des U423 or U425	40	USG-810519	SA920 SA700	A-39
			41	USG-810518 Based on 50 mm (2") mineral wool batt in cavity		

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Partitions

Steel Framed



1 hour Fire-rated Construction		Loadbearing (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
<p>wt. 6 124 mm (4 7/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – 92 mm (3-5/8") 0.8 mm (20 gauge) structural studs 610 mm (24") o.c. 	ULC Des W424				A-40
<p>wt. 9 150 mm (6")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels – 89 mm (3-1/2") 0.8 mm (20 gauge) steel structural studs 610 mm (24") o.c. – Resilient channel one side, spaced 610 mm (24") o.c. – face layer joints finished • optional veneer plaster 	UL Des U423 or U440	51	SA-840715 Based on 89 mm (3-1/2") 1.4 mm (16 ga) struc studs and lateral bracing	SA920	A-41
<p>wt. 9 133 mm (5 1/4")</p>	<ul style="list-style-type: none"> • face layer 12.7 mm (1/2") DUROCK Cement Board • base layer 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or sheathing, or FIBEROCK Panels – 89 mm (3-1/2") 0.8 mm (20 gauge) struc studs 400 mm (16") o.c. – 75 mm (3") mineral wool batt • 15.9 mm (5/8") SHEETROCK FIRECODE Core opposite side 	UL Des U473			SA934	A-42
<p>wt. 12 145 mm (5 3/4")</p>	<ul style="list-style-type: none"> • face layer 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or FIBEROCK Panels • base layer 12.7 mm (1/2") DUROCK Cement Board – 89 mm (3-1/2") 0.8 mm (20 gauge) structural studs 400 mm (16") o.c. – 75 mm (3") SAFB 	UL Des U485			SA934	A-43
<p>wt. 7 117 mm (4 5/8")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") GRAND PRIX FIRECODE Core Gypsum Base one side – 89 mm (3-1/2") 0.8 mm (20 gauge) steel structural studs 400 mm (16") o.c. • 12.7 mm (1/2") DUROCK Cement Board – 75 mm (3") SAFB • CGC Plaster Bonder over cement board and treated joints • joints treated with CGC setting-type joint compound and paper tape • DIAMOND veneer basecoat with IMPERIAL finish 	UL Des U404			SA920 SA934	A-44
<p>wt. 7 121 mm (4 3/4")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") DUROCK Cement Board or GRAND PRIX FIRECODE Core Gypsum Base – 89 mm (3-1/2") 0.8 mm (20 gauge) steel structural studs 400 mm (16") o.c. – 75 mm (3") mineral wool batt • CGC Plaster Bonder over untreated joint areas • joints treated with CGC setting-type joint compound and paper tape • CGC Plaster Bonder over cement board and treated joints • DIAMOND veneer basecoat with veneer or conventional finish 	UL Des U407			SA920 SA934	A-45

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Partitions

Steel Framed



1-1/2 Hour Fire-rated Construction		Loadbearing (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>wt. 9 143 mm (5 7/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 92 mm (3-5/8") 0.8 mm (20 gauge) steel structural studs 610 mm (24") o.c. face layer joints finished 	ULC Des W424				A-46	
<p>wt. 9</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 92 mm (3-5/8") 0.8 mm (20 gauge) structural studs in two rows, 7 mm (1/4") apart 400 mm (16") o.c. face layer joints finished 	ULC Des W445				A-47	
<p>wt. 9 140 mm (5 1/2")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 89 mm (3-1/2") 0.8 mm (20 gauge) steel structural studs 610 mm (24") o.c. face layer joints finished 	UL Des U425	49	USG-811009 Based on 50 mm (2") mineral wool batt		A-48	
			49	USG-810940 Based on 50 mm (2") mineral wool batt and 150 mm (6") 0.8 mm (20 ga) struc studs			
2 Hour Fire-rated Construction							
<p>wt. 11 150 mm (6")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or FIBEROCK Panels 89 mm (3-1/2") 0.8 mm (20 gauge) steel structural studs 610 mm (24") o.c. face layer joints finished Alternate based on three layers 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels, each side 	UL Des U423 or U425	48	USG-811006 Based on 50 mm (2") SAFB in cavity		A-49	
			49	USG-810937 Based on 50 mm (2") SAFB and 150 mm (6") 0.8 mm (20 gauge) structural studs			
<p>wt. 12 156 mm (6 1/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 92 mm (3-5/8") zoga steel structural studs 610 mm (24") o.c. face layer joints finished Alternate design three layers 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 	ULC Des W424				A-50	
3 Hour Fire-rated Construction							
<p>wt. 17 191 mm (7 1/2")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK Gypsum FIRECODE C Core Panels, each side 89 mm (3-1/2") 0.8 mm (20 gauge) steel structural studs 610 mm (24") o.c. face layer joints finished rating also applies with GRAND PRIX FIRECODE C Core Gypsum Base, and veneer finish surface 	UL Des U426			SA920	A-51	
<p>wt. 13 163 mm (6 1/2")</p>	<ul style="list-style-type: none"> 19.1 mm (3/4") SHEETROCK ULTRACODE Core Gypsum Panels 89 mm (3-1/2") 0.8 mm (20 gauge) steel structural studs 610 mm (24") o.c. 75 mm (3") SAFB face layer joints finished 	UL Des U490				A-52	

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Partitions

Wood Framed



45 Minutes Fire-rated Construction		Loadbearing (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>wt. 7 114 mm (4 1/2")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 2x4 wood stud 400 mm (16") o.c. joints finished 	ULC Des W302 or UL Des U317	32	NBCC W1e		A-53	
1 Hour Fire-rated Construction							
<p>wt. 7 121 mm (4 3/4")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or FIBEROCK Panels 2x4 wood stud 400 mm (16") (for 610 mm (24") o.c. use UL Des U314) joints finished optional veneer plaster 	ULC Des W301 or UL Des U305 or U314	34	USG-30-FT-G&H Based on 400 mm (16") stud spacing and screws 150 mm (6") o.c.	SA920	A-54	
			37	USG-860807 Based on 610 mm (24") stud spacing			
			46	BBN-700725 Based on 610 mm (24") stud spacing and 75 mm (3") mineral wool batt			
<p>wt. 7 133 mm (5 1/4")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 2x4 wood stud 400 mm (16") or 610 mm (24") o.c. 75 mm (3") SAFB Resilient channel one side joints finished 	UL Des U327	50	BBN-760903		A-55	
<p>125 mm (5")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board and 6 mm (1/4") ceramic tile 2x4 wood studs 400 mm (16") o.c. 89 mm (3-1/2") SAFB joints taped alternate design 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, one side 	UL Des U329	37	USG-840404		A-56	
			40	USG-840314 Based on alternate design			
<p>130 mm (5 1/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board base layer 12 mm (15/32") plywood 2 x 4 wood studs 400 mm (16") o.c. 75 mm (3") SAFB joints taped and treated 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, other side 	UL Des U303			SA934	A-57	
<p>137 mm (5 3/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") GRAND PRIX FIRECODE C Core Gypsum Base 2 x 4 400 mm (16") o.c. 75 mm (3") mineral wool batt Resilient channel one side 1.5 mm (1/16") veneer plaster finish both sides 	UL Des U311	52	SA-830702		A-58	
			49	CK-664-4 Based on 12.7 mm (1/2") gypsum base			

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Partitions

Wood Framed



2 Hour Fire-rated Construction		Loadbearing (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
<p>wt. 12 150 mm (6")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or SHEETROCK Water-Resistant FIRECODE Core Gypsum Panels or FIBEROCK Panels 2x4 wood studs 400 mm (16") o.c. joints finished optional veneer plaster 	ULC Des U301 or UL Des U301	52	USG-810218 Based on same assembly (non-fire rated) without mineral wool batt	SA920	A-59
			58			
<p>wt. 13 163 mm (6 1/2")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 2x4 wood studs 400 mm (16") o.c. 50 mm (2") SAFB Resilient channel one side joints finished 	UL Des U334				A-60
1 Hour Fire-rated Construction		Chase Walls				
<p>162 mm (6 3/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 2x4 staggered wood stud 610 mm (24") o.c. on 2x6 common plate joints finished optional veneer plaster 	UL Des U340	47	NBCC W7a With insulation	SA920	A-61
<p>260 mm (10 1/4")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels 2 rows 2x4 wood studs, each spaced 400 or 600 mm (16" or 24") o.c. on separate 2x4 plates set 25 mm (1") apart 	NBCC Table A-9.10.3.1.A	45	Wall Type W13e (NBCC)		A-62
			54	89 mm (3-1/2") insulation one side wall type W13c (NBCC)		
			57	89 mm (3-1/2") insulation both sides wall type W13a (NBCC)		
2 Hour Fire-rated Construction						
<p>268 mm (10 1/2")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, or FIBEROCK Panels 2 rows 2x4 wood studs 400 mm (16") o.c. on separate plates 25 mm (1") apart joints finished NBCC Load Bearing Rating 1-1/2 Hr., Non-Load Bearing 2Hr. 	NBCC W15	51	RAL-TL-69-214		A-63
			56	USG-710120 Based on 89 mm (3-1/2") thick insulation in one cavity		
			58	GA-NGC-3056		
			56	Wall Type W15g (NBCC)		
			62	89 mm (3-1/2") insulation one side wall type W15d (NBCC)		
			66	89 mm (3-1/2") insulation both sides wall type W15a (NBCC)		

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Partitions

Wood Framed



2 Hour Fire-rated Construction		Chase Walls (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels 610 mm (24") spacing 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or FIBEROCK Panels 406 mm (16") spacing 2x4 wood studs 610 mm (24") o.c. 	UL Des U342					A-64
	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels or FIBEROCK Panels 2x4 wood studs 400 mm (16") o.c. on 2x6 common plate joints finished 	NBCC	47	RAL-TL-69-211			A-65
	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board and 6 mm (1/4") ceramic tile 2 rows 2x4 400 mm (16") o.c. on 2x8 common plate 89 mm (3-1/2") SAFB both cavities joints taped 	WHI-495-0505 and 0508	50	SA-840523	SA934		A-66

Fire Wall Systems



2 Hour Fire-rated Construction		Non-loadbearing	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
<p>292 mm (11 1/2")</p>	<p>Fire wall (non-loadbearing)</p> <ul style="list-style-type: none"> • 25.4 mm (1") SHEETROCK Gypsum Liner Panels • 50 mm (2") CGC H-Studs 610 mm (24") o.c. <p>Protected wall (bearing or non-loadbearing) of wood or steel studs each side min 19 mm (3/4") from liner panels</p> <ul style="list-style-type: none"> • 12.7 mm (1/2") SHEETROCK Gypsum Panels 	<p>ULC Des W314 or UL Des U336</p>	46	RAL-TL-88-353	SA925	A-67
			54	RAL-TL-88-348 Based on 50 mm (2") mineral wool batt on one side		
			57	RAL-TL-88-351 Based on 2x4s and 75 mm (3") mineral wool batt one side		
			58	RAL-TL-88-347 Based on 2x4s and 50 mm (2") mineral wool batt on both sides		
			60	RAL-TL-88-350 Based on 2x4s and 75 mm (3") mineral wool batt on both sides		
<p>Note These systems do not provide a fire rating for adjacent wood- or steel-framed walls.</p>						

Shaft Wall Systems



1 Hour Fire-rated Construction		Non-loadbearing	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
<p>wt. 8 79 mm (3 1/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK Gypsum FIRECODE Core Panels, joints finished 64 mm (2-1/2") CGC C-H Studs 0.5 mm (25 gauge) 610 mm (24") o.c. 25.4 mm (1") SHEETROCK Gypsum Liner Panels 	<p>ULC Des W452, System A or UL Des U415, System A or U469</p>	39	<p>USG-040901 Based on 100 mm (4") C-H studs 0.5 mm (25 gauge)</p>	SA926	A-68
<p>143 mm (5 5/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, face layer joints finished 100 mm (4") CGC C-H Studs 0.8 mm (20 gauge) 610 mm (24") o.c. run horizontally and attached to vertical CGC J-Runners, (20 gauge) 25.4 mm (1") SHEETROCK Gypsum Liner Panels 	UL Des U437			SA926	A-69
2 Hour Fire-rated Construction						
<p>wt. 9 89 mm (3 1/2")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels, face layer joints finished 64 mm (2-1/2") CGC C-H Studs 0.5 mm (25 gauge) 610 mm (24") o.c. 25.4 mm (1") SHEETROCK Gypsum Liner Panels 	<p>ULC Des W452, System B or W506 or UL Des U415, System B or U438</p>	38 43 48 50	<p>USG-040917 USG-040912 Based on 100 mm (4") C-H studs 0.5 mm (25 gauge) RAL-OT-04-022 Based on 25 mm (1") sound batts in cavity RAL-OT-04-019 Based on 100 mm (4") C-H studs 0.5 mm (25 gauge) with 75 mm (3") mineral fibre insulation</p>	SA926	A-70
<p>wt. 8 121 mm (4 3/4")</p>	<ul style="list-style-type: none"> 19.1 mm (3/4") SHEETROCK ULTRACODE Core Gypsum Panels, joints finished 100 mm (4") CGC C-H Studs 0.5 mm (25 gauge) 610 mm (24") o.c. 75 mm (3") SAFB 25.4 mm (1") SHEETROCK Gypsum Liner Panels 	<p>ULC Des W452, System C or W508 or UL Des U415, System C</p>	51	<p>RAL-OT-04-020 Based on 100 mm (4") C-H studs with 75 mm (3") THERMAFIBER SAFB insulation</p>	SA926	A-71
<p>wt. 10 92 mm (3 5/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board, joints finished 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels 64 mm (2-1/2") CGC C-H Studs 0.8 mm (20 gauge) 610 mm (24") o.c. 38 mm (1-1/2") SAFB 25.4 mm (1") SHEETROCK Gypsum Liner Panels DUROCK Cement Board screw attached and laminated to gypsum panel with 100 mm (4") vertical strip ceramic tile mastic centered between studs 	<p>ULC Des W452, System D or UL Des U415, System D</p>			SA926	A-72
<p>wt. 9 89 mm (3 1/2")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 64 mm (2-1/2") CGC C-H Studs 0.5 mm (25 gauge) 610 mm (24") o.c. 25.4 mm (1") SHEETROCK Gypsum Liner Panels – joints finished both sides 	<p>ULC Des W452, System E or UL Des U415, System E or U467</p>	44	<p>USG-040911 Based on 100 mm (4") C-H studs 0.5 mm (25 gauge)</p>	SA926	A-73
<p>wt. 10 100 mm (4")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels applied vertically, face layer joints finished – Resilient channel 610 mm (24") o.c. 64 mm (2-1/2") CGC C-H Studs 0.5 mm (25 gauge) 610 mm (24") o.c. 25.4 mm (1") SHEETROCK Gypsum Liner Panels 	<p>ULC Des W452, System F or UL Des U415, System F</p>	53 58	<p>USG-040909 Based on 100 mm (4") C-H studs 0.5 mm (25 gauge) with 75 mm (3") mineral fibre insulation USG-040910 Based on 100 mm (4") C-H studs 0.5 mm (25 gauge) with additional layer on liner panel side and 75 mm (3") mineral fibre insulation</p>	SA926	A-74

A

Partitions

Shaft Wall Systems



2 Hour Fire-rated Construction		Non-loadbearing		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>wt. 8</p> <p>Alternate detail</p>	<ul style="list-style-type: none"> – 25 x 50 mm (1" x 2") perimeter angles 0.5 mm (25 gauge) • 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels, fastened to angles • 25.4 mm (1") SHEETROCK Gypsum Liner Panel • 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels, joints finished 	UL Des U529			SA926	A-75	
<p>133 mm (5 1/4")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, face layer joints finished • 100 mm (4") CGC C-H Stud 0.8 mm (20 gauge) 610 mm (24") o.c. run horizontally and attached to vertical CGC J-Runners, (20 gauge) • 25.4 mm (1") SHEETROCK Gypsum Liner Panels 	UL Des U437			SA926	A-76	
3 Hour Fire-rated Construction							
<p>wt. 13</p> <p>111 mm (4 3/8")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels, face layer joints finished • 64 mm (2-1/2") CGC C-H Stud 0.5 mm (25 gauge) 610 mm (24") o.c. • 25.4 mm (1") SHEETROCK Gypsum Liner Panels 	ULC Des W452, System G or UL Des U415, System G	45	USG-040903 Based on 100 mm (4") C-H Studs 0.5 mm (25 gauge)	SA926	A-77	
<p>wt. 13</p> <p>111 mm (4 3/8")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels, face layer joints finished • 64 mm (2-1/2") CGC C-H Stud 0.5 mm (25 gauge) 610 mm (24") o.c. • 25.4 mm (1") SHEETROCK Gypsum Liner Panels • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels, joints finished 	ULC Des W452, System H or UL Des U415, System H	51	RAL-0T04-018 Based on 100 mm (4") C-H Studs with 75 mm (3") mineral fibre insulation			
<p>wt. 13</p> <p>111 mm (4 3/8")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels, face layer joints finished • 64 mm (2-1/2") CGC C-H Stud 0.5 mm (25 gauge) 610 mm (24") o.c. • 25.4 mm (1") SHEETROCK Gypsum Liner Panels • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels, joints finished 	ULC Des W452, System H or UL Des U415, System H	49	USG-040902 Based on 100 mm (4") C-H Studs	SA926	A-78	
4 Hour Fire-rated Construction							
<p>wt. 18</p> <p>162 mm (6 3/8")</p>	<ul style="list-style-type: none"> • 19.1 mm (3/4") SHEETROCK ULTRACODE Core Gypsum Panels, on furring channel 610 mm (24") o.c., over 2 layers 19.1 mm (3/4") SHEETROCK ULTRACODE Core Gypsum Panels, face layer joints finished • 64 mm (2-1/2") CGC C-H Stud 0.5 mm (25 gauge) 610 mm (24") o.c. • 25.4 mm (1") SHEETROCK Gypsum Liner Panels – base layer over furring channel applied vertically 	ULC Des W452, System I or UL Des U415, System I			SA926	A-79	
<p>Note Stud size and gauge shown are minimums. Possible panel alternatives shown on Cross Reference of CGC Panels and ULC/UL Fire Ratings on page 8.</p>							

B

Floor/Ceilings

Steel Framed



1 Hour Fire-rated Construction		Steel Bar Joist Framing (Refer to ULCAUL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>470 mm (18 1/2")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1 acoustical ceiling panels DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or ZXLA Susp Exp Grid Syst – light fixture and speakers optional – 50 mm (2") concrete on riblath over bar joists 	UL Des G201			SC2000	B-1	
1-1/2 Hour Fire-rated Construction							
<p>473 mm (18 5/8")</p>	<ul style="list-style-type: none"> CGC DGL Drywall Suspension System 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – joints finished – 64 mm (2-1/2") concrete on riblath over bar joist 	UL Des G258			SC2000	B-2	
<p>559 mm (22")</p>	<ul style="list-style-type: none"> 12.7 x 610 x 1200 mm (1/2" x 2' x 4') FC-CB gypsum panels DXL, DXLA, DXLH, DXLZ, SDXL, SDXLA, ZXLA Susp Exp Grid System – 64 mm (2-1/2") concrete on riblath over bar joist 	ULC Des I519 or UL Des G259			SC2000	B-3	
<p>clg. wt. 2</p> <p>391 mm (15 3/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels – metal furring channel 610 mm (24") o.c. – joints finished – 50 mm (2") concrete on riblath or steel deck over joist 	UL Des G502				B-4	
<p>570 mm (22 1/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1 acoustical ceiling panels DXLT, DXLTA, DXLTZ or DXLTZA Susp Exp Grid System – light fixture, air duct and speakers optional – 64 mm (2-1/2") concrete on corrugated steel deck – steel bar joists 	UL Des G262		When AP-1 ceiling panels are used, the fire rating is limited to 1-hr. in DXLT, DXLTA, DXLTZ and DXLTZA steel framing members only	SC2000	B-5	
<p>551 mm (21 1/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1 acoustical ceiling panels DXLF (with CM or CP metal ceiling panels) Susp Exp Grid System – light fixture, air duct and speakers fire rating is limited to 1-hr. optional – 64 mm (2-1/2") concrete on corrugated steel deck – steel bar joists 	UL Des G264		When AP-1 ceiling panels are used, the fire rating is limited to 1-hr.	SC2000	B-6	

B

Floor/Ceilings

Steel Framed



1-1/2 Hour Fire-rated Construction		Steel Bar Joist Framing (Refer to UL/CAUL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>551 mm (21 1/16")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") AP-3 or FR-X1 acoust ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System light fixture, air duct and speakers optional 64 mm (2-1/2") concrete on corrugated steel deck steel bar joists 	UL Des G267			SC2000	B-7	
2 Hour Fire-rated Construction							
<p>clg. wt. 3 352 mm (13 7/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels metal furring channel 610 mm (24") o.c. joints finished 64 mm (2-1/2") concrete on riblath or corrugated steel deck steel bar joists optional veneer plaster 	ULC Des I507 or UL Des G515	54*	ASTM E1414 *CAC value per ASTM E1414 test procedure for horizontally adjacent spaces	SA920	B-8	
<p>clg. wt. 2 406 mm (16")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels steel bar joists 610 mm (24") o.c. metal furring channel, 300 mm (12") o.c. 	ULC Des I508 or UL Des G503	53	NGC-4075		B-9	
<p>533 mm (21") 609 mm (24")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK Gypsum Panels, FIRECODE C Core CGC DGL Drywall Suspension System joints finished 64 mm (2-1/2") concrete on riblath or steel deck steel bar joists, 610 mm (24") o.c. 3 hr. rating with 15.9 mm (5/8") panels and 75 mm (3") thick concrete optional veneer plaster 	UL Des G523			SC2000	B-10	
<p>533 mm (21") 609 mm (24")</p>	<ul style="list-style-type: none"> CGC DGL Drywall Suspension System 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels joints finished 64 mm (2-1/2") concrete on riblath steel bar joists, 610 mm (24") o.c. optional veneer plaster 	UL Des G526			SC2000	B-11	

B

Floor/Ceilings

Steel Framed



2 Hour Fire-rated Construction		Steel Bar Joist Framing (Refer to ULCAUL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>540 mm (21 1/4")</p>	<ul style="list-style-type: none"> CGC DGL Drywall Suspension System 12.7 mm (1/2") SHEETROCK FIRECODE C Gypsum Panels screwed to Rigid X Suspension System concrete 64 mm (2-1/2") thick on metal lath, pan or steel floor units over bar joists includes 3 hour unrestrained beam, air ducting and recessed lighting fixtures 	ULC Des I517				B-12	
<p>352 mm (13 7/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Gypsum Panels screwed to furred or suspended channel concrete 70 mm (2-3/4") thick on Hambro Structural system steel joist H601, H675, TC or RTC, spaced 1200 mm (48") o.c. includes air ducting 	ULC Des I518				B-13	
<p>clg. wt. 2</p> <p>559 mm (22")</p>	<ul style="list-style-type: none"> 12.7 x 610 x 610 mm (1/2" x 24" x 24") FC-CB gypsum panels DXL, DXLA, DXLH, DXLZ, DXLZA, SDXL, or SDXLA Susp Exp Grid System light fixtures and air ducts optional 64 mm (2-1/2") concrete deck on riblath or corrugated steel deck steel bar joists, 610 mm (24") o.c. 	ULC Des I520 or UL Des G222			SC2000	B-14	
<p>533 mm (21")</p> <p>609 mm (24")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panel DGLW Drywall Suspension System light fixture and air duct optional 81 mm (3-1/4") concrete deck on riblath or corrugated steel deck also applies to 15.9 mm (5/8") panels and 70 mm (2-3/4") concrete slab steel bar joists, 610 mm (24"), o.c. optional veneer plaster 	UL Des G529				B-15	
<p>543 mm (21 1/4")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") 300 x 300 mm (12" x 12") or 610 mm (24") FR-83 acoustical ceiling panels in Concealed Z-Spline Grid System light fixture and air duct optional 64 mm (2-1/2") concrete deck on riblath steel bar joists, 610 mm (24") o.c. 	UL Des G002			SC2000	B-16	

B

Floor/Ceilings

Steel Framed



2 Hour Fire-rated Construction		Steel Bar Joist Framing (Refer to ULCAUL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
<p>619 mm (24 3/8")</p>	<ul style="list-style-type: none"> 19.1 mm (3/4") 300 x 300 mm (12" x 12") or 610 mm (24"), or 610 x 610 mm (24" x 24") FR-83 acoustical ceiling panels Concealed Grid System <ul style="list-style-type: none"> light fixture and air duct optional 64 mm (2-1/2") concrete deck on riblath steel bar joists, 610 mm (24") o.c. 	UL Des G007			SC2000	B-17
<p>660 mm (26")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") 300 x 300 mm (12" x 12"), or 610 x 610 mm (24" x 24") FR-83 acoustical ceiling panels DXL, DXLZ or SDXL Concealed Grid System <ul style="list-style-type: none"> light fixture and air duct optional 64 mm (2-1/2") concrete deck on riblath over steel bar joists, 610 mm (24") o.c. 	UL Des G008			SC2000	B-18
<p>546 mm (21 1/2")</p>	<ul style="list-style-type: none"> 19.1 mm (3/4") 300 x 300 mm (12" x 12"), or 610 mm (24") FR-83 acoustical ceiling panels DXL, DXLA, DXLZA, DXLA, DXLZ, SDXL, SDXLA or ZXLA Concealed Grid System <ul style="list-style-type: none"> light fixture and air duct optional 64 mm (2-1/2") concrete deck on riblath steel bar joists, 610 mm (24") o.c. 	UL Des G040			SC2000	B-19
<p>695 mm (27 3/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") FR-81 or FR-4; 15.9 mm (5/8") or 19.1 mm (3/4") FR-83; or 19.1 mm (3/4") FR-X1 acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System <ul style="list-style-type: none"> light fixture and air duct optional 64 mm (2-1/2") concrete deck on riblath steel bar joists, 610 mm (24") o.c. 	UL Des G202			SC2000	B-20
<p>572 mm (22 1/2")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") Astro-FR acoustical ceiling panels DXL, DXLZ, or SDXL Susp Exp Grid System <ul style="list-style-type: none"> light fixture and air duct optional 64 mm (2-1/2") concrete deck on riblath steel bar joists, 610 mm (24") o.c. 	UL Des G203		DXLT Susp Exp Syst may be used instead, but fire rating is limited to 1-1/2-hr.	SC2000	B-21

B

Floor/Ceilings

Steel Framed



2 Hour Fire-rated Construction		Steel Bar Joist Framing (Refer to ULCAUL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number.	ARL	Index
<p>660 mm (26") 590 mm (23 3/4") 584 mm (23")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") FR-81, FR-4 or M; 15.9 mm (5/8") or 19.1 mm (3/4") FR-83; 19.1 mm (3/4") FR-X1; or 19.1 mm (3/4") Astro-FR acoustical ceiling panels DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or XLA Susp Exp Grid System – light fixture and air duct optional – 64 mm (2-1/2") concrete deck on riblath – steel bar joists, 750 mm (30") o.c. 	UL Des G204			SC2000	B-22
<p>660 mm (26") 590 mm (23 3/4") 584 mm (23")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") FR-81 or FR-4; 15.9 mm (5/8") or 19.1 mm (3/4") FR-83; 19.1 mm (3/4") FR-X1; or 19.1 mm (3/4") Astro-FR acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System – light fixture and air duct optional – 64 mm (2-1/2") concrete deck on riblath – steel bar joists, 610 mm (24") o.c. 	UL Des G215			SC2000	B-23
<p>543 mm (21 1/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") Astro-FR acoustical ceiling panels DXL, SDXL or DXLZ or Susp Exp Grid System – light fixture and air duct optional – 64 mm (2-1/2") concrete deck on riblath – steel bar joists, 610 mm (24") o.c. 	UL Des G227			SC2000	B-24
<p>572 mm (22 1/2")</p>	<ul style="list-style-type: none"> 19.1 mm (3/4") AP or AP-3 acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System – light fixture and air duct optional – 64 mm (2-1/2") concrete deck on riblath – steel bar joists, 610 mm (24") o.c. 	UL Des G228			SC2000	B-25
<p>543 mm (21 1/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") LEVELROCK Floor Underlayment – type 10J2 steel joist spaced maximum 1200 mm (4') o.c. 15.9 mm (5/8") or 19.1 mm (3/4") FR-83, 19.1 mm (3/4"), 19.1 mm (3/4") FR-X1 or 19.1 mm (3/4") Astro-FR DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or XLA Susp Exp Grid System – 50 mm (2") T&G building units – steel bar joists, 1200 mm (4') o.c. – W8x31 beam 	UL Des G230			SC2000 SA305	B-26

B

Floor/Ceilings

Steel Framed



2 Hour Fire-rated Construction		Steel Bar Joist Framing (Refer to ULCAUL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
	<ul style="list-style-type: none"> • 19.1 mm (3/4") FR-83 acoustical ceiling panels • DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or ZXLA Susp Exp Grid System – light fixture and air duct optional – 64 mm (2-1/2") concrete deck on riblath – steel bar joists, 610 mm (24") o.c. 	ULC Des I223 or UL Des G231			SC2000	B-27	
	<ul style="list-style-type: none"> • 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or FR-X1 or 19.1 mm (3/4") Astro-FR acoustical ceiling panels • Susp Exp Grid System – light fixture optional – 64 mm (2-1/2") concrete deck on riblath – steel bar joists, 610 mm (24") o.c. 	UL Des G234				B-28	
	<ul style="list-style-type: none"> • 19.1 mm (3/4") FR-83 acoustical ceiling panels • DXL, DXLZ or SDXL Susp Exp Grid System – light fixture and air duct optional – 64 mm (2-1/2") concrete deck on riblath – steel bar joists 	UL Des G252				B-29	
	<ul style="list-style-type: none"> • 19.1 mm (3/4") FR-83 or FR-X1 acoustical ceiling panels • DXLT, DXLTA, DXLTZ or DXLTZA Susp Exp Grid System – light fixture and air duct optional – 64 mm (2-1/2") concrete deck on riblath – steel bar joists, 610 mm (24") o.c. 	UL Des G265			SC2000	B-30	
	<ul style="list-style-type: none"> • 12.7 mm (1/2") LEVELROCK Floor Underlayment – 50 mm (2") deep T&G building units – W8x20 steel beam – steel bar joists, (4") o.c. • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 	UL Des G516			SA305	B-31	

B

Floor/Ceilings

Steel Framed



3 Hour Fire-rated Construction		Steel Bar Joist Framing (Refer to ULCAUL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
<p>406 mm (16")</p> <p>clg. wt. 3, clg. wt. 4</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels metal fur channel 610 mm (24") o.c. joints finished 64 mm (2-1/2") concrete on corrugated steel deck or riblath steel bar joists, 610 mm (24") o.c. optional veneer plaster 	<p>ULC Des G512 or UL Des G512</p>			SA920	B-32
<p>540 mm (21 1/4")</p> <p>clg. wt. 3</p>	<ul style="list-style-type: none"> CGC DGL Drywall Suspension System 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels joints finished 81 mm (3-1/4") concrete on riblath or corrugated steel deck steel bar joists, 610 mm (24") o.c. 	<p>UL Des G529</p>			SC2000	B-33
<p>624 mm (24 5/8") min.</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or FR-X1 or 12.7 mm (1/2") or 15.9 mm (5/8") FR-4 or 12.7 mm (1/2") FC-CB or Astro-FR acoustical ceiling panels DXL, DXLZ, or SDXL Susp Exp Grid System light fixture and air duct optional 89 mm (3-1/2") concrete deck on riblath steel bar joists, 1200 mm (4') o.c. 	<p>UL Des G205</p>		DXLA, DXLZA or SDXLA Susp Exp Grid Syst may be used instead, but fire rating is limited to 2-hr.; DXLT, DXLTA, DXLTZ or DXLTZA Susp Exp Grid Syst may be also used, but fire rating is limited to 1-1/2-hr.; 12.7 mm (1/2") FC-CB gypsum panels may be used as a ceiling panel for fire ratings of 1 or 1-1/2-hr.	SC2000	B-34
<p>584 mm (23")</p> <p>543 mm (21 1/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1, Astro-FR or FR-4 acoustical ceiling panels DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or ZXLA Susp Exp Grid System light fixture and air duct optional 75 mm (3") concrete deck used instead, but fire rating is limited to 2-hr.; 13 mm (1/2") on riblath steel bar joists, 610 mm (24") o.c. 	<p>UL Des G211</p>		DXLA, DXLZA, SDXLA or ZXLA Susp Exp Grid Syst may be used instead, but fire rating is limited to 2-hr.; 12.7 mm (1/2") FC-CB gypsum panels may be used as a ceiling panel for fire rating of 1-hr.	SC2000	B-35
<p>572 mm (22 1/2")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") FR-81; 15.9 mm (5/8") or 19.1 mm (3/4") FR-83; 19.1 mm (3/4") FR-X1; or 12.7 mm (1/2") FC-CB; or 15.9 mm (5/8") FR-4; or 19.1 mm (3/4") Astro-FR acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System light fixture and air duct optional 89 mm (3-1/2") concrete deck on riblath or steel deck (increase concrete 13 mm (1/2")) steel bar joists, 610 mm (24") o.c. 	<p>UL Des G213</p>		When FR-4 or M clg panels are used, the fire rating is limited to 2-hr.; 12.7 mm (1/2") FC-CB gypsum panels may be used as a ceiling panel for fire ratings of 1- or 1-1/2-hr.	SC2000	B-36

B

Floor/Ceilings

Steel Framed



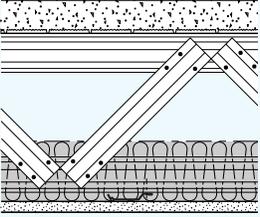
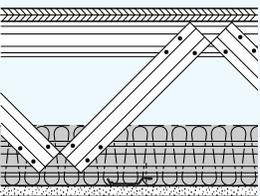
1 Hour Fire-rated Construction		Steel C-Joist Framing (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance			Reference	
Construction Detail	Description	Test Number	STC	IIC	Test Number	ARL	Index
<p>clg. wt. 4 244 mm (9 5/8")</p>	<ul style="list-style-type: none"> 2 layers 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 178 mm (7") 1.1 mm (18 gauge) steel joists 610 mm (24") o.c. CGC DGL Drywall Suspension System 	UL Des L524	39		USG-760105 Based on 241 mm (9-1/2") 1.4 mm (16 gauge) steel joists		B-37
			43		USG-760310 Based on 241 mm (9-1/2") 1.4 mm (16 gauge) steel joists and 75 mm (3") mineral wool batt		
			56		USG-760106 Based on 241 mm (9-1/2") 1.4 mm (16 gauge) steel joists and carpet pad		
			60		USG-760405 Based on 241 mm (9-1/2") 1.4 mm (16 gauge) steel joists and carpet pad with 75 mm (3") mineral wool batt		
<p>clg. wt. 4 235 mm (9 1/4")</p>	<ul style="list-style-type: none"> 12 mm (15/32") wood subfloor 203 mm (8") 1.1 mm (18 gauge) steel joist, 610 mm (24") o.c. 2 layers 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panel 19.1 mm (3/4") LEVELROCK Floor Underlayment optional SRM-25 or SRB sound mat CGC DGL Drywall Suspension System 	ULC Des M511 or UL Des L524				SA305	B-38
<p>clg. wt. 3 268 mm (10 1/2")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 203 mm (8") 1.1 mm (18 gauge) steel joists 403 mm (16") or 610 mm (24") o.c. 38 mm (1-1/2") concrete floor on corrugated steel deck Insulation and Resilient Channels Optional joints finished 	ULC Des I523	45		KAL-443536 Based on Resilient channel 610 mm (24") o.c.		B-39
			70		KAL-443535 Based on carpet and pad		
1-1/2 Hour Fire-rated Construction							
<p>clg. wt. 5 302 mm (11 1/8")</p>	<ul style="list-style-type: none"> 2 layers 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 19 mm (3/4") T&G plywood floor 238 mm (9-3/8") 1.4 mm (16 gauge) steel joists 610 mm (24") o.c. Resilient channel joints finished 	UL Des L527	48		USG-771101		B-40
			51		SA-781110 Based on carpet and pad		

B

Floor/Ceilings

Steel Framed



1 Hour Fire-rated Construction		Steel Truss (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance			Reference	
Construction Detail	Description	Test Number	STC	IIC	Test Number	ARL	Index
clg. wt. 3 	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – Resilient channels – joints finished – steel trusses – insulation optional in concealed space directly over gypsum ceiling membrane – concrete floor over riblath or corrugated steel deck 	UL Des G540, G542, G543, G544					B-41
clg. wt. 3 	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – Resilient channels – joints finished – steel trusses – insulation optional in concealed space directly over gypsum ceiling membrane – plywood flooring or floor topping mixture over plywood subflooring 	UL Des L549, L551, L552, L553					B-42

B

Floor/Ceilings

Wood Framed



1 Hour Fire-rated Construction		Dimensional Lumber (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)			Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	IIC	Test Number	ARL	Index	
clg. wt. 3 	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, ceiling – 25 mm (1") nominal wood sub and finished floor – 2x10 wood joist 400 mm (16") o.c. – joints finished • optional LEVELROCK Floor Underlayment • optional SRM-25 or SRB sound mat • optional veneer plaster 	ULC Des M500 or UL Des L501	38	32	CK-6412-7 Based on 31 mm (1-1/4") nominal wood floor	SA305 SA920	B-43	
			39	56				CK-6412-8 Based on 31 mm (1-1/4") nominal wood floor, (44 oz) carpet and (40 oz) pad atop flooring
clg. wt. 3 	<ul style="list-style-type: none"> • 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels, ceiling – 25 mm (1") nominal wood sub and finished floor – 2x10 wood joist 400 mm (16") o.c. – joints finished • optional 19 mm (3/4") LEVELROCK Floor Underlayment • optional SRM-25 or SRB sound mat • optional veneer plaster 	ULC Des L512 or UL Des L512				SA305 SA920	B-44	
clg. wt. 3 	<ul style="list-style-type: none"> • 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – 25 mm (1") nominal wood sub and finished floor – 2x10 wood joist 400 mm (16") o.c. – Resilient channel spaced 610 mm (24") o.c. – joints finished • optional veneer plaster 	UL Des L514				SA920	B-45	
clg. wt. 3 	<ul style="list-style-type: none"> • 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – 31 mm (1-1/4") nominal wood sub and finished floor – (44 oz) carpet and (40 oz) pad atop flr – 2x10 wood joist 400 mm (16") o.c. – Resilient channel – joints finished 	UL Des L514	47	67	CK-6512-7 Based on 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels		B-46	
			48	66				CK-6412-9 Based on 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels
clg. wt. 3 321 mm (12 5/8") 	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – 42 mm (1-5/8") perlite-sand concrete – plywood subfloor – 2x10 wood joists 400 mm (16") o.c. – Resilient channel – joints finished • optional veneer plaster 	UL Des L516	59		USG 740704 Based 75 mm (3") mineral wool batt, 19 mm (3/4") gypsum concrete and 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels	SA920	B-47	
				47				USG 740703 Based on 75 mm (3") mineral wool bat, vinyl tile atop flooring
				65				USG 740705 Based on 75 mm (3") mineral wool batt, (44 oz.) carpet and (40 oz.) pad atop flooring

B

Floor/Ceilings

Wood Framed



1 Hour Fire-rated Construction		Dimensional Lumber (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>clg. wt. 3</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels, ceiling – 25 mm (1") nominal wood sub and finished floor – 2x10 wood joist 400 mm (16") o.c. • CGC DGL Drywall Suspension System – joints finished • optional LEVELROCK Floor Underlayment in lieu of second layer of plywood • optional SRM-25 or SRB sound mat 	UL Des L525			SC2000 SA305	B-48	
<p>514 mm (20 1/4")</p>	<ul style="list-style-type: none"> • 19 mm (3/4") FR-83 min acoustical tile • Concealed Accessible Grid System – light fixture and air duct optional – 25 mm (1") nominal wood sub or 12 mm (15/32") wood sub – 25 mm (1") nominal or 15 mm (19/32") finished floor or floor topping mixture – 2x10 wood joists 400 mm (16") o.c. 	UL Des L006			SC2000	B-49	
<p>575 mm (22 5/8") 543 mm (21 3/8")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") FR-81, FR-4 or M; 15.9 mm (5/8") or 19.1 mm (3/4") FR-83; or 19.1 mm (3/4") FR-X1 acoustical clearing panels • DXL, DXLZ, or SDXL Susp Exp Grid System – light fixture, air duct and speakers optional – 25 mm (1") nominal wood sub and finished floor – 2 x 10 wood joists 	UL Des L202			SC2000	B-50	
	<ul style="list-style-type: none"> • 19.1 mm (3/4") LEVELROCK Floor Underlayment • 15.9 mm (5/8") FR-83 or 19.1 mm (3/4") FR-X1 lay-in acoustical panels • DXL, DXLA, DXLZ, DXLZA, SDXL or SDXLA Susp Exp Grid System or 12.7 mm (1/2") FC-CB gypsum panels – 15 mm (19/32") T&G wood subfloor – 2x10 wood joist 400 mm (16") o.c. 	UL Des L206			SC2000 SA305	B-51	
<p>648 mm (25 1/2")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") FR-4 acoustical ceiling panels • DXL, DXLZ or SDXL Susp Exp Grid System – light fixture, air duct and speakers optional – 25 mm (1") nominal wood sub or 12 mm (15/32") wood sub – 25 mm (1") nominal or 15 mm (19/32") finished floor or floor topping mixture – 2x10 wood joists 400 mm (16") o.c. 	UL Des L212			SC2000	B-52	

B

Floor/Ceilings

Wood Framed



1 Hour Fire-rated Construction		Dimensional Lumber (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance			Reference	
Construction Detail	Description	Test Number	STC	IIC	Test Number	ARL	Index
<p>clg. wt. 3</p> <p>283 mm (11 1/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels <ul style="list-style-type: none"> – joints finished – damper optional 15 mm (19/32") T&G wood subfloor – 2x10 wood joist 400 mm (16") o.c. • optional SRM-25 sound mat • 19.1 mm (3/4") LEVELROCK Floor Underlayment 	UL Des L501				SA305	B-53
<p>clg. wt. 3</p> <p>295 mm (11 1/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels <ul style="list-style-type: none"> – (2x10") wood joist 400 mm (16") o.c. – Resilient channel space 610 mm (24") o.c. 15 mm (19/32") T&G wood subfloor perpendicular • optional SRM-25 or SRB sound mat • 19.1 mm (3/4") LEVELROCK Floor Underlayment 	UL Des L502, L514				SA305	B-54
<p>clg. wt. 3</p> <p>340 mm (13 3/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panel • 19.1 mm (3/4") LEVELROCK Floor Underlayment – 19 mm (3/4") plywood perpendicular – 241 mm (9-1/2") "1" wood joist spaced max 610 mm (24") o.c. – metal furring channel 610 mm (24") o.c. – 31 mm (1-1/4") insulation laid over channel below joist – joints finished 	UL Des L530				SA305	B-55
<p>clg. wt. 3</p> <p>327 mm (12 7/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panel joints finished – 229 mm (9") "1" wood joist 610 mm (24") o.c. – 0.55 mm (26 gauge) metal furring channel – Nom 25 mm (1") thick SAFB – 18 mm (23/32") T&G wood subfloor • optional SRM-25 or SRB sound mat • 19.1 mm (3/4") minimum LEVELROCK Floor Underlayment 	UL Des L531				SA305	B-56
<p>clg. wt. 4</p> <p>343 mm (13 1/2")</p>	<ul style="list-style-type: none"> 2 layers 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels – 25 mm (1") nominal wood sub and finished floor – 2x10 wood joist 400 mm (16") o.c. – Resilient channel – joints finished • optional veneer plaster 	UL Des L510			Assembly not recommended when sound control is a major consideration.	SA920	B-57

B

Floor/Ceilings

Wood Framed



2 Hour Fire-rated Construction		Dimensional Lumber (Refer to UL/CUL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance			Reference		
Construction Detail	Description	Test Number	STC	IIC	Test Number	ARL	Index	
<p>clg. wt. 5 349 mm (13 3/4")</p>	<ul style="list-style-type: none"> 2 layers 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 25 mm (1") nominal wood sub and finished floor 2x10 wood joist 400 mm (16") o.c. Resilient channel joints finished 	ULC Des L511 or UL Des L511			Assembly not recommended when sound control is a major consideration.		B-58	
<p>337 mm (13 1/4")</p>	<ul style="list-style-type: none"> 2 layers 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 200 x 200 mm (8" x 8") ceramic tile 12.7 mm (1/2") Durock Exterior Cement Board 25.4 mm (1") SHEETROCK Gypsum Liner Panels 13 mm (1/2") plywood 2x10 wood joist 400 mm (16") o.c. 75 mm (3") mineral wool batt Resilient channel 	UL Des L541		52	RAL-IN-89-5	SA934	B-59	
			58		RAL-TL-89-145 Based on vinyl tile over oriented board in place of ceramic tile and cement board			
				51				RAL-IN-89-7
				59				RAL-TL-89-146 Based on carpet/pad over oriented strand board in place of ceramic tile and cement board
				60				RAL-TL-89-141
<p>330 mm (13")</p>	<ul style="list-style-type: none"> 2 layers 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 2x10 wood joists 400 mm (16") o.c. 75 mm (3") mineral wool batt Resilient channel 	UL Des L541	59		RAL-TL-90-40		B-60	
				69				RAL-IN-90-5
				59				RAL-TL-90-40 Based on vinyl tile in place of carpet/pad
				37				RAL-IN-90-6
<p>330 mm (13")</p>	<ul style="list-style-type: none"> 2 layers 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panel optional SRM-25 or SRB sound mat 15 mm (19/32") wood subfloor 2x10 wood joist spaced 400 mm (16") o.c. 75 mm (3") SAFB Resilient channel 38 mm (1-1/2") LEVELROCK Floor Underlayment 	UL Des L541	66	59	RAL-020602 LEVELROCK, SRB and vinyl	SA305	B-61	
				67	52			RAL-020503 LEVELROCK and SRB – no flooring
				67	53			RAL-020701 LEVELROCK, SRB and ceramic tile
<p>311 mm (12 1/4")</p>	<ul style="list-style-type: none"> 2 layer 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 12 mm (15/32") T&G wood subfloor 2x10 wood joist Resilient channel joints finished optional 19.1 mm (3/4") LEVELROCK Floor Underlayment optional SRM-25 or SRB sound mat 	UL Des L511				SA305	B-62	

B

Floor/Ceilings

Wood Framed



3 Hour Fire-rated Construction		Dimensional Lumber (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance			Reference	
Construction Detail	Description	Test Number	STC	IIC	Test Number	ARL	Index
	<ul style="list-style-type: none"> 15.9 mm (5/8") FR-4; or 15.9 mm (5/8") or 19.1 mm (3/4") FR-83; or 19.1 mm (3/4") FR-X1 acoustic ceiling panels DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or ZXLA Susp Exp Grid System <ul style="list-style-type: none"> light fixture and air duct optional CGC DGL Drywall Suspension System 12.7 mm (1/2") SHEETROCK Gypsum Panels, FIRECODE C Core 25 mm (1") nominal wood subfloor 	UL Des L211				SC2000	B-63
1 Hour Fire-rated Construction		Engineered Joist (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)					
	<ul style="list-style-type: none"> 12.7 mm (1/2") or 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels, ceiling <ul style="list-style-type: none"> 19 mm (3/4") T&G plywood l-shaped wood joist 610 mm (24") o.c. metal furring channel 610 mm (24") o.c. 31 mm (1-1/4") 8 pcf insulation (UL Des 531) joints finished optional 19 mm (3/4") LEVELROCK Floor Underlayment optional SRM-25 or SRB sound mat 	<ul style="list-style-type: none"> UL Des L530 based on 241 mm (9-1/2") deep TJJ® joists UL Des L531 225 mm (9") deep WSI® joist 	47	40	RAL-TL-81-87 RAL-IN-81-16	SA305	B-64
	<ul style="list-style-type: none"> 2 layers 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels optional SRM-25 or SRB sound mat 15 mm (19/32") wood subfloor 241 mm (9-1/2") deep "l" shaped wood joist 610 mm (24") o.c. 356 mm (14") parallel chord wood truss 800 mm (32") o.c. Resilient channel 19 mm (3/4") LEVELROCK Floor Underlayment 	UL Des L570	64	58	RAL-OT03-05/06 25 mm (1") LEVELROCK, vinyl, SRM-25, 89 mm (3-1/2") insulation	SA305	B-65
			64	62	RAL-OT03-07/08 25 mm (1") LEVELROCK, engineered wood laminate, SRM-25, 89 mm (3-1/2") insulation		
			66	54	RAL-OT03-09/10 25 mm (1") LEVELROCK, ceramic tile, SRM-25, 89 mm (3-1/2") insulation		
			65	54	RAL-OT03-01/02 19 mm (3/4") LEVELROCK, vinyl, SRB, 89 mm (3-1/2") insulation		
			66	51	RAL-OT03-03/04 19 mm (3/4") LEVELROCK, ceramic tile, SRB, 89 mm (3-1/2") insulation		

B

Floor/Ceilings

Wood Framed



1 Hour Fire-rated Construction		Engineered Joist (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
<p>clg. wt. 5</p> <p>275 mm (11")</p>	<ul style="list-style-type: none"> • 2 layers 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels – 18 mm (23/32") T&G wood subfloor – 200 mm (8") I shaped wood joist – Resilient channel – joints finished • 19 mm (3/4") LEVELROCK Floor Underlayment 	UL Des L544			SA305	B-66
2 Hour Fire-rated Construction						
<p>clg. wt. 8</p> <p>318 mm (12 1/2")</p>	<ul style="list-style-type: none"> • base layer: 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – Resilient channel • Double face layer: 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – 241 mm (9-1/2") wood truss joists 610 mm (24") o.c. – joints finished – Floor: 16 mm (5/8") T&G plywood • optional 19 mm (3/4") LEVELROCK Floor Underlayment • optional veneer plaster 	UL Des L538			SA920	B-67
<p>clg. wt. 3</p> <p>Wood joists, steel C-joists, or engineered wood structural components</p> <p>78 mm (3 1/8")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 4 layers – steel furring channel between 3rd and 4th layers – Wood joists, steel C-joists or engineered wood structural components – 2 hour finish rating 	ULC Des M514				B-68
1 Hour Fire-rated Construction						
<p>clg. wt. 3</p> <p>371 mm (14 5/8")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK Gypsum Panels, FIRECODE C Core, ceiling – parallel chord wood truss, 610 mm (24") o.c. – 19 mm (3/4") plywood floor – Resilient channels – joints finished – optional ceiling damper • optional 19 mm (3/4") LEVELROCK Floor Underlayment • CGC DGL Drywall Suspension System – insulation optional – check UL Directory for proper placement over gypsum ceiling membrane or under plywood subflooring 	UL Des L521, L550, L563			SA305	B-69
<p>clg. wt. 5</p> <p>349 mm (13 3/4")</p>	<ul style="list-style-type: none"> • 2 layers 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels – joints finished – 18 mm (23/32") plywood – 300 mm (12") parallel chord wood floor truss, 610 mm (24") o.c. • optional veneer plaster 	UL Des L542			SA920	B-70

B

Floor/Ceilings

Wood Framed



1 Hour Fire-rated Construction		Truss (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>clg. wt. 3</p> <p>362 mm (14 1/2")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – wood truss, 610 mm (24") o.c. – 19 mm (3/4") plywood floor – metal furring channel 610 mm (24") o.c. – joints finished • optional veneer plaster <p><i>Resilient Channel may be used in place of metal furring channel</i></p>	UL Des L528			SA920	B-71	
<p>clg. wt. 3</p> <p>530 mm (20 7/8")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – wood truss, 610 mm (24") o.c. – 19 mm (3/4") plywood floor • CGC DGL Drywall Suspension System – joints finished • optional 19 mm (3/4") LEVELROCK Floor Underlayment • optional veneer plaster 	UL Des L529			SC2000 SA920	B-72	
<p>clg. wt. 3</p> <p>371 mm (14 5/8")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – 18 mm (23/32") T&G wood subfloor – parallel chord wood truss 610 mm (24") o.c. – Resilient channel 610 mm (24") o.c. • 19 mm (3/4") LEVELROCK Floor Underlayment 	UL Des L528			SA305	B-73	
<p>clg. wt. 3</p> <p>371 mm (14 5/8")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panel – 18 mm (23/32") T&G wood subfloor – 302 mm (11-7/8") parallel chord wood truss 610 mm (24") o.c. – Resilient channel – 89 mm (3-1/2") glass fibre insulation • 19 mm (3/4") LEVELROCK Floor Underlayment 	UL Des L555			SA305	B-74	

B

Floor/Ceilings

Structural Concrete



1-1/2 Hour Fire-rated Construction		(Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
<p>416 mm (16 1/2")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") FR-4, M or FR-81; 15.9 mm (5/8") or 19.1 mm (3/4") FR-83; or 19.1 mm (3/4") FR-X1 acoust ceiling panels or 12.7 mm (1/2") FC-CB gypsum lay-in tile DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or ZXL A Susp Exp Grid System light fixture and speakers optional 64 mm (2-1/2") concrete on fluted or cellular steel deck 	UL Des D209			SC2000	B-75
2 Hour Fire-rated Construction						
<p>clg. wt. 3</p> <p>241 mm (9 1/2")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels metal furring channel 610 mm (24") o.c. joints finished 50 mm (2") precast normal weight (J502) or lightweight (UL Des J503) concrete units with 150 mm (6") deep stems 1200 mm (48") o.c. CGC DGL Drywall Suspension System (UL Des J502) 	UL Des J502, J503			SA305	B-76
<p>216 mm (8 1/2")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") LEVELROCK Floor Underlayment optional SRM-25 or SRB sound mat 200 mm (8") minimum thick normal weight precast concrete units 	UL Des J991			SA305	B-77
<p>222 mm (8 3/4")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") LEVELROCK Floor Underlayment 200 mm (8") minimum thick light weight precast concrete units 	UL Des J994			SA305	B-78
<p>clg. wt. 3</p> <p>356 mm (14")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels metal furring channel 610 mm (24") o.c. joints finished joist leg 250 mm (10") deep 	GA-FC-2120			SA305	B-79
<p>619 mm (24 3/8")</p>	<ul style="list-style-type: none"> 19.1 mm (3/4") FR-83 acoust ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System light fixture and air duct optional 64 mm (2-1/2") concrete deck on fluted or cellular steel floor 	UL Des D215			SC2000	B-80

B

Floor/Ceilings

Structural Concrete



2 Hour Fire-rated Construction		(Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
	<ul style="list-style-type: none"> 25.4 mm (1") LEVELROCK Floor Underlayment 1200 mm (4') or 2400 mm (8') wide precast concrete units grout 2,460,743.5 kg/m² (3500 psi) optional SRM-25 or SRB sound mat floor topping thickness should be a minimum of 25 mm (1") if using sound mat 	UL Des J917			SA305	B-81
	<ul style="list-style-type: none"> 19.1 mm (3/4") LEVELROCK Floor Underlayment precast concrete units optional SRM-25 or SRB sound mat floor topping thickness should be a minimum of 25 mm (1") if using sound mat 	UL Des J919			SA305	B-82
	<ul style="list-style-type: none"> 19.1 mm (3/4") LEVELROCK Floor Underlayment precast concrete units 	UL Des J920			SA305	B-83
	<ul style="list-style-type: none"> 25.4 mm (1") LEVELROCK Floor Underlayment 200-250 mm (8-10") thick precast concrete units optional SRM-25 or SRB sound mat floor topping thickness should be a minimum of 25 mm (1") if using sound mat 	UL Des J924			SA305	B-84
	<ul style="list-style-type: none"> 19.1 mm (3/4") LEVELROCK Floor Underlayment 150 mm (6"), 200 mm (8"), 250 mm (10"), or 300 mm (12") thick precast concrete units optional SRM-25 or SRB sound mat floor topping thickness should be a minimum of 25 mm (1") if using sound mat 	UL Des J927			SA305	B-85
	<ul style="list-style-type: none"> 19.1 mm (3/4") LEVELROCK Floor Underlayment 200 mm (8"), 250 mm (10"), or 300 mm (12") thick precast concrete units optional SRM-25 or SRB sound mat floor topping thickness should be a minimum of 25 mm (1") if using sound mat 	UL Des J931			SA305	B-86
	<ul style="list-style-type: none"> 19.1 mm (3/4") LEVELROCK Floor Underlayment 200 mm (8"), 250 mm (10"), or 300 mm (12") thick precast concrete units optional SRM-25 or SRB sound mat floor topping thickness should be a minimum of 25 mm (1") if using sound mat 	UL Des J957			SA305	B-87
	<ul style="list-style-type: none"> 19.1 mm (3/4") LEVELROCK Floor Underlayment 200 mm (8") thick precast concrete units optional SRM-25 or SRB sound mat floor topping thickness should be a minimum of 25 mm (1") if using sound mat 	UL Des J966			SA305	B-88

B

Floor/Ceilings

Structural Concrete



2 Hour Fire-rated Construction		(Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
	<ul style="list-style-type: none"> 19.1 mm (3/4") LEVELROCK Floor Underlayment 150 mm (6"), 200 mm (8"), 250 mm (10"), or 300 mm (12") thick precast concrete units optional SRM-25 or SRB sound mat floor topping thickness should be a minimum of 25 mm (1") if using sound mat 	UL Des K906			SA305	B-89
3 Hour Fire-rated Construction						
<p>clg. wt. 3 260 mm (10 1/4")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels metal furring channel 610 mm (24") o.c. joints finished precast 70 mm (2-3/4") normal weight (J502) or 64 mm (2-1/2") lightweight (J504) concrete units with 150 mm (6") deep stems 1200 mm (48") o.c. 	UL Des J502, J504				B-90
<p>578 mm (22 3/4")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 acoustical ceiling panels DXLP (with Types PSS, PSSP, PSR & PSRP metal ceiling pans), DXL, DXLZ or SDXL Susp Exp Grid System light fixture and air duct optional 81 mm (3-1/4") concrete on 38 mm (1-1/2") steel roof deck 	UL Des D218			SC2000	B-91
<p>527 mm (20 3/4")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or FR-4 or 19.1 mm (3/4") FR-X1 acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System light fixture and air duct optional 81 mm (3-1/4") concrete on cellular and 89 mm (3-1/2") concrete on fluted steel floor units 	UL Des D219		DXLA, DXLZA or SDXLA Susp Exp Grid System may be used instead, but fire rating is limited to 2-hr.; DXLT or DXLTZ Susp Exp Grid System may be also used, but fire rating is limited to 1-1/2-hr.	SC2000	B-92
<p>559 mm (22")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") FR-81, FR-4 or M; 15.9 mm (5/8") or 19.1 mm (3/4") FR-83; or 19.1 mm (3/4") FR-X1 acoustical ceiling panels DXL, DXLA, DXLT, DXLTZ, DXLZ, SDXL or SDXLA Susp Exp Grid System 64 mm (2-1/2") concrete deck with 150 mm (6") deep pan beam 	UL Des J201		DXLTA or DXLTZA Susp Exp Grid System may be used instead, but fire rating is limited to 1-1/2 hr.	SC2000	B-93
<p>559 mm (22")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1, AP, AP-1, AP-2 or AP-3 acoustical ceiling panels DXL, DXLT, DXLTZ, DXLZ or SDXL Susp Exp Grid System light fixture and air duct optional 50 mm (2") prestressed concrete units with 150 mm (6") deep stems 	UL Des J202				B-94

C

Roof/Ceilings

Steel Framed



3/4 Hour Fire-rated Construction		Steel Bar Joist Framing (Refer to ULCAUL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>565 mm (22 1/4")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") M; 15.9 mm (5/8") or 19.1 mm (3/4") FR-83; or 19.1 mm (3/4") FR-X1 acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System <ul style="list-style-type: none"> light fixture and air duct optional 22 mm (7/8") steel roof deck and 25 mm (1") noncombustible insulation steel bar joist 	UL Des P203			SC2000	C-1	
1 Hour Fire-rated Construction							
<p>549 mm (21 1/2") 552 mm (21 3/4")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") M, 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1 acoustical ceiling panels DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or ZXLA, Susp Exp Grid System <ul style="list-style-type: none"> 38 mm (1-1/2") steel roof deck and 19 mm (3/4") noncombustible insulation steel bar joist 	UL Des P201			SC2000	C-2	
<p>559 mm (22") 562 mm (22 1/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") M, 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1 acoustical ceiling panels Susp Exp Grid System <ul style="list-style-type: none"> light fixture and air duct optional 22 mm (7/8") steel roof deck and 25 mm (1") noncombustible insulation steel bar joist 	UL Des P202			SC2000	C-3	
<p>660 mm (26") 610 mm (24") 521 mm (20 1/2")</p>	<ul style="list-style-type: none"> 19.1 mm (3/4") FR-83 acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System <ul style="list-style-type: none"> light fixture, air duct and speakers optional 38 mm (1-1/2") steel roof deck and 25 mm (1") noncombustible insulation alternate design 12.7 mm (1/2") DuROCK cement panel in place of gypsum panels steel bar joist 	UL Des P214			SC2000	C-4	
<p>597 mm (23 1/2")</p>	<ul style="list-style-type: none"> 19.1 mm (3/4") FR-83 or FR-X1 acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System <ul style="list-style-type: none"> light fixture, air duct and speakers optional 50 mm (2") laminated gypsum plank building units 42 mm (1-5/8") and 48 mm (1-7/8") noncombustible insulation (two layers) steel bar joists 	UL Des P228				C-5	

C

Roof/Ceilings

Steel Framed



1 Hour Fire-rated Construction		Steel Bar Joist Framing (Refer to ULCAUL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>508 mm (20")</p>	<ul style="list-style-type: none"> • 19.1 mm (3/4") FR-83 or FR-X1 acoustical ceiling panels • DXL, DXLZ or SDXL Susp Exp Grid Syst – light fixture, air duct and speakers optional – 25 to 200 mm (1" to 8") rigid foamed plastic insulation – 38 mm (1-1/2") poured gypsum roof deck – 13 mm (1/2") gypsum form board or 50 mm (2") laminated gypsum plank building units – steel bar joists 	UL Des P229				C-6	
<p>660 mm (26")</p> <p>610 mm (24")</p> <p>521 mm (20 1/2")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1 acoustical ceiling panels • DXL, DXLZ or SDXL Susp Exp Grid System – light fixture, air duct and speakers optional • 38 mm (1-1/2") steel roof deck and 12.7 mm (1/2") SHEETROCK Gypsum Panels and insulation – steel bar joists 	UL Des P235			SC2000	C-7	
<p>660 mm (26")</p> <p>610 mm (24")</p> <p>521 mm (20 1/2")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") FR-4 acoustical ceiling panels • DXL, DXLZ or SDXL Susp Exp Grid System – light fixture, air duct and speakers optional – 150 mm (6") insulation batts over ceiling – 25 mm (1") fluted steel roof deck and insulation – steel bar joists 	UL Des P238			SC2000	C-8	
<p>711 mm (28")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") FR-4 acoustical ceiling panels • DXL, DXLZ or SDXL Susp Exp Grid System – light fixture, air duct and speakers optional – 38 mm (1-1/2") poured gypsum roof deck over 13 mm (1/2") gypsum form board or 50 mm (2") laminated gypsum plank building units – steel bar joists 	UL Des P244				C-9	
<p>781 mm (30 3/4")</p>	<ul style="list-style-type: none"> • 15.9 mm (5/8") FR-4 acoust ceiling panels • DXL, DXLZ or SDXL Susp Exp Grid Syst – light fixture, air duct and speakers optional – 150 mm (6") insulation batts over ceiling – 19.1 mm (3/4") noncombustible insulation and 50 mm (2") metal-edge concrete plank – steel bar joists 	UL Des P245			SC2000	C-10	

C

Roof/Ceilings

Steel Framed



1 Hour Fire-rated Construction		Steel Bar Joist Framing (Refer to ULCAUL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
	<ul style="list-style-type: none"> 19.1 mm (3/4") FR-83 acoustical ceiling panels DXLF (with CM or CP metal ceiling panels) Susp Exp Grid System <ul style="list-style-type: none"> light fixture and air duct optional 150 mm (6") insulation batts over ceiling 38 mm (1-1/2") steel roof deck 15.9 mm (5/8") SHEETROCK Gypsum Panels and insulation steel bar joists 	UL Des P254			SC2000	C-11	
	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1 acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System <ul style="list-style-type: none"> light fixture, air duct and speakers optional 50 mm (2") vermiculite concrete and foamed plastic insulation corrugated steel roof deck over bar joist steel bar joists 	UL Des P246			SC2000	C-12	
	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1 acoustical ceiling panels DXL, DXLA, DXLZ, DXLZA, SDXL, ZXLA or SDXLA Susp Exp Grid System <ul style="list-style-type: none"> light fixture, air duct and speakers optional 50 mm (2") vermiculite concrete and foamed plastic insulation corrugated steel roof deck over bar joists steel bar joist 	UL Des P255			SC2000	C-13	
	<ul style="list-style-type: none"> 15.9 mm (5/8") M, 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or (3/4") FR-X1 acoustical ceiling panels DXL, DXLA, DXLP (with Types PAR, PARP, PAS, PASP, PSS, PSSP, PSR, and PSRP metal ceiling panels), DXLZ, DXLZA, SDXL, SDXLA or ZXLA Susp Exp Grid System <ul style="list-style-type: none"> light fixture and air duct optional 25 to 50 mm (1" to 2") noncombustible insulation (two layers) 22 mm (7/8") deep steel roof deck steel bar joists 	UL Des P267			SC2000	C-14	
1-1/2 Hour Fire-rated Construction							
	<ul style="list-style-type: none"> CGC DGL Drywall Suspension System 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels <ul style="list-style-type: none"> joints finished min 25 mm (1") roof insul and 15.9 mm (5/8") gypsum board on steel deck 1 hr. rating based on assembly with 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels steel bar joists optional veneer plaster 	UL Des P510			SA920	C-15	

C

Roof/Ceilings

Steel Framed



1-1/2 Hour Fire-rated Construction	Steel Bar Joist Framing (Refer to ULCAUL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
	<ul style="list-style-type: none"> 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1 acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System light fixture, air duct and speakers optional 38 mm (1-1/2") poured gypsum roof deck over 13 mm (1/2") gypsum form board or 50 mm (2") laminated gypsum plank building units steel bar joists 	UL Des P207				C-16
	<ul style="list-style-type: none"> 15.9 mm (5/8") FR-4; 15.9 mm (5/8") or 19.1 mm (3/4") FR-83; or 19.1 mm (3/4") FR-X1, AP, AP-3, Astro-FR (1 hr. rating) acoustical ceiling panels DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA, ZXLA, DXLT, DXLTZ or DXLP (with Types PAR, PARP, PAS, PASP, PSR, PSRP, PSS and PSSP metal ceiling panels) CGC DGL Drywall Suspension System light fixture, air duct and speakers optional 38 mm (1-1/2") steel roof deck and 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels alternate design 12.7 mm (1/2") DUROCK cement board in place of gypsum panels (1 hr. rating) steel bar joists 	ULC Des R223 or UL Des P230		DXLT or DXLTZ Susp Exp Grid System may be used, but fire rating is limited to 1 hr.	SC2000	C-17
2 Hour Fire-rated Construction						
	<ul style="list-style-type: none"> 19.1 mm (3/4") FR-83 or FR-X1 acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System light fixt, air duct and speakers optional 50 mm (2") precast concrete units and 19 mm (3/4") noncombustible insulation steel bar joists 	UL Des P213			SC2000	C-18
3 Hour Fire-rated Construction						
	<ul style="list-style-type: none"> 15.9 mm (5/8") FR-4 or FR-83 or 19.1 mm (3/4") FR-83 or FR-X1 acoustical ceiling panels DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or ZXLA Susp Exp Grid System light fixture, air duct and speakers optional insulation ceiling membrane below joists CGC DGL Drywall Suspension System 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 150 mm (6") glass fibre insulation installed on top of drywall suspension system joists finished 25 to 75 mm (1" to 3") roof insulation 25 mm (1") deep steel roof deck 200 mm (8") deep steel bar joists optional veneer plaster system 	UL Des P237			SC2000	C-19

C Roof/Ceilings

Steel Framed



3 Hour Fire-rated Construction		Steel Bar Joist Framing (Refer to ULCAUL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
<p>965 mm (38")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") FR-4; 15.9 mm (5/8") or 19.1 mm (3/4") FR-83; or 19.1 mm (3/4") FR-X1 acoust ceiling panels DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or ZXLA Susp Exp Grid System light fixture, air duct and speakers optional insulation ceiling membrane below joists 50 mm (2") insulating concrete on 14 mm (9/16") corrugated steel deck steel bar joists 	UL Des P241			SC2000	C-20	
<p>940 mm (37")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") FR-4 or FR-83; or 19.1 mm (3/4") FR-83 or FR-X1 acoustical ceiling panels DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or ZXLA Susp Exp Grid System light fixture, air duct and speakers optional insulation ceiling membrane below joists CGC DGL Drywall Suspension System 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 150 mm (6") glass fibre insulation installed on top of drywall suspension system joints finished 38 mm (1-1/2") poured gypsum over 13 mm (1/2") gypsum form board steel bar joists 	UL Des P239			SC2000	C-21	
<p>610 mm (24")</p>	<ul style="list-style-type: none"> 19.1 mm (3/4") FR-83 acoustical ceiling panels DXL, DXLZ or SDXL Susp Exp Grid System light fixture, air duct and speakers optional 42 mm (1-5/8") and 48 mm (1-7/8") noncombustible insulation (two layers) 50 mm (2") poured gypsum roof deck or 50 mm (2") laminated gypsum plank building units 13 mm (1/2") gypsum form board steel bar joists 	UL Des P242			SC2000	C-22	
1 Hour Fire-rated Construction		Steel Truss					
<p>clg. wt. 5</p>	<ul style="list-style-type: none"> 2 layers 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, metal furring channel Resilient channels joints finished roof covering and minimum 13 mm (1") with no limitation on overall thickness of roof insulation over steel roof deck CGC DGL Drywall Suspension System minimum 302 mm (11-7/8") deep steel roof truss 1200 mm (48") o.c. 	UL Des P515				C-23	

C

Roof/Ceilings

Steel Framed



1 Hour Fire-rated Construction	Steel Truss (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Acoustical Performance		Reference		
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
clg. wt. 3 	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – Resilient channels – joints finished – insulation optional in concealed space directly over gypsum ceiling membrane – roof covering and roof insulation – steel roof deck – minimum 302 mm (11-7/8") deep steel roof truss 1200 mm (48") o.c. 	UL Des P524				C-24
clg. wt. 3 	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – Resilient channels – joints finished – steel roof deck – steel truss 1200 mm (48") o.c. • roof covering and roof insulation over 13 mm (1/2") DUROCK Cement Board or 12.7 mm (1/2") SHEETROCK Gypsum Panels 	UL Des P521, P525, P527, P529				C-25
clg. wt. 3 	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – Resilient channels – joints finished – insulation optional in concealed space directly over gypsum ceiling membrane – 18 mm (23/32") thick plywood decking – steel truss 1200 mm (48") o.c. 	UL Des P523, P526, P528, P530				C-26
clg. wt. 3 	<ul style="list-style-type: none"> • 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels – 13 mm (1/2") plywood sheathing – pitched or parallel chord wood trusses, 610 mm (24") o.c. – air duct – ceiling damper – optional insulation – Resilient channel, 400 mm (16") o.c. – without insulation, 300 mm (12") o.c. with insulation • optional CGC DGL Drywall Suspension System – joints finished 	UL Des P522				C-27

C

Roof/Ceilings

Steel Framed



1 Hour Fire-rated Construction		Steel Roof Deck (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index	
	<ul style="list-style-type: none"> • 15.9 mm (5/8") or 19.1 mm (3/4") FR-83 or 19.1 mm (3/4") FR-X1 acoustical ceiling panels • DXL, DXLA, DXLZ, DXLZA, SDXL, ZXLA or SDXLA Susp Exp Grid System – light fixture and air duct optional – 62 mm (2-7/16") noncombustible insulation (two layers) • 13 mm (1/2") gypsum sheathing – 14 mm (9/16") deep steel roof deck – 184 mm (7-1/4") deep steel "C" joists 	UL Des P257			SC2000	C-28	
1-1/2 Hour Fire-rated Construction							
	<ul style="list-style-type: none"> – suspended 3.4# diamond mesh metal lath • 19 mm (3/4") 100:2-100:3 gypsum-sand plaster – rib type steel roof deck – 25 mm (1") wood-fibre insulation 	NBS-57			SA920	C-29	
	<ul style="list-style-type: none"> – suspended 3.4# diamond mesh metal lath • 25 mm (1") 100:2 gypsum-sand plaster – rib type steel roof deck – 38 mm (1-1/2") wood-fibre insulation 	NBS-58			SA920	C-30	
3 Hour Fire-rated Construction							
	<ul style="list-style-type: none"> • 15.9 mm (5/8") FR-4; or 19.1 mm (3/4") FR-83 or FR-81 acoustical ceiling panels • DXL, DXLA, DXLZ, DXLZA, SDXL, SDXLA or ZXLA Susp Exp Grid System – light fixture and air duct optional – 150 mm (6") glass fibre insulation – steel roof deck – 100 mm (4") glass fibre insulation – 200 mm (8") deep Z purlins 	UL Des P268			SC2000	C-31	
	<ul style="list-style-type: none"> • 15.9 mm (5/8") FR-4 or FR-83; or 19.1 mm (3/4") FR-83 acoustical ceiling panels • DXL, DXLZ, or SDXL Susp Exp Grid System – light fixture and air duct optional – 57 mm (2-1/4") insulating concrete – 25 mm (1") foamed plastic insulation – steel roof deck 	UL Des P269			SC2000	C-32	

D

Horizontal Membrane

Steel Framed



2 Hour Fire-rated Construction	Non-loadbearing		Acoustical Performance		Reference	
Construction Detail	Description	Test Number	STC	Test Number	ARL	Index
	<ul style="list-style-type: none"> - horizontal membrane or metal duct enclosure • 25.4 mm (1") SHEETROCK Liner Panels • 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels • CGC Steel C-H stud spanning horizontally 610 mm (24") o.c. - joints finished 	OBMEC #89-1-118			SA926	D-1

E

Structural Fireproofing

Column



1-3 Hour Fire-rated Construction		Reference																																																															
Construction Detail	Description	ARL	Index																																																														
<p>Varies</p> <p>W10X49 1 hour 2 hour</p>	<p>One to four layers 12.7 mm (1/2") SHEETROCK FIRECODE C and/or 15.9 mm (5/8") SHEETROCK FIRECODE or 19.1 (3/4") SHEETROCK ULTRACODE CORE Panels around column to attain total thickness necessary for applicable fire rating, column shape and size (see table below). 41 mm (1-5/8") steel studs at column corners. Steel angle corner supports and tie wire used for 3 and 4 layer construction—1 to 3 hours UL Des X528</p>		E-1																																																														
	<table border="1"> <thead> <tr> <th>Column shape and minimum size</th> <th>Fire rating</th> <th>Total thickness of panel layers</th> <th>Gypsum panel layers (see note)</th> <th>Corner details</th> </tr> </thead> <tbody> <tr> <td rowspan="3">W4X13</td> <td>1 hour</td> <td>25.4 mm (1")</td> <td>2 layer 12.7 mm (1/2")</td> <td>B</td> </tr> <tr> <td>2 hour</td> <td>38.1 mm (1-1/2")</td> <td>3 layer 12.7 mm (1/2") or 2 layers 19.1 mm (3/4")</td> <td>C</td> </tr> <tr> <td>3 hour</td> <td>57.2 mm (2-1/4")</td> <td>2 layer 12.7 mm (1/2") + 2 layer 15.9 mm (5/8") or 3 layers 19.1 mm (3/4")</td> <td>B D C</td> </tr> <tr> <td rowspan="3">W6X15.5</td> <td>1 hour</td> <td>25.4 mm (1")</td> <td>2 layer 12.7 mm (1/2")</td> <td>B</td> </tr> <tr> <td>2 hour</td> <td>38.1 mm (1-1/2")</td> <td>3 layer 12.7 mm (1/2") or 2 layers 19.1 mm (3/4")</td> <td>C</td> </tr> <tr> <td>3 hour</td> <td>57.2 mm (2-1/4")</td> <td>2 layer 12.7 mm (1/2") + 2 layer 15.9 mm (5/8") or 3 layers 19.1 mm (3/4")</td> <td>B D C</td> </tr> <tr> <td rowspan="3">W10X49</td> <td>1 hour</td> <td>12.7 mm (1/2")</td> <td>1 layer 12.7 mm (1/2")</td> <td>A</td> </tr> <tr> <td>2 hour</td> <td>28.6 mm (1-1/8")</td> <td>1 layer 12.7 mm (1/2") + 1 layer 15.9 mm (5/8") or 2 layers 19.1 mm (3/4")</td> <td>B</td> </tr> <tr> <td>3 hour</td> <td>47.6 mm (1-7/8")</td> <td>3 layer 15.9 mm (5/8") or 3 layers 19.1 mm (3/4")</td> <td>B C C</td> </tr> <tr> <td rowspan="3">Tube 4x4x0.188</td> <td>1 hour</td> <td>25.4 mm (1")</td> <td>2 layer 12.7 mm (1/2")</td> <td>B</td> </tr> <tr> <td>2 hour</td> <td>41.3 mm (1-5/8")</td> <td>2 layer 12.7 mm (1/2") + 1 layer 15.9 mm (5/8")</td> <td>C</td> </tr> <tr> <td>3 hour</td> <td>63.5 mm (2-1/2")</td> <td>4 layer 15.9 mm (5/8")</td> <td>D</td> </tr> <tr> <td>Tube 8X8X0.250</td> <td>1 hour</td> <td>15.9 mm (5/8")</td> <td>1 layer 15.9 mm (5/8")</td> <td>A</td> </tr> </tbody> </table>	Column shape and minimum size	Fire rating	Total thickness of panel layers	Gypsum panel layers (see note)	Corner details	W4X13	1 hour	25.4 mm (1")	2 layer 12.7 mm (1/2")	B	2 hour	38.1 mm (1-1/2")	3 layer 12.7 mm (1/2") or 2 layers 19.1 mm (3/4")	C	3 hour	57.2 mm (2-1/4")	2 layer 12.7 mm (1/2") + 2 layer 15.9 mm (5/8") or 3 layers 19.1 mm (3/4")	B D C	W6X15.5	1 hour	25.4 mm (1")	2 layer 12.7 mm (1/2")	B	2 hour	38.1 mm (1-1/2")	3 layer 12.7 mm (1/2") or 2 layers 19.1 mm (3/4")	C	3 hour	57.2 mm (2-1/4")	2 layer 12.7 mm (1/2") + 2 layer 15.9 mm (5/8") or 3 layers 19.1 mm (3/4")	B D C	W10X49	1 hour	12.7 mm (1/2")	1 layer 12.7 mm (1/2")	A	2 hour	28.6 mm (1-1/8")	1 layer 12.7 mm (1/2") + 1 layer 15.9 mm (5/8") or 2 layers 19.1 mm (3/4")	B	3 hour	47.6 mm (1-7/8")	3 layer 15.9 mm (5/8") or 3 layers 19.1 mm (3/4")	B C C	Tube 4x4x0.188	1 hour	25.4 mm (1")	2 layer 12.7 mm (1/2")	B	2 hour	41.3 mm (1-5/8")	2 layer 12.7 mm (1/2") + 1 layer 15.9 mm (5/8")	C	3 hour	63.5 mm (2-1/2")	4 layer 15.9 mm (5/8")	D	Tube 8X8X0.250	1 hour	15.9 mm (5/8")	1 layer 15.9 mm (5/8")	A		
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<p>NOTE (1) 12.7 mm (1/2") thick panels are SHEETROCK FIRECODE C 15.9 mm (5/8") thick panels are SHEETROCK FIRECODE 19.1 mm (3/4") thick panels are SHEETROCK ULTRACODE CORE board</p>																																																																	

E

Structural Fireproofing

Column



2 Hour Fire-rated Construction				Reference	
Construction Detail	Description	Test Number	Comments	ARL	Index
	<ul style="list-style-type: none"> 19.1 mm (3/4") SHEETROCK ULTRACODE Core Gypsum Panels 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs at corners joints finished 	UL Des X528	Structural member tested: W4x13 W6x15.5 W10x49		E-2
	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs at column corners joints finished optional veneer plaster 	ULC/UL Des X521	Structural member tested: W14 x 228	SA920	E-3
	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels double layer over each flange end 42 mm (1-5/8") 0.5 mm (25 gauge) steel stud joints finished optional veneer plaster 	ULC/UL Des X518	Structural member tested: W10 x 49	SA920	E-4
	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs joints finished optional veneer plaster 	UL Des X524	Varies Rating also applies to tapered or constant-section prefabricated metal building columns	SA920	E-5
	<ul style="list-style-type: none"> 3.4# self-furring diamond mesh metal lath wrapped around column 25 mm (1") 100:2-100:3 gypsum-perlite plaster or STRUCTO-LITE® Plaster perlite aggregate bearing UL Label 	UL Des X402	Structural member tested: W10 x 49	SA920	E-6

E

Structural Fireproofing

Column



3 Hour Fire-rated Construction				Reference	
Construction Detail	Description	Test Number	Comments	ARL	Index
	<ul style="list-style-type: none"> 19.1 mm (3/4") SHEETROCK ULTRACORE Core Gypsum Panels second layer wrapped with no. 18 SWG steel wire spaced 610 mm (24") o.c. – joints finished 	UL Des X528	Structural member tested: W4 x 13 W6 x 15.5 W10 x 49		E-7
	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels – 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs at col corners – joints finished • optional veneer plaster 	UL Des X514	Structural member tested: W14 x 228	SA920	E-8
	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels – 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs – joints finished • optional veneer plaster 	UL Des X515	Structural member tested: W10 x 49	SA920	E-9
	<ul style="list-style-type: none"> – 3.4# self-furring diamond mesh metal lath wrapped around column • 35 mm (1-3/8") 100:2-100:3 gypsum-perlite plaster or RED TOP Gypsum Plaster 	UL Des X402	Structural member tested: W10x49	SA920	E-10
4 Hour Fire-rated Construction					
	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels – 42 mm (1-5/8") 0.5 mm (25 gauge) steel studs – metal corner beads – joints finished 	UL Des X507	Structural member tested: W14 x 228		E-11
	<ul style="list-style-type: none"> – 3.4# diamond mesh metal furred 13 mm (1/2") from face of column • 48 mm (1-7/8") STRUCTO-LITE Plaster – perlite aggregate bearing UL Label 	UL Des X405	Structural member tested: W10x49	SA920	E-12
	<ul style="list-style-type: none"> – 3.4# self-furring diamond mesh metal lath • 44 mm (1-3/4") STRUCTO-LITE Plaster or 100:2-100:3 gypsum-perlite plaster – perlite aggregate bearing UL Label 	UL Des X402	Structural member tested: W10x49	SA920	E-13

E

Structural Fireproofing

Beam



2 Hour Fire-rated Construction		Reference			
Construction Detail	Description	Test Number	Comments	ARL	Index
	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels 42 mm (1-5/8") steel run channel brackets 610 mm (24") o.c. 35 x 22 mm (1-3/8" x 7/8") corner angles attached to channel brackets joints finished 64 mm (2-1/2") concrete deck on fluted steel floor optional veneer plaster 	ULC Des 0503 or 0504 or UL Des N501 or N502	Structural member tested: W8 x 24 (beam only)	SA920	E-14
3 Hour Fire-rated Construction					
	<ul style="list-style-type: none"> 42 mm (1-5/8") steel run channel brackets 610 mm (24") o.c. 22 x 35 mm (7/8" x 1-3/8") corner angles attached to brackets 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels 25 mm (1") 0.8 mm (20 gauge) hex mesh on bottom over middle layer joints finished 64 mm (2-1/2") concrete deck on fluted steel floor 	UL Des N505	Structural member tested: W8 x 24 (beam only) Fire rating for restrained assembly; 2 hr rating for unrestrained assembly	SA920	E-15
	<ul style="list-style-type: none"> 42 mm (1-5/8") steel run channel brackets 610 mm (24") o.c. 3 x 35 mm (1/8" x 1-3/8") corner angles attached to channel brackets 15.9 mm (5/8") GRAND PRIX FIRECODE Core Gypsum Base 25 mm (1") 0.8 mm (20 gauge) hex mesh on bottom over middle layer metal beads on corners joints taped 1.5 mm (1/16") veneer plaster finish 64 mm (2-1/2") concrete deck on fluted steel floor 	UL Des N505	Structural member tested: W8 x 24 (beam only)		E-16
4 Hour Fire-rated Construction					
	<ul style="list-style-type: none"> 3.4# self-furring diamond mesh metal lath enclosing beam 38 mm (1-1/2") 100:2 gypsum-perlite plaster 	UL Des D403	Structural member tested: W12 x 58 Suitable for protection of beams and girders	SA920	E-17

F

Exterior Walls

Steel Framed



1 Hour Fire-rated Construction		Non-loadbearing	Reference		
Construction Detail	Description	Test Number	Comments	ARL	Index
<p>wt. 6 121 mm (4 7/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Sheathing or FIBEROCK AQUA-TOUGH Exterior Sheathing, exterior side 89 mm (3-1/2") 0.8 mm (20 gauge) structural studs 610 mm (24") o.c. 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, interior side 	<p>ULC Des W453 or UL Des U419</p>	<p>Rating also applies with SHEETROCK Water-Resistant FIRECODE Core Gypsum Panels, exterior</p>	<p>SA700</p>	<p>F-1</p>
<p>wt. 14 130 mm (5 1/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board and 6 mm (1/4") ceramic tile exterior side 92 mm (3-5/8") 0.8 mm (20 gauge) studs 400 mm (16") o.c. 75 mm (3") SAFB 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or FIBEROCK AQUA-TOUGH Interior Panels optional veneer plaster 	<p>UL Des U442</p>		<p>SA700</p>	<p>F-2</p>
<p>wt. 7 121 mm (4 7/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board exterior side 92 mm (3-5/8") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. 75 mm (3") SAFB 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels, interior side 	<p>UL Des U457</p>		<p>SA700</p>	<p>F-3</p>
<p>wt. 7 124 mm (4 7/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board 42 mm (1-5/8") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. 38 mm (1-1/2") SAFB 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels 	<p>UL Des U458</p>		<p>SA700</p>	<p>F-4</p>
<p>wt. 6, wt. 5 124 mm (4 7/8") 73 mm (2 7/8")</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Sheathing or FIBEROCK AQUA-TOUGH Sheathing, exterior side 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, interior 92 mm (3-5/8") steel studs 610 mm (24") o.c. 	<p>ULC Des W453 or UL Des U419 or U465</p>		<p>SA700</p>	<p>F-5</p>
2 Hour Fire-rated Construction					
<p>wt. 11 143 mm (5 5/8")</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board base layer 12.7 mm (1/2") SHEETROCK Water-Resistant FIRECODE C Core Gypsum Panels, both sides 92 mm (3-5/8") 0.8 mm (20 gauge) minimum steel studs 400 mm (16") o.c. 75 mm (3") SAFB alternate design, double-layer 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels, interior 	<p>UL Des U474</p>		<p>SA700</p>	<p>F-6</p>

F

Exterior Walls

Steel Framed



2 Hour Fire-rated Construction		Non-loadbearing		Reference	
Construction Detail	Description	Test Number	Comments	ARL	Index
<p>wt. 12</p>	<ul style="list-style-type: none"> • layer 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Sheathing or 15.9 mm (5/8") FIBEROCK AQUA-TOUGH Sheathing, exterior side • 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, interior side – 64 mm (2-1/2") studs 610 mm (24") o.c – joints stag and finished or unfinished 	<p>ULC Des W453 or UL Des U411 or U419</p>		SA700	F-7
<p>wt. 11</p>	<ul style="list-style-type: none"> • 12.7 mm (1/2") or 15.9 mm (5/8") DUROCK Cement Board – 89 mm (3-1/2") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. – 75 mm (3") SAFB – joints treated • 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, other side 	<p>UL Des U404</p>		SA700	F-8
45 Minute Fire-rated Construction		Loadbearing (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)			
<p>wt. 5</p>	<ul style="list-style-type: none"> • 12.7 mm (1/2") SHEETROCK FIRECODE Core Gypsum Sheathing – 89 mm (3-1/2") 0.8 mm (20 gauge) structural steel studs 610 mm (24") o.c. • 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels, interior side <i>load-bearing up to 100% allowable stud axial load</i> 	<p>UL Des U423 or U425</p>		SA700	F-9
1 Hour Fire-rated Construction		Loadbearing (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)			
<p>wt. 7 psf</p>	<ul style="list-style-type: none"> • 12.7 mm (1/2") DUROCK Cement Board – 89 mm (3-1/2") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. – 75 mm (3") SAFB • 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or FIBEROCK AQUA-TOUGH Exterior Sheathing, other side 	<p>UL Des U404</p>		SA700	F-10

F

Exterior Walls

Steel Framed



1 Hour Fire-rated Construction		Loadbearing (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Reference		
Construction Detail	Description	Test Number	Comments	ARL	Index
	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board base layer 15.9 mm (5/8") SHEETROCK Water-Resistant FIRECODE Core Gypsum Panels 89 mm (3-1/2") 0.8 mm (20 gauge) steel load-bearing studs 400 mm (16") o.c. 75 mm (3") SAFB 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, interior side 	UL Des U473		SA700	F-11
1-1/2 Hour Fire-rated Construction					
	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board 12.7 mm (1/2") SHEETROCK Gypsum Sheathing or 15.9 mm (5/8") FIBEROCK AQUA-TOUGH Exterior Sheathing, exterior side 89 mm (3-1/2") 0.8 mm (20 gauge) steel structural studs 610 mm (24") o.c. 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, interior side 	UL Des U424 or U425	Rating applicable to fire exposure on interior face only	SA700	F-12
	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board base layer 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Sheathing or 15.9 mm (5/8") FIBEROCK AQUA-TOUGH Exterior Sheathing 2 x 4 wood studs 400 mm (16") o.c. 75 mm (3") SAFB joints finished 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, other side 	UL Des U308		SA700	F-13
	<ul style="list-style-type: none"> 12.7 mm (1/2") SHEETROCK FIRECODE Core Gypsum Sheathing or FIBEROCK AQUA-TOUGH Exterior Sheathing, exterior side 89 mm (3-1/2") 0.8 mm (20 gauge) structural studs 610 mm (24") o.c. 12.7 mm (1/2") SHEETROCK FIRECODE Core Gypsum Panels, interior side 	UL Des U423 or U425		SA700	F-14
2 Hour Fire-rated Construction					
	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board 89 mm (3-1/2") 0.8 mm (20 gauge) steel studs 400 mm (16") o.c. 75 mm (3") SAFB joints finished 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or FIBEROCK AQUA-TOUGH Exterior Sheathing, other side 	UL Des U404		SA700	F-15
	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Sheathing or FIBEROCK AQUA-TOUGH Sheathing, exterior side 89 mm (3-1/2") 0.8 mm (20 gauge) structural steel studs 610 mm (24") o.c. (5/8") SHEETROCK FIRECODE Core Gypsum Gypsum Panels, interior 	UL Des U423 or U425	Rating also applies with SHEETROCK FIRECODE Core Water-Resistant Gypsum Panels	SA700	F-16

F

Exterior Walls

Wood Framed



1 Hour Fire-rated Construction		Loadbearing (Refer to ULC/UL Design Directory listings for loading conditions. See page 6.)	Reference		
Construction Detail	Description	Test Number	Comments	ARL	Index
<p>wt. 9 psf</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board, interior side 12 mm (15/32") plywood 2 x 4 wood studs 400 mm (16") o.c. 75 mm (3") SAFB joints finished 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or FIBEROCK AQUA-TOUGH Exterior Sheathing, other side 	UL Des U303		SA700	F-17
	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE C Core Gypsum Panels, interior side 2x4 400 mm (16") wood studs o.c. 89 mm (3-1/2") SAFB 25 mm (1") extruded polystyrene insulating sheathing and 13 mm (1/2") plywood siding joints finished 	UL Des U330		SA700	F-18
<p>wt. 15</p>	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board and 6 mm (1/4") ceramic tile exterior 2 x 4 wood studs 400 mm (16") o.c. 89 mm (3-1/2") SAFB 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels optional veneer plaster 	UL Des U329		SA700	F-19
<p>wt. 7</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK Type X Exterior Sheathing or 15.9 mm (5/8") FIBEROCK AQUA-TOUGH Exterior Sheathing 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or SHEETROCK Water-Resistant FIRECODE Core Gypsum Panels, interior side 2x4 wood studs 400 mm (16") o.c. joints exposed or finished 	UL Des U305, U314		SA700	F-20
2 Hour Fire-rated Construction					
<p>wt. 12</p>	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK Type X exterior sheathing or FIBEROCK AQUA-TOUGH Exterior Sheathing on exterior side double layer 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Sheathing or SHEETROCK Water-Resistant FIRECODE Core Gypsum Panels on interior 2x4 wood stud 400 mm (16") o.c. 	UL Des U301		SA700	F-21
	<ul style="list-style-type: none"> 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels, interior side 2x4 wood stud 400 mm (16") o.c. 12.7 mm (1/2") FIBEROCK AQUA-TOUGH Exterior Sheathing or SHEETROCK Gypsum Sheathing joints finished 	UL Des U302		SA700	F-22
	<ul style="list-style-type: none"> 12.7 mm (1/2") DUROCK Cement Board base layer 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Sheathing 2 x 4 wood studs 400 mm (16") o.c. 75 mm (3") SAFB joints taped 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels 	UL Des U308		SA934 SA700	F-23

Screw Spacing and Location

Steel Stud Drywall Partitions



Hourly Rating	Test Number	Face Layer Screw			Base Layer Screw			
		Length	Type	Spacing and Location	Length	Type	Position	Spacing and Location
1 hour	U419	25 mm (1")	S	200 mm (8") o.c. on panel edges; 300 mm (12") o.c. in field of panel				
	U420	25 mm (1")	S	200 mm (8") o.c. on panel edges; 300 mm (12") o.c. in field of panel				
	U448	25 mm (1")	S	200 mm (8") o.c. on panel edges; 300 mm (12") o.c. in field of panel				
	U451	25 mm (1")	S	300 mm (12") o.c.				
2 hour	U411	42 mm (1-5/8")	S	400 mm (16") on edges and field; 300 mm (12") along runner	25 mm (1")	S		400 mm (16") o.c. on edges of panel; 400 mm (16") o.c. field of panel
	U412	42 mm (1-5/8")	S	300 mm (12") o.c.	25 mm (1")	S		610 mm (24") o.c. on edges of panel; 610 mm (24") o.c. field of panel
	U419	42 mm (1-5/8")	S	400 mm (16") o.c. on edges and field	25 mm (1")	S		400 mm (16") o.c. on edges and in field of panel
	U420	42 mm (1-5/8")	S	200 mm (8") o.c. on panel edges; 300 mm (12") in field of panel	25 mm (1")	S		200 mm (8") o.c. on panel edges; 300 mm (12") o.c. in field of panel
	U453	42 mm (1-5/8")	S	Channel side: 300 mm (12") o.c.	25 mm (1")	S		Channel side: 610 mm (24") o.c.
		25 mm (1")	S-12	Direct side: 300 mm (12") o.c.				
	U454	42 mm (1-5/8")	S	Channel side: 300 mm (12") o.c.	25 mm (1")	S		Channel side: 610 mm (24") o.c.
		42 mm (1-5/8")	S-12	Direct side: 300 mm (12") o.c.	25 mm (1")	S-12		Direct side: 610 mm (24") o.c.
U491	31 mm (1-1/4")	S	200 mm (8") o.c. on panel edges; 300 mm (12") o.c. in field of panel					
3 hour	U419	56 mm (2-1/4")	S	300 mm (12") o.c. on edge and field	25 mm (1")	S	1st layer	610 mm (24") o.c.
		38 mm (1-1/2")	G	Between studs at horizontal joint	42 mm (1-5/8")	S	2nd layer	610 mm (24") o.c.
	U435	56 mm (2-1/4")	S	300 mm (12") o.c.; 50 mm (2") from top and bottom of stud	25 mm (1")	S	1st layer	1200 mm (48") o.c.; 100 mm (4") from top and bottom of stud
		38 mm (1-1/2")	G	Between studs at horizontal joint	42 mm (1-5/8")	S	2nd layer	1200 mm (48") o.c.; 75 mm (3") from top and bottom of stud
	U455	42 mm (1-5/8")	S	Channel side: 300 mm (12") o.c.	25 mm (1")	S		Channel side: 610 mm (24") o.c.
		56 mm (2-1/4")	S-12	Direct side: 300 mm (12") o.c.	25 mm (1")	S-12	1st layer	Direct side: 610 mm (24") o.c.
				42 mm (1-5/8")	S-12	2nd layer	Direct side: 610 mm (24") o.c.	
4 hour	U419	67 mm (2-5/8")	S	300 mm (12") o.c. to studs	25 mm (1")	S	1st layer	610 mm (24") o.c.
		38 mm (1-1/2")	G	Between studs at horizontal joints	42 mm (1-5/8")	S	2nd layer	610 mm (24") o.c.
					56 mm (2-1/4")	S	3rd layer	610 mm (24") o.c.
	U435	67 mm (2-5/8")	S	300 mm (12") o.c.; 50 mm (2") from top and bottom of stud	25 mm (1")	S	1st layer	1200 mm (48") o.c.; 125 mm (5") from top and bottom of stud
		38 mm (1-1/2")	G	Between studs at horizontal joints	42 mm (1-5/8")	S	2nd layer	1200 mm (48") o.c.; 75 mm (3") from top and bottom of stud
					56 mm (2-1/4")		3rd layer	1200 mm (48") o.c.; 75 mm (3") from top and bottom of stud
	U490	56 mm (2-1/4")	S	300 mm (12") o.c. to studs	31 mm (1-1/4")	S		610 mm (24") o.c.
		38 mm (1-1/2")	G	Between studs at horizontal joints				

Good Design Practices

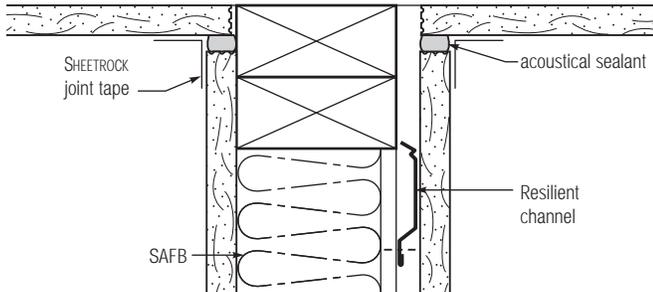
Use this section as a reference if questions arise.

1	Horizontal or Vertical Orientation	Two recent tests permit SHEETROCK Gypsum Panel products and GRAND PRIX Gypsum Base products to be applied horizontally or vertically in partitions without compromising the fire rating. These tests are ULC Design W453, or UL Design U419 for non-loadbearing partitions and UL Design U423 for loadbearing partitions. When either of these tests are listed with a CGC system, it means that the system can now be built with the panels oriented in either direction.
2	Staggering	The two fire tests indicated above also demonstrated that when FIRECODE or FIRECODE C Core products are used, the horizontal joints on opposite side of the studs need not be staggered (as was previously required).
3	DUROCK Substitution	In partitions indicating the use of 12.7 mm (1/2") DUROCK Cement Board, it is permissible to substitute 15.9 mm (5/8") DUROCK Cement Board without compromising the fire rating.
4	FIBEROCK or HUMITEK Substitution	In partitions or column protection indicating the use of 15.9 mm (5/8") SHEETROCK FIRECODE Core Gypsum Panels or 12.7 mm (1/2") SHEETROCK FIRECODE C Core Gypsum Panels, it is permissible to substitute 15.9 mm (5/8") FIBEROCK Abuse-Resistant Gypsum Interior Panels or 15.9 mm (5/8") SHEETROCK HUMITEK FIRECODE Core Gypsum Panels without compromising the fire rating.
5	Sheathing Substitution	Note that in partitions indicating the use of GYPLAP Exterior Sheathing or DUROCK Cement Board for sheathing applications, it is permissible to substitute 15.9 mm (5/8") FIBEROCK AQUA-TOUGH Sheathing without compromising the fire rating.
6	Thermal Insulation	Where thermal insulation is shown in assembly drawings, the specific product is required to achieve the stated fire rating. Glass fibre insulation cannot be substituted for mineral wool insulation. Consult the specific ULC or UL design in the directories.
7	Ceiling Runners	In fire-rated non-loadbearing partitions, steel studs should not be attached to ceiling runners.
8	Multilayer Applications	In multi-layer applications, only the joints of the face layer need be finished.
9	Perimeter Caulking	Use acoustical sealant to caulk perimeters for attenuation of sound. Proper use as perimeter caulking will not affect any intended fire-resistive ratings.
10	FIRECODE C Core Substitution	It is permissible to substitute 15.9 mm (5/8") FIRECODE Core panels for 12.7 mm (1/2") FIRECODE C Core panels. There is no permissible substitution for 15.9 mm (5/8") FIRECODE C Core panels.
11	Veneer Plaster	Whenever veneer plaster is specified, GRAND PRIX Gypsum Base should also be specified. Where a fire-resistive rating is required, use the appropriate GRAND PRIX Gypsum Base as tested.
12	More Information	For specific information regarding the assemblies shown in this folder, consult the current UL Fire Resistance Directory.

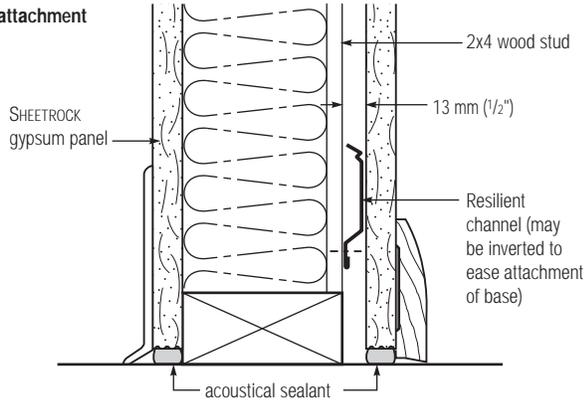
Design Details

Wood Framed

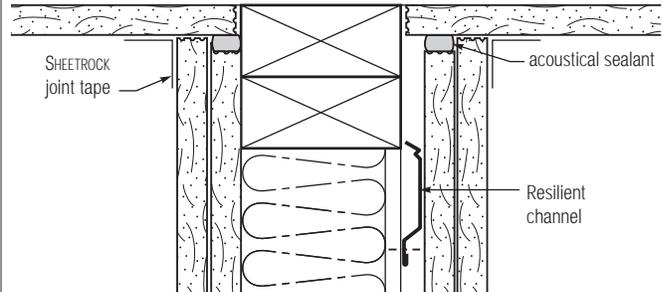
Ceiling attachment



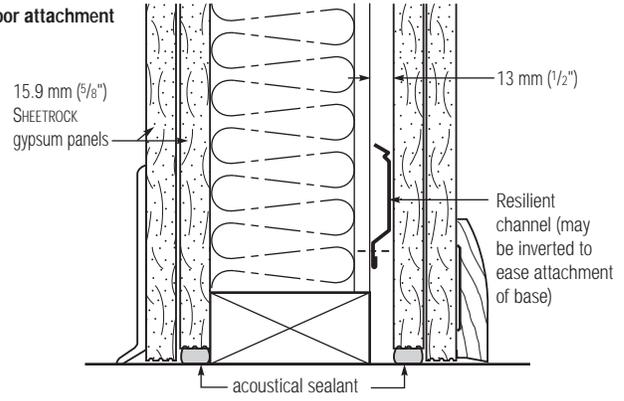
Floor attachment



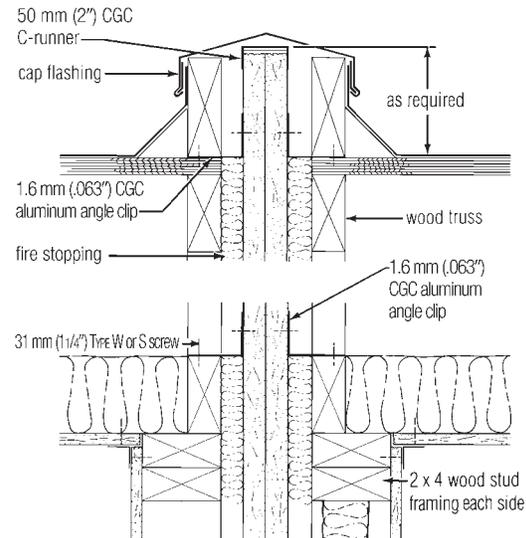
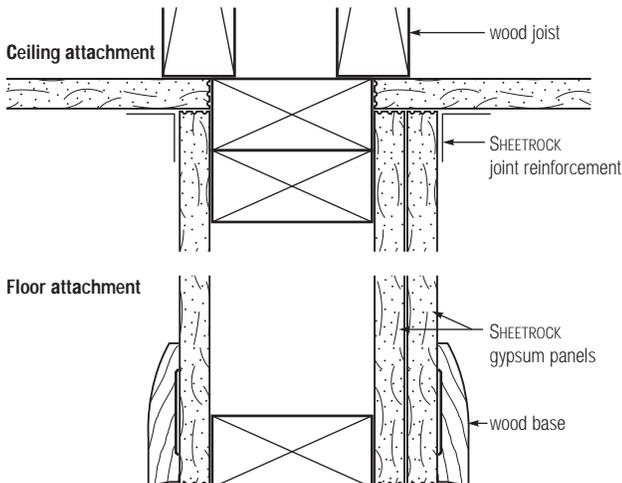
Ceiling attachment



Floor attachment

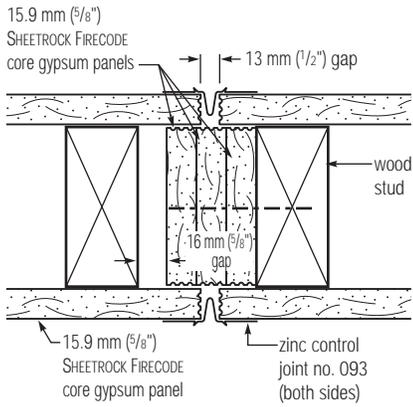


Typical firewall roof parapets (height as required by code)

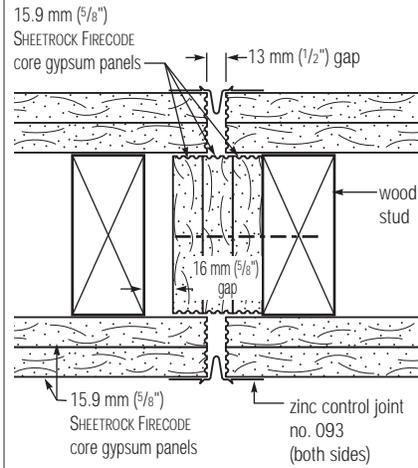


*check design capacity over 900 mm (3'-0")

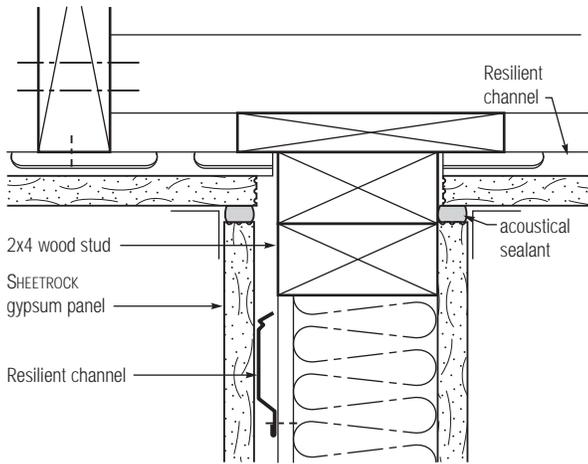
1 hr. fire resistive control joints (Estimated based on WH-651-0318.1)



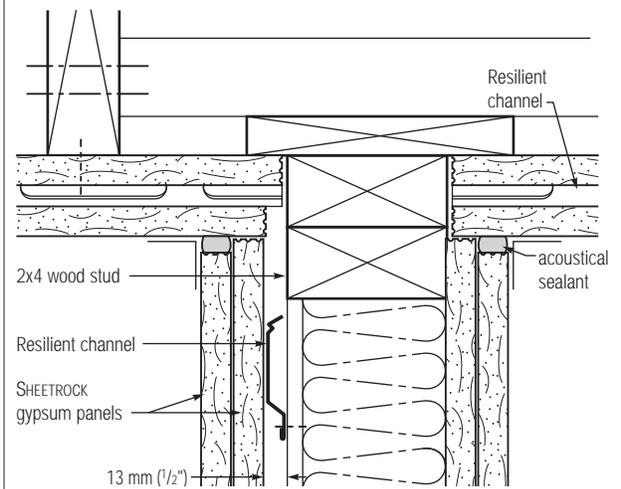
2 hr. fire resistive control joints (Estimated based on WH-651-0318.1)



Single-layer panels with Resilient channel



Double layer panels with Resilient channel

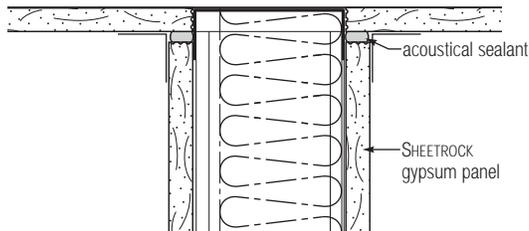


Design Details

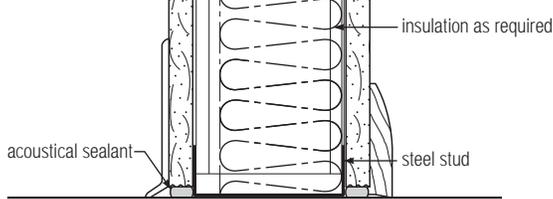
Steel Framed

Partition — Section

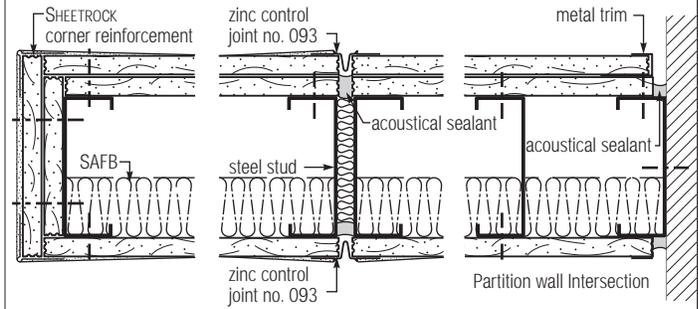
Ceiling attachment



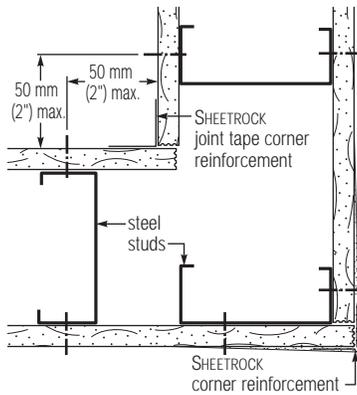
Floor attachment



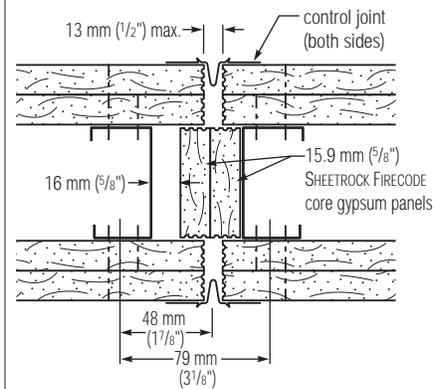
Control joints and partitions with perimeter relief



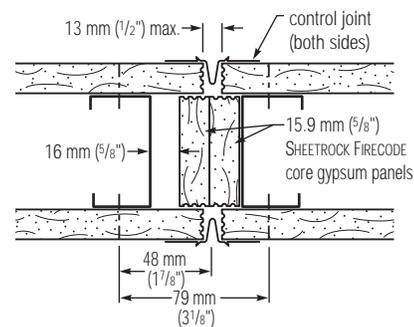
Partition — Corner



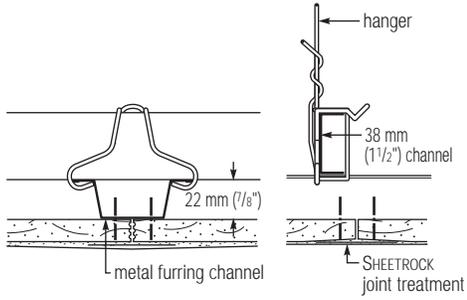
2 hr. steel stud partitions with control joints



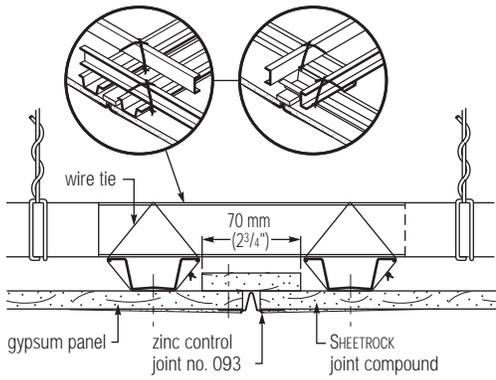
1 hr. steel stud partitions with control joints



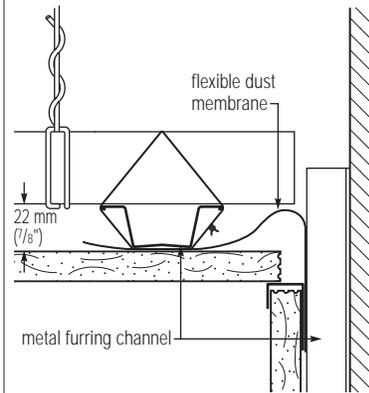
Ceilings — Grillage suspension



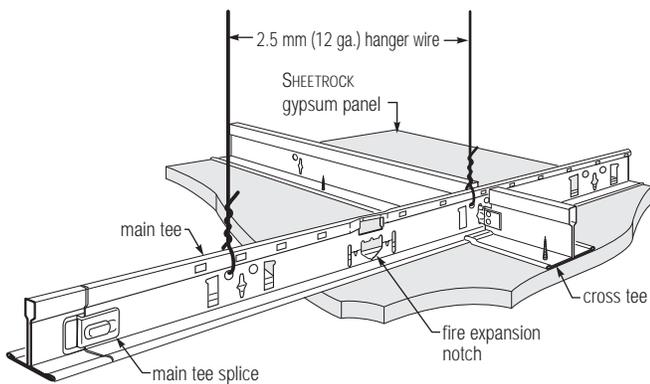
Ceiling control joint



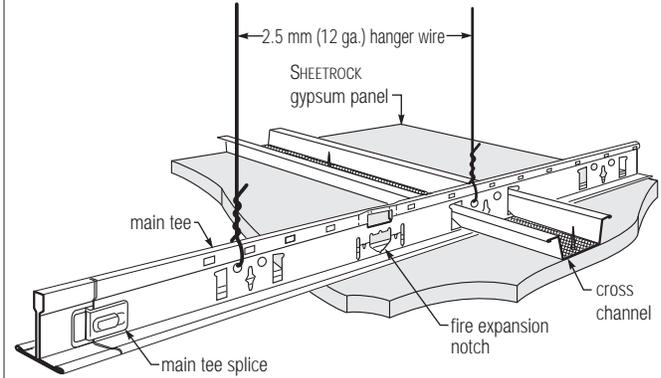
Ceilings — Wall intersection



CGC Drywall Suspension System with Cross Tee



CGC Drywall Suspension System with Cross Channel



Standards and Reports

Applicable ASTM Standards

	ASTM	Product/	ASTM	Product/
	Standard	Systems	Standard	Systems
These listings contain existing ASTM standards which apply to CGC Inc. materials. Upon request CGC Inc. will provide product certification that these products comply with the applicable ASTM standards and meet the performance values identified therein.	Gypsum Panels		Plaster and Lime	
	C1396/C36	SHEETROCK regular core	C28	RED TOP gypsum plaster
	C1396/C36	SHEETROCK FIRECODE Core	C28	RED TOP wood fibre plaster
	C1396/C36	SHEETROCK FIRECODE C Core	C28	STRUCTO-LITE plaster
	C1396/C36	SHEETROCK ULTRACODE Core	C28	RED TOP gauging plaster
	C1396/C36	SHEETROCK HUMITEK regular core	C61	RED TOP keenes cement
	C1396/C36	SHEETROCK HUMITEK FIRECODE Core	C28	STRUCTO-GAUGE® plaster
	C1396/C630	SHEETROCK water-resistant	C28	STRUCTO-BASE plaster
	C1396/C442	SHEETROCK liner	C587	IMPERIAL plaster
	C1396/C442	SHEETROCK liner HUMITEK	C587	DIAMOND plaster
	C1396/C931	SHEETROCK exterior gypsum ceiling	C206 type N	RED TOP and GRAND PRIZE finish limes
	C1396/C1395	SHEETROCK interior gypsum ceiling	C206 type S	IVORY finish lime
	C1396/C79	GYLAP sheathing	Cement Panels	
	C1278	FIBEROCK Abuse-Resistant	C1325	DUROCK cement board
	C1278	FIBEROCK Abuse-Resistant VHI	(ANSI A 118.9)	
	C1278	FIBEROCK AQUA-TOUGH interior	Ceiling Components	
	C1278	FIBEROCK AQUA-TOUGH sheathing	E1264	ACOUSTONE® Ceiling Panels/Tiles
	C1278	FIBEROCK AQUA-TOUGH underlayment	E1264	AURATONE® Ceiling Panels/Tiles
	Gypsum Lath and Gypsum Base		E1264	*X* Products Ceiling Panels/Tiles
	C1396/C37	ROCKLATH plaster base	C635, C645	DONN® Ceiling Suspension Systems
	C1396/C588	GRAND PRIX gypsum base	Other	
	C1396/C588	GRAND PRIX gypsum base FIRECODE Core	C475	SHEETROCK joint compounds
	C1396/C588	GRAND PRIX gypsum base FIRECODE C Core	C645	Shaft wall and area separation wall studs and runners
			C834	Acoustical sealant
			C1047	BEADEX paper-faced metal bead and trim
			C475	BEADEX joint compounds

CCMC Evaluations

Report	Report	Report	Report
Number	Subject	Number	Subject
10788R	DUROCK Cement Board	12721R	SHEETROCK Interior Ceiling Board
12525R	FIBEROCK Underlayment	13025R	FIBEROCK Sheathing

Note
Evaluation report numbers may change. Contact CGC for current report information.

ULC/UL Type Designations

	UL Type	Product/	UL Type	Product/	
	Designation	Systems	Designation	Systems	
<p>These listings contain the ULC/UL Types assigned to CGC products and systems by Underwriters Laboratories of Canada, and Underwriters Laboratories Inc.</p>		Gypsum Board and Related Products	DXLTA	CENTRICITEE™ Suspension System (14 mm (9/16") wide aluminum cap)	
	SCX	SHEETROCK FIRECODE Core Gypsum Panels	DXLF	FINELINE™ Suspension System (14 mm (9/16") wide)	
	SCX	SHEETROCK HUMITEK FIRECODE Core Gypsum Panels	SDXL	SIMPLICITEE Suspension System (24 mm (15/16") wide, retail)	
	C	SHEETROCK FIRECODE C Core Gypsum Panels	SDXLA	SIMPLICITEE Suspension System (24 mm (15/16") wide, retail, aluminum cap)	
	C	SHEETROCK HUMITEK FIRECODE C Core Gypsum Panels	DGL	CGC Drywall Suspension System (24 mm (15/16") wide)	
	WRX	SHEETROCK Water-Resistant FIRECODE Core Gypsum Panels	DGLW	CGC Drywall Suspension System (38 mm (1-1/2") wide)	
	WRC	SHEETROCK Water-Resistant FIRECODE C Core Gypsum Panels	DXLP	PARALINE® Linear Metal Ceiling System	
	AR	SHEETROCK Abuse-Resistant Gypsum Panels	PAR, PARP	PARALINE Linear Metal Ceiling System (linear metal panels)	
	SLX	SHEETROCK Gypsum Liner Panels	PAS, PASP	PARALINE Linear Metal Ceiling System (linear metal panels)	
	SLX	SHEETROCK Enhanced Gypsum Liner Panels	PSR, PSRP	PARALINE Linear Metal Ceiling System (linear metal panels)	
	ULTRACODE	SHEETROCK ULTRACODE Core Gypsum Panels	PSS, PSSP	PARALINE Linear Metal Ceiling System (linear metal panels)	
	SHX	SHEETROCK FIRECODE Core Gypsum Sheathing			
	FRX-G	FIBEROCK Panels			
	IP-X1	GRAND PRIX FIRECODE Core Plaster Base			
	IP-X2	GRAND PRIX FIRECODE C Core Plaster Base			
	DUROCK	DUROCK Cement Board			
	UC	ULTRAWALL Gypsum Panel			
	RLX	ROCKLATH FIRECODE Gypsum Lath			
	LEVELROCK	LEVELROCK Floor Underlayment Mixtures			
	AS	Acoustical Sealant			
	FC	FIRECODE Compound			
	RFC	FIRECODE Ready Mixed Compound			
	A	FIRECODE Acrylic Firestop Sealant			
	IA	FIRECODE Intumescent Acrylic Firestop Sealant			
	SA	FIRECODE Acrylic Firestop Spray Sealant			
			Acoustical Tile and Panel Products		
	AP	SANDRIFT™, FROST™, GLACIER™, FISSURED Ceiling Panels			
	AP-1	SANDRIFT, FROST, GLACIER, "F" FISSURED Ceiling Panels			
	FC-CB	SHEETROCK Lay-In Ceiling Panels CLIMAPLUS™			
	FR-83	FISSURED, RADAR™, RADAR Illusion, RADAR CLIMAPLUS, RADAR CLIMAPLUS Illusion, Aspen, Pebbled, Touchstone CLIMAPLUS, ROCK FACE® CLIMAPLUS Ceiling Panels			
	FR-4	RADAR Ceramic CLIMAPLUS Ceiling Panels			
	FR-X1	ECLIPSE™ CLIMAPLUS, MILLENNIA® CLIMAPLUS Ceiling Panels			
	M	CLEAN ROOM™ CLIMAPLUS Ceiling Panels			
	ASTRO-FR	ASTRO™ CLIMAPLUS Ceiling Panels			
			Acoustical Suspension Products		
	CM	CELEBRATION™ Metal Ceiling Panels (metallic)			
	CP	CELEBRATION Metal Ceiling Panels (painted)			
	DXL	DOWN DXL Suspension System (24 mm (15/16") wide)			
	DXL	DOWN DXL Concealed Suspension System (24 mm (15/16") wide)			
	DXLA	DOWN DXLA Suspension System (24 mm (15/16") wide, aluminum cap)			
	ZXLA	DOWN ZXLA Suspension System (24 mm (15/16") wide, environmental)			
	DXLT	CENTRICITEE Suspension System (14 mm (9/16") wide)			

Metric Conversions

CGC Inc. Metric Policy

CGC Inc. supports the intent of the metric conversion program. CGC has manufactured metric sized products for export for many years on a special order basis. CGC will make every reasonable effort to make metric products available to the federal market on a special order basis.

CGC Inc., is prepared to offer metric sizes in most of its acoustical panel and suspension systems.

From CGC Inc., metric width and length SHEETROCK Gypsum Panel products will be available from designated manufacturing plants throughout North America. Metric length DUROCK Cement Board products will also be available from designated manufacturing plants. Certain minimum order quantities and service charges may apply, as determined by local market conditions.

Bag and pail products, including SHEETROCK Joint Treatment Products, spray textures, gypsum plasters and other products carry soft metric designations for size and/or weight.

Important: The basic CGC product line remains unchanged—standard foot/inch/pound products previously available from CGC will still be readily available. The addition of metric length/width products will allow us to supply all job requirements, whether standard or metric.

CGC Inc. will offer assistance to construction professionals with regard to design, specification and installation issues involving our metric products, just as we always have with our standard products.

Metric Equivalents

SHEETROCK Gypsum Panels

Dimension	Conversion Type ^a	ft./in.	mm ^b
Thickness	Soft	1/4"	6.4
		3/8"	9.5
		1/2"	12.7
		5/8"	15.9
		3/4"	19.1
		1"	25.4
Width	Hard	24"	610.0
		48"	1200.0
Length	Hard	8'	2400.0
		10'	3000.0
		12'	3600.0

Steel Stud Framing

Thickness (gauge)	Soft	.0179 (25)	.45
		.0270 (22)	.69
		.0329 (20)	.84
Width	Soft	1-5/8"	41.3
		2-1/2"	63.5
		3-1/2"	88.9
		3-5/8"	92.1
		4"	101.6
Length	Hard	8'	2400.0
		10'	3000.0
		12'	3600.0

Insulation

Dimension	Conversion Type ^a	ft./in.	mm ^b
Thickness	Soft	1"	25.4
		1-1/2"	38.1
		2"	50.8
		2-1/2"	63.5
		3"	76.2
		3-1/2"	88.9
		4"	101.6
Width	Hard	16"	400.0
		24"	610.0
		48"	1200.0

Notes

(a) Conversion Type: "Soft" is metric relabeling with no physical change of dimension; "hard" is a physical change to the metric dimension shown.
(b) Conversion factors: Inches x 25.4 = mm; Feet x 304.8 = mm.

Availability: Items above are not stocked in metric lengths or widths. Minimum quantity orders may be required. Leadtime should be determined; service charges may apply. Geographic availability may vary and should be verified for the project location.

Lengths: Shown on SHEETROCK Gypsum Panels and steel stud framing for illustration purposes only.

Framing Spacing: 16" o.c. converts to 400 mm o.c.; 24" converts to 610 mm o.c.

For More Information

Check current printed CGC literature for more information on product sizing and availability. Information on specific metric product availability in your market area may be obtained from CGC sales or customer service representatives. For information, call toll-free:

Customer Service

800 387.2690

Index to Fire-Resistive Designs

	Test	Reference	Test	Reference	Test	Reference
	Number	Index	Number	Index	Number	Index
<p>This Index lists the fire-resistive Designs that contain CGC products. Test numbers appear with the corresponding references within this brochure. 'ULC or UL Dir.' indicates that the assembly does not appear in this brochure, but in either the ULC or UL Fire Resistance Directory.</p> <p>For example, UL Design D209 can be found at B-88, or test no. 88 in Section B, Floor/Ceilings. A003 is found only in the UL Fire Resistance Directory.</p> <p>NOTE-ULC designs are marked with a red *.</p>	A		G229	UL Dir	1521*	ULC Dir
	A003	UL Dir	G230	B-26	1522*	ULC Dir
	A202	UL Dir	G231	B-27	1523*	B-39
	A210	UL Dir	G234	B-28	1524*	ULC Dir
	A211	UL Dir	G236	UL Dir		
	B		G241	UL Dir		
			G243	UL Dir		
	C		G244	UL Dir		
			G248	UL Dir		
	D		G249	UL Dir		
	D010	UL Dir	G250	UL Dir		
	D205	UL Dir	G252	B-29		
	D209	B-75	G256	UL Dir		
	D215	B-80	G258	B-2		
	D216	UL Dir	G259	B-3		
	D218	B-91	G260	UL Dir		
	D219	B-92	G262	B-5		
	D302	UL Dir	G264	B-6		
	D403	E-17	G265	B-30		
	D501	UL Dir	G267	B-7		
	D502	UL Dir	G501	UL Dir		
	F		G502	B-4		
			G503	B-9		
	G		G512	B-32		
	G002	B-16	1512*	B-32		
	G007	B-17	G515	B-8		
	G008	B-18	G516	B-31		
	G011	UL Dir	G520	UL Dir		
	G017	UL Dir	G521	UL Dir		
	G018	UL Dir	G523	B-10		
	G020	UL Dir	G525	UL Dir		
	G022	UL Dir	G526	B-11		
	G036	UL Dir	G527	UL Dir		
	G037	UL Dir	G528	UL Dir		
	G040	B-19	G529	B-33, B-15		
	G201	B-1	G530	UL Dir		
	G202	B-20	G531	UL Dir		
	G203	B-21	G533	UL Dir		
	G204	B-22	G534	UL Dir		
	G205	B-34	G540	B-41		
	G208	UL Dir	G541	UL Dir		
	G209	UL Dir	G542	B-41		
G210	UL Dir	G543	B-41			
G211	B-35	G544	B-41			
G213	B-36					
G214	UL Dir	I				
G215	B-23	1223*	B-27			
G217	UL Dir	1507*	B-8			
G218	UL Dir	1508*	B-9			
G222	B-14	1517*	B-12			
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J202	B-94				L530	B-55, B-64				P214	C-4	
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J503	B-76				L534	UL Dir				P217	UL Dir	
J504	B-90				L535	UL Dir				P224	UL Dir	
J917	B-81				L536	UL Dir				P225	UL Dir	
J919	B-82				L537	UL Dir				P227	UL Dir	
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J927	B-85				L541	B-59, B-60, B-61				P230	C-17	
J931	B-86				L542	B-70				P231	UL Dir	
J957	B-87				L543	UL Dir				P235	C-7	
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K				L549	B-42				P240	UL Dir		
K906	B-89				L550	B-69				P241	C-20	
L				L551	B-42				P242	C-22		
L003	UL Dir				L552	B-42				P244	C-9	
L006	B-49				L553	B-42				P245	C-10	
L202	B-50				L555	B-74				P246	C-12	
L206	B-51				L563	B-69				P251	UL Dir	
L208	UL Dir				L570	B-65				P253	UL Dir	
L209	UL Dir				M				P254	C-11		
L210	UL Dir				M500*	B-43				P255	C-13	
L211	B-63				M505*	ULC Dir				P257	C-28	
L212	B-52				M506*	ULC Dir				P259	UL Dir	
L501	B-43, B-53				M507*	ULC Dir				P260	UL Dir	
L502	B-54				M508*	ULC Dir				P261	UL Dir	
L504	UL Dir				M509*	ULC Dir				P262	UL Dir	
L505	UL Dir				M511*	B-38				P267	C-14	
L506	UL Dir				M512*	ULC Dir				P268	C-31	
L508	UL Dir				M513*	ULC Dir				P269	C-32	
L510	B-57				M514*	B-68				P501	UL Dir	
L511	B-58, B-62				N				P502	UL Dir		
L511*	B-58				N501	E-14				P503	UL Dir	
L512	B-44				N502	E-14				P504	UL Dir	
L512*	B-44				N505	E-15, E-16				P505	UL Dir	
L513	UL Dir				O				P506	UL Dir		
L514	B-45, B-46, B-54				O503*	E-14				P507	UL Dir	
L515	UL Dir				O504*	E-14				P508	UL Dir	
L516	B-47				P				P509	UL Dir		
L518	UL Dir				P002	UL Dir				P510	C-15	
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	P676	UL Dir	U334	A-60	U432	UL Dir
	P711	UL Dir	U335	UL Dir	U435	A-22, A-23, A-27,
	P713	UL Dir	U336	A-67	U436	A-36, A-37
	P714	UL Dir	U338	UL Dir	U437	A-69, A-76
	P717	UL Dir	U339	UL Dir	U438	A-70
	P719	UL Dir	U340	A-61	U439	UL Dir
	P722	UL Dir	U341	UL Dir	U440	A-41
	P724	UL Dir	U342	A-64	U442	A-9, F-2
	P728	UL Dir	U344	UL Dir	U443	A-21
	P739	UL Dir	U345	UL Dir	U444	A-35
	P740	UL Dir	U346	UL Dir	U446	UL Dir
	P803	UL Dir	U348	UL Dir	U448	A-4, A-5
	P807	UL Dir	U349	UL Dir	U449	UL Dir
	P826	UL Dir	U350	UL Dir	U451	A-6, A-7, A-8
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U497	UL Dir	V411	UL Dir	W603*	ULC Dir
U504	UL Dir	V413	UL Dir	W604*	ULC Dir
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U505	UL Dir	V415	UL Dir	X402	E-6, E-10, E-13
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U512	UL Dir	W302*	A-53	X504	UL Dir
U512*	ULC Dir	W303*	ULC Dir	X507	E-11
U513	UL Dir	W313*	ULC Dir	X508	UL Dir
U526	UL Dir	W314*	A-67	X514	E-8
U528	UL Dir	W406*	ULC Dir	X515	E-9
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U601	UL Dir	W408*	A-4, A-5	X518	E-4
U602	UL Dir	W416*	ULC Dir	X518*	E-4
U603	UL Dir	W417*	A-22, A-27	X521	E-3
U604	UL Dir	W419*	A-9	X521*	E-3
U605	UL Dir	W423*	A-9	X522	UL Dir
U606	UL Dir	W424*	A-40, A-46, A-50	X523	UL Dir
U608	UL Dir	W426*	ULC Dir	X524	E-5
U609	UL Dir	W433*	ULC Dir	X526	UL Dir
U611	UL Dir	W440*	A-16	X527	UL Dir
U613	UL Dir	W441*	A-28	X528	E-1, E-2, E-7
U615	UL Dir	W442*	ULC Dir	X530	UL Dir
U617	UL Dir	W445*	A-47	X531	UL Dir
U618	UL Dir	W447*	ULC Dir		
U619	UL Dir	W448*	ULC Dir		
U620	UL Dir	W449*	A-47		
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V404	UL Dir	W510*	ULC Dir		

Limiting Heights Table

Typical limiting heights—Interior partitions

table 2

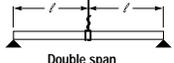
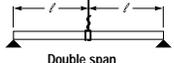
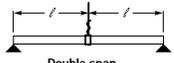
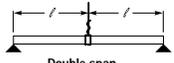
Stud width	Stud spacing	Allow. defl.	Partition, one layer	Partition, two layers	Furring, one layer
25-gauge stud (.0179 min.)					
41 mm	400 mm	L/120	3277 f	3277 d	3124 d
		L/240	2896 d	3200 d	2515 d
		L/360	2515 d	2743 d	2210 d
	600 mm	L/120	2667 f	2667 f	2667 f
		L/240	2515 d	2667 f	2210 d
		L/360	2210 d	2438 d	1095 d
64 mm	400 mm	L/120	4191 f	4191 f	4191 d*
		L/240	3810 d	4191 d	3353 d
		L/360	3277 d	3581 d	2972 d
	600 mm	L/120	3429 f	3429 f	3429 f
		L/240	3277 d	3429 f	2972 d
		L/360	2896 d	3124 d	2591 d
92 mm	400 mm	L/120	5105 f	5105 f	5105 f*
		L/240	4877 d	5105 f	4420 d*
		L/360	4267 d	4496 d	3886 d*
	600 mm	L/120	4115 f	4115 f	4115 f*
		L/240	4115 f	4115 f	3886 d*
		L/360	3734 d	3962 d	3353 d
152 mm	400 mm	L/120	6096 f	6096 f	6096 f*
		L/240	6096 f	6096 f	6096 f*
		L/360	6096 f	6096 f	5715 f*
	600 mm	L/120	4572 v	4572 v	4572 v*
		L/240	4572 v	4572 v	4572 v*
		L/360	4572 v	4572 v	4572 v*
20 gauge stud (.0312 min.)					
64 mm	400 mm	L/120	5282 f	5462 f	5029 d*
		L/240	4215 d	4901 d	3962 d*
		L/360	3658 d	4267 d	3505 d
	600 mm	L/120	4444 f	4444 f	4420 d*
		L/240	3658 d	4090 f	3505 d
		L/360	3200 d	3758 d	3048 d
92 mm	400 mm	L/120	6882 d	7215 f	6629 d*
		L/240	5462 d	6148 d	5258 d*
		L/360	4749 d	5386 d	4572 d*
	600 mm	L/120	5892 f	5892 f	5791 d*
		L/240	4749 d	5386 f	4572 d*
		L/360	4167 d	4724 d	4039 d*
152 mm	400 mm	L/120	10034 d	10339 f	9805 d*
		L/240	7949 d	8687 d	7772 d*
		L/360	8959 d	7596 d	7087 d*
	600 mm	L/120	7696 f	7696 f	8534 d*
		L/240	6956 d	7596 d	6782 d*
		L/360	6072 d	6654 d	5944 d*

Stud width	Stud spacing	Allow. defl.	Partition, one layer	Partition, two layers	Furring, one layer
25-gauge stud (.0179 min.)					
1-5/8"	16"	L/120	10'9" f	10'9" d	10'3" d
		L/240	9'6" d	10'6" d	8'3" d
		L/360	8'3" d	9'0" d	7'3" d
	24"	L/120	8'9" f	8'9" f	8'9" f
		L/240	8'3" d	8'9" f	7'3" d
		L/360	7'3" d	8'0" d	6'3" d
2-1/2"	16"	L/120	13'9" f	13'9" f	13'9" d*
		L/240	12'6" d	13'6" d	11'0" d
		L/360	10'9" d	11'9" d	9'9" d
	24"	L/120	11'3" f	11'3" f	11'3" f
		L/240	10'9" d	11'3" f	9'9" d
		L/360	9'6" d	10'3" d	8'6" d
3-5/8"	16"	L/120	16'9" f	16'9" f	16'9" f*
		L/240	16'0" d	16'9" f	14'6" d*
		L/360	14'0" d	14'9" d	12'9" d*
	24"	L/120	13'6" f	13'6" f	13'6" f*
		L/240	13'6" f	13'6" f	12'9" d*
		L/360	12'3" d	13'0" d	11'0" d
6"	16"	L/120	20'0" f	20'0" f	20'0" f*
		L/240	20'0" f	20'0" f	20'0" f*
		L/360	20'0" f	20'0" f	18'9" f*
	24"	L/120	15'0" v	15'0" v	15'0" v*
		L/240	15'0" v	15'0" v	15'0" v*
		L/360	15'0" v	15'0" v	15'0" v*
20 gauge stud (.0312 min.)					
2-1/2"	16"	L/120	17'4" f	17'11" f	16'6" d*
		L/240	13'10" d	16'1" d	13'0" d*
		L/360	12'0" d	14'0" d	11'6" d
	24"	L/120	14'7" f	14'7" f	14'6" d*
		L/240	12'0" d	13'5" f	11'6" d
		L/360	10'6" d	12'4" d	10'0" d
3-5/8"	16"	L/120	22'7" d	23'8" f	21'9" d*
		L/240	17'11" d	20'2" d	17'3" d*
		L/360	15'7" d	17'8" f	15'0" d*
	24"	L/120	19'4" f	19'4" f	19'0" d*
		L/240	15'7" d	17'8" f	15'0" d*
		L/360	13'8" d	15'6" d	13'3" d*
6"	16"	L/120	32'11" d	33'11" f	32'3" d*
		L/240	26'1" d	28'6" d	25'6" d*
		L/360	22'10" d	24'11" d	23'3" d*
	24"	L/120	25'3" f	25'3" f	28'0" d*
		L/240	22'10" d	24'11" d	22'3" d*
		L/360	19'11" d	21'10" d	19'6" d*

Notice: The Limiting Heights tables are based primarily on typical minimum physical and structural properties (I_y and S_y). Physical and structural properties may vary by region and manufacturer. Request actual physical and structural property data from your local steel framing manufacturer. Limiting criteria: d-deflection; f-bending stress; v-end reaction shear.

* Studs exceeding 3660 mm (12 ft.) require mid-height anchor to exterior wall.

Limiting Spans Table

Limiting spans (l)— Steel stud ceiling system ⁽¹⁾ (interior only)		Stud style		64 mm 25-ga.			92 mm 25-ga. ⁽²⁾			64 mm 20-ga.			92 mm 20-ga.			152 mm 20-ga.		
		Stud spacing-mm.		300	400	600	300	400	600	300	400	600	300	400	600	300	400	600
		Single span																
	Uniform load	240	3328	3024	2643	4444	4039	3560	4014	3633	3176	5334	4852	4243	8000	7263	6346	
	—Pa	480	2643	2414	2057	3530	3200	2210	3176	2896	2515	4243	3862	3353	6349	5462	5029	
	720	2310	2082	1448	2947	2210	1448	2768	2515	2210	3709	3353	2947	5538	5029	4243		
	960	2057	1625	—	2210	1652	—	2515	2286	1929	3353	3048	2539	5029	4496	3658		
		Double and triple span																
	Uniform load	240	4115	3758	3100	5310	4471	3405	4977	4520	3938	6629	6020	5386	9906	8992	7849	
	—Pa	480	3100	2643	2109	3405	2795	2033	3938	3581	3072	5258	4776	4039	7849	6654	5130	
	720	2490	2109	1753	2539	2033	1448	3453	3048	2490	4572	4039	3301	6172	5130	4215		
	960	2109	1753	1320	2033	1600	—	3048	2667	2158	4039	3505	2844	5130	4215	3100		
(1) Based on L/240 allowable deflection. Bracing of top flanges is required and must not exceed 1200 mm o.c. (2) Stud end stiffening required. Additional hangers are necessary when span area exceeds 1.5 m ² .																		
Note: For exterior applications, consult engineer for actual design.																		
Notice: The Limiting Span tables are based primarily on typical minimum physical and structural properties (I _y and S _x). Physical and structural properties may vary by region and manufacturer. Request actual physical and structural property data from your local steel framing manufacturer.																		
Limiting spans (l)— Steel stud ceiling system ⁽¹⁾ (interior only)		Stud style		2-1/2" 0.45 mm 25-ga.			3-5/8" 0.45 mm 25-ga. ⁽²⁾			2-1/2" 0.9 mm 20-ga.			3-5/8" 0.9 mm 20-ga.			6" 0.9 mm 20-ga.		
		Stud spacing-in.		12	16	24	12	16	24	12	16	24	12	16	24	12	16	24
		Single span																
	Uniform load	5	10'11"	9'11"	8'8"	14'7"	13'3"	11'7"	13'2"	11'11"	10'5"	17'6"	15'11"	13'11"	26'3"	23'10"	20'10"	
	—psf	10	8'8"	7'11"	6'9"	11'7"	10'6"	7'3"	10'5"	9'6"	8'3"	13'11"	12'8"	11'0"	20'10"	18'11"	16'6"	
	15	7'7"	6'10"	4'9"	9'8"	7'3"	4'9"	9'1"	8'3"	7'3"	12'2"	11'0"	9'8"	18'2"	16'6"	13'11"		
	20	6'9"	5'4"	—	7'3"	5'5"	—	8'3"	7'6"	6'4"	11'0"	10'0"	8'4"	16'6"	14'9"	12'0"		
		Double and triple span																
	Uniform load	5	13'6"	12'4"	10'2"	17'5"	14'8"	11'2"	16'4"	14'10"	12'11"	21'9"	19'9"	17'8"	32'6"	29'6"	25'9"	
	—psf	10	10'2"	8'8"	6'11"	11'2"	9'2"	6'8"	12'11"	11'9"	10'1"	17'3"	15'8"	13'3"	25'9"	21'10"	16'10"	
	15	8'2"	6'11"	5'9"	8'4"	6'8"	4'9"	11'4"	10'0"	8'2"	15'0"	13'3"	10'10"	20'3"	16'10"	13'10"		
	20	6'11"	5'9"	4'4"	6'8"	5'3"	—	10'0"	8'9"	7'1"	13'3"	11'6"	9'4"	16'10"	13'10"	10'2"		
(1) Based on L/240 allowable deflection. Bracing of top flanges is required and must not exceed 48" o.c. (2) Stud end stiffening required. Additional hangers are necessary when span area exceeds 16 ft ² .																		
Note: For exterior applications, consult engineer for actual design.																		
Notice: The above tables are presented here as a guide only for the convenience of our readers. The Limiting Span tables are based primarily on typical minimum physical and structural properties (I _y and S _x). Physical and structural properties may vary by region and manufacturer. Request actual physical and structural property data from your local steel framing manufacturer.																		

About the cover:

Project

Soldier Field Stadium

Chicago, IL

Recipient of the 2004 AIA Chicago Design Award

Architects

A joint venture of

Lohan Caprile Goettsch Architects

Chicago, IL

Wood + Zapata

New York, NY

Photographer

©David B. Seide: Defined Space, Chicago



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