

# USG BORAL HEALTHCARE GUIDE



**USG BORAL**  
INNOVATION INSPIRED BY YOU.™



[USGBoral.com](https://www.usgboral.com)

Plasterboard

Ceilings

Interior Finishes

Metal Framing

Substrates





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05

Lounge



04

04

Mammography

Mammography

04





# INTRODUCTION

With over 334 UL assemblies for Ceilings & Drywall Partitions; USG Boral ME is committed to provide innovative products and solutions to build your projects.

We are your single source manufacturer for Acoustical Ceiling Systems & Drywall Partitions Assemblies.

- Our systems are integrated with MEP and Lighting.
- Compatibility with claddings (Marble, Ceramic and Porcelain)
- Compatibility with other materials and systems  
(Sound systems, sprinklers, paint...)

USG Boral ME maintains a longstanding commitment with its employees, customers and communities to reduce environmental impact by using recycled materials whenever feasible to eliminate manufacturing waste. USG Boral ME products contribute toward LEED® credits in different areas. The company has a technical team that offers technical support for all healthcare projects scales at no cost whenever it is required by the clients, consultants or contractors.

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## WALL BOARDS

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## ACOUSTICAL CEILING TILES

The USG Boral DryWall Partitions Systems are particularly designed to suite the sensitive requirements for all Healthcare applications. Our systems are designed to provide an enhanced acoustic, fire and structural performance with the latest International Building Code (IBC).

USG Boral ME locally produces in its Dammam, KSA operation a wide range of acoustical ceiling tiles that covers Mineral Fiber, Soft Fiber, Specialty Ceilings, Metal Tiles and Gypsum Tiles. All Acoustical Ceiling Tiles produced by USG Boral ME comply with both international standards ASTM E1264 and EN 13964.

USG Boral ME acoustical ceilings are designed to increase the aesthetic and functional value of your interiors within a modest ceiling budget. USG Boral ME famous DONN® grid suspension is manufactured locally and is certified to meet the most stringent national and international standards.

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## METAL FRAMINGS

USG Boral ME is dedicated to provide high quality Metal Framing products including full range of accessories meeting the project needs and in compliance with the statutory and regulatory requirements.

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## INTERIOR FINISHES

USG Boral ME manufactures and supplies an extensive range of high-quality and consistent joint compounds including bedding and base compounds, finishing compounds, all purpose for patching and skimming compounds to transform your plasterboard joints, angles and fastener heads into one seamless surface.

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## SUBSTRATES

We design our substrates with ease of use and durability in mind so you can meet your project objectives. Explore our products and learn how you can utilize them for your Healthcare Projects. We produce and supply Durock® Cement Boards, Fiberock® Panels and Securock® Panels.

# USG BORAL PRESENCE IN HEALTHCARE PROJECTS

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## BAHRAIN

- Awali Cardiac Hospital
- BDF Polyclinic
- King Hamad University Hospital

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## EGYPT

- Dar Al Fouad Hospital

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## GREECE

- Bioiatriki Medical Center

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## JORDAN

- Al-Kindi Hospital

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## KSA

- Al Dara Hospital
- Al Salam Hospital
- Dallah Hospital Extension
- Dammam General Hospital-ER Expansion
- Dr. Sulaiman Al Habib Hospital
- Fajar Al Dammam Medical Complex
- King Faisal Specialist Hospital and Research Center -KFSH&RC Mega Expansion
- Royal Commission General Hospital
- Saad Specialist Hospital
- Sinopec Research Center
- Specialized Medical Center-SMC
- Tabuk Hospital
- Um Al Qura University Teaching Hospital

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## KUWAIT

- Al-Amiri Hospital Expansion
- Farwaniya Hospital

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## LEBANON

- American University of Beirut Medical Center-AUBMC
- Rafic Hariri Hospital

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## OMAN

- Sultan Qaboos University Hospital

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## TURKEY

- Acibadem Adana Hospital
- Acibadem Atasehir Hospital
- Acibadem Hospital
- Dia Bilkent Health Center
- Kalyon Lutfi Kirdar Health Complex
- Medical Park Hospital
- Medicana Hospital Managerial Offices
- Turkerler Etlik Integrated Health Campus
- Umraniye Maternity Hospital

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## UNITED ARAB EMIRATES

- Al Mafraq Dialysis Center
- Al Maktoum Hospital Redevelopment
- Al Qassimi Hospital
- Cleveland Clinic
- Emirates Hospital
- Gargash Hospital
- Issaq Medical Center
- Mediclinic City Hospital
- Mediclinic Parkview Hospital
- National Rehabilitation Center
- Wagan Hospital



# BILKENT INTEGRATED HEALTH CAMPUS

**1.3 Million m<sup>2</sup>**

Europe's largest health campus of 8 hospitals

**3804**

Total Bed Capacity

The campus can serve up to 50,000 patients every day

**300,000 m<sup>2</sup>**

of Acoustical Ceiling and Suspension Grid

USG Boral ME helped to design an engineered fire rated Seismic Grid for the Complex ceiling areas



# AWALI CARDIAC HOSPITAL

**600,000 LM**

of Metal Framing

USG Boral ME products were used to build the Bahraini most iconic integrated Healthcare Facility. Our Steel Profiles were used to build walls for 7 meter Height. Increased the speed of wall installations compared to traditional build while complying with fire rating and acoustic requirements

**100,000 m<sup>2</sup>**

of Plasterboard

Our Drywall systems helped to increase the construction productivity. Most of our drywall systems can be engineered to be up to 80% lighter than traditional systems

**30,000 m<sup>2</sup>**

of Substrates

Our Substrates boards had provided the critical impact resistance for walls to protect against high pedestrian traffic











# TABLE 1: MAXIMUM DESIGN CRITERIA FOR NOISE IN INTERIOR SPACES CAUSED BY BUILDING SYSTEMS<sup>1</sup>

AS PER 2018 FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS

Room Type	NC / RC(N) / RNC <sup>2,3</sup>	dB
<b>Patient Care Units</b>		
Patient Room	40	45
NICU Sleep Area	30	35
NICU Staff and Family Areas	35	40
<b>Diagnostic and Treatment Locations</b>		
Multiple-Occupant Patient Care Area	45	50
Examination/Treatment Room	40	45
Procedure Room	40	45
Class 2 Imaging Room	40	45
Operating Room <sup>4</sup>	50	55
Class 3 Imaging Room <sup>4</sup>	50	55
<b>Support Areas</b>		
Medication Safety Zone	40	45
Testing/Research Lab, Minimal Speech	55	60
Research Lab, Extensive Speech	50	55
Group Teaching Lab	45	50
<b>Public Areas</b>		
Corridor and Public Area	45	50
Conference Room	35	40
Teleconferencing Room	25	30
Auditorium Large Lecture Room	30	35
<b>Administrative Areas</b>		
Private Office	40	45

<sup>1</sup>Additional spaces shall be added based on the building program.

<sup>2</sup>One rating system shall be chosen to evaluate room noise levels, and noise from building mechanical systems shall be evaluated using that same rating system.

<sup>3</sup>Spaces shall be designed to fall below the maximum values shown in this table with no rattles or tonal characteristics.

<sup>4</sup>See table 3 (Room noise levels in operating rooms) for more information on operating rooms.

# TABLE 2: DESIGN CRITERIA FOR SPEECH PRIVACY FOR ENCLOSED ROOMS AND OPEN-PLAN SPACES<sup>1, 2</sup>

AS PER 2018 FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS

Level	Metrics			
<b>Speech Privacy—Closed Plan</b>	<b>PI<sup>4</sup></b>	<b>AI<sup>4</sup></b>	<b>SII<sup>4</sup></b>	<b>SPC<sup>4</sup></b>
Secure	N/A	N/A	N/A	≥70
Confidential	≥95%	≥0.05	≤0.10	60-69
Normal	80-94%	0.06-0.20	0.11-0.25	52-59
Defining standard	ASTM E1130	ASTM E1130	ANSI S3.5	ASTM E2638
<b>Speech Privacy—Open Plan</b>	<b>PI<sup>4</sup></b>	<b>AI<sup>4</sup></b>	<b>SII<sup>4</sup></b>	<b>SPC<sup>4</sup></b>
Confidential	Special Consideration Required <sup>3</sup>			
Normal	80-94%	0.06-0.20	0.11-0.25	52-59
Marginal	60-79%	0.21-0.40	0.26-0.45	45-51
Defining standard	ASTM E1130	ASTM E1130	ANSI S3.5	ASTM E2638

<sup>1</sup>The indicated AI and SII values shall be considered the maximum accepted values. The indicated PI and SPC values shall be considered the minimum accepted values.

<sup>2</sup>Equivalence among these metrics, as indicated, has been demonstrated. However, some of the metrics may not be suitable for a particular space. The referenced standards indicate that PI and SI are appropriate for use in open-plan spaces and that SPC is appropriate for closed-plan spaces. The referenced standard for SII indicates it may be used for either type of space.

<sup>3</sup>Confidential speech privacy is not readily achievable in open-plan spaces due to the lack of barriers, low ambient sound levels, and typical voice effort.

<sup>4</sup>(PI): Privacy Index, (AI): Articulation Index, (SII): Speech Transmission Index, (SPC): Speech Intelligibility Index







# HEALTHCARE DRYWALL PARTITION ASSEMBLIES

# WALLBOARDS FOR HEALTHCARE APPLICATIONS

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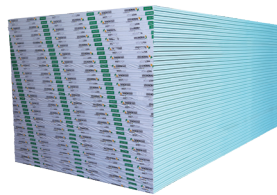
## USG BORAL SHEETROCK® BRAND GYPSUM PANELS | TYPE X, TYPE C AND REGULAR PANELS



- Quality interior wall and ceiling panels at low cost
- Fire-resistant dry construction
- Score and snap easily
- Resist cracking and warping
- Specialized types for all systems
- Quick installation and decoration

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## USG BORAL SHEETROCK® BRAND GYPSUM PANELS WETSTOP MOISTURE RESISTANCE



- Quality interior wall and ceiling panels where moisture resistance is required
- Score and snap easily
- Resist cracking and warping
- Quick installation and decoration

---

## USG FIBEROCK® BRAND AR INTERIOR PANELS



- No face paper to scratch or tear
- Resist denting, breaking and puncturing, even in high-traffic areas as Hospitals corridors
- Provide excellent fire resistance
- Offer an economical alternative to concrete block and plaster construction
- Ideal for healthcare, education and commercial interiors
- Certified, recycled content of 97%

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## USG FIBEROCK® BRAND AQUA-TOUGH™ AR INTERIOR PANEL



- Aqua-Tough™ panels provide increased resistance to moisture and mold
- No face paper to scratch or tear
- Resist denting, breaking and puncturing, even in high-traffic areas as Hospitals corridors
- Provide excellent fire resistance
- Offer an economical alternative to concrete block and plaster construction
- Ideal for healthcare, education and commercial interiors
- Certified, recycled content of 97%

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## USG DUROCK® BRAND CEMENT BOARD

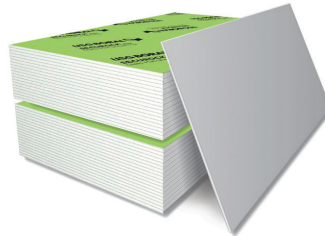


### Backerboard for tile and exterior finish systems

- Lightweight cement tile backerboard
- Water-durable, mold-resistant substrate for high-moisture areas
- Suitable for use in interior or exterior applications
- Will not rot, warp, delaminate or disintegrate
- Easy to cut and fasten
- Noncombustible

---

## USG BORAL SECUROCK® BRAND GLASS-MAT SHEATHING / REGULAR AND MOLD TOUGH®



- Treated gypsum core, combined with fiberglass face and back, offers exceptional water resistance
- Score and snap easily for quick installation
- For use in most exterior systems when properly detailed by exterior finish manufacturer
- Meets or exceeds the requirements of ASTM C1177
- UL Classified as to fire resistance, surface-burning characteristics and non-combustibility
- The backer for shower and bath areas surface-burning characteristics and non-combustibility

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## USG BORAL SECUROCK® BRAND GLASS-MAT LINER PANELS



- High-performance glass-mat panels with moisture and mold resistance for use in USG Boral Shaftwall and area separation wall systems
- Direct substitute for USG Boral Sheetrock® Brand gypsum liner panels and USG Boral Sheetrock® Brand Mold Tough™ gypsum liner panels when prolonged weather exposure is anticipated
- UL Classified as to fire resistance, surface burning characteristics and non-combustibility
- Comprehensive product and system testing ensures long-term performance and safety

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## USG SHEETROCK® BRAND LEAD LINED TYPE X BOARD 5/8" (15.9MM)



- Includes vertical batten strips and lead discs for screw penetrations
- Typically one day fabrication
- Lead thicknesses minimum 2.5mm thick lead
- Lead up to 7'0" (2.1336M) from floor
- Optional Mold Resistant, Abuse Resistant, High Impact and other specialized board types



# STRUCTURAL STRENGTH

## USG BORAL ME PARTITIONS - NON-LOAD BEARING

The strength of a partition is judged by its ability to resist deflection under load, or by the force needed to break through the partition when subjected to an impact by either a hard or soft body. The factors which control these aspects of acceptability are:

- The bending strength of the frame
- The height of the frame
- The thickness of the plasterboards
- The number of plasterboard layers.
- The rigidity of the head fixing
- The spacing of the studs
- The axial load (if any) from above
- The wind load - uniformly distributed load (UDL) if any
- Any temporary point load (if any) at mid height
- The stiffness of the plasterboards
- The hardness of the plasterboards
- The bending/breaking strength of the plasterboards

It is not possible to write a mathematical equation which takes into account all these factors and which, when the physical properties of the materials are used to calculate, for example, height limit, gives a satisfactory relationship to practical acceptability.

Instead, over the years, plasterboard manufacturers have built up a dossier of knowledge which relates the main parameters to the acceptability of known generic systems. There is also a nucleus of testing data, to fall back upon, where this acceptability is in doubt.

### The 5 main tests are:

- Stiffness - 500 N temporary pressure
- Small hard body impact - 5 kg swing hammer
- Large soft body impact - 50 kg swinging bag
- UDL and crowd pressure - 2.5m beam pressure
- Door slamming - 20 slams, 35 kg door for LD and MD  
- 100 slams, 60 kg door for HD and SD

From these tests it is possible to judge whether the partition is graded as:

- Light duty LD
- Medium duty MD
- Heavy duty HD
- Severe duty SD

The duty ratings for partitions are shown in the tables of performance, in subsequent chapters of this Technical Manual.

## TABLE 3: PERFORMANCE TABLES PARTITION GRADES:

### SUMMARY OF REQUIREMENTS AND PRINCIPLE TEST PERFORMANCE LEVELS AS PER BS 5234

REQUIREMENT & TEST METHOD (1)	UNITS	GRADE <sup>1</sup>				PRINCIPAL CRITERIA
		LD	MD	HD	SD	
Stiffness (A)	mm	25	20	15	10	Maximum deflection
	mm	5	3	2	1	Maximum residual deformation
Small hard body impact: Surface damage (B)	N.m	3	3	6	10	Judgement of incident
Perforation (D)	N.m	2	5	15	30	No perforation on facing
Large soft body impact: Damage (C)	N.m	20	20	40	100	2mm maximum deflection
Structural Damage	N.m	60	60	120	120	No collapse or dislocation
Door slam	No.	20	20	100	100	No damage and 1mm maximum displacement

<sup>1</sup>(LD): Light Duty, (MD): Medium Duty, (HD): Heavy Duty, (SD): Severe Duty

# TABLE 4: DESIGN CRITERIA FOR MINIMUM SOUND ISOLATION PERFORMANCE BETWEEN ENCLOSED ROOMS<sup>1</sup>

AS PER 2018 FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS

Adjacency Combination		Acoustic Performance dB <sup>2</sup>	USG Boral ME Wall Assembly commendation
<b>Patient Care Units</b>			
Patient Room	Corridor (with entrance)	35 <sup>3</sup>	HCW1
Patient Room	Patient Room (wall-same floor)	45 <sup>4</sup>	HCW1
Patient Room	Patient Room (floor-to-floor)	50	HCW2
Patient Room	Consultation Room	50	HCW2
Patient Room	Public Space	50	HCW2
Patient Room	Service Area	60 <sup>5</sup>	HCW7
Patient Room	MRI Room	60 <sup>5</sup>	HCW9
NICU Corridor	Corridor	55	HCW3
<b>Diagnostic and Treatment Locations</b>			
Examination Room	Corridor (with entrance)	35 <sup>3</sup>	HCW1
Examination Room	Examination Room (with electronic masking)	40 <sup>6</sup>	HCW1
Examination Room	Examination Room (no electronic masking)	50	HCW2
Examination Room	Public Space	50	HCW2
Examination Room	MRI Room	60 <sup>5</sup>	HCW9
Treatment Room	Corridor (with entrance)	35 <sup>3</sup>	HCW1
Treatment Room	Treatment Room	50	HCW4
Operating Room	Operating Room	50	HCW4
Operating Room	MRI Scanner Room	60 <sup>5,7</sup>	HCW9
Consultation Room	Public Space	50	HCW8
Consultation Room	Corridor (with entrance)	35 <sup>3</sup>	HCW1
<b>Public Areas</b>			
Toilet Room	Public Space	45	HCW5
Public Space	MRI Scanner Room	50	HCW9

<sup>1</sup>Additional spaces shall be added based on the building program.

<sup>2</sup>The Acoustic Performance values stated assume the need for normal speech privacy as shown in Table 2 (Design Criteria for Speech Privacy for Enclosed Rooms and Open-Plan Spaces)—except at corridor walls with doors—assuming a background sound level of at least 30 dB. When selecting assemblies based on their tested or published Acoustic Performance ratings, it should be noted that laboratory Acoustic Performance test reports can, in general, be considered accurate to +/- 2 Acoustic Performance points. Consequently, an assembly with a tested or published Acoustic Performance rating as low as 2 points below the stated minimum may be considered acceptable.

<sup>3</sup>In cases where greater speech privacy is required between patient care rooms when both room doors to the connecting corridor are closed, the composite demising wall Acoustic Performance requirement shall be 50.

<sup>4</sup>This is the performance required for the wall around the door. Note that sound isolation in these instances will be limited by the door's performance (e.g., Acoustic Performance 20 for a close-fitted 5-PSF door). It is up to the facility to determine if doors require a higher acoustic performance or if full perimeter gasketing and bottom seals should be required. Doors are not required to be sound sealed to maintain the Acoustic Performance rating, although a facility may choose to do so for specialty patient environments such as bereavement rooms, consultation rooms, sleep therapy rooms, etc.

<sup>5</sup>Relaxation of Acoustic Performance 60 ratings shall be permitted if compliance with room noise requirements is achieved with lower performance constructions. See Table 1 (Maximum Design Criteria for Noise in Interior Spaces Caused by Building Systems).

<sup>6</sup>Electronic masking shall provide a maximum background level of Acoustic Performance 48 dB.

<sup>7</sup>This requirement is for operating rooms without doors directly communicating with the MRI scanner room as the Acoustic Performance value shown cannot be achieved when there is a door between an adjacent OR and an MRI scanner room. However, where there is a connecting door, attention shall be paid to the door to assure sound isolation when the MRI is used independently from the operating room.

Note: This table shall not be applied to mobile/transportable medical units.

## TABLE 5: RECOMMENDED PARTITION SOUND RATING FOR DIFFERENT PRIVACY REQUIREMENTS

Privacy Description	Partition Sound Rating
<b>'Normal' Degree of Privacy</b> Normal voices in adjacent space audible and intelligible some of the time. Raised voices and speakerphones mostly intelligible.	45 dB Acoustic Performance
<b>'Good' Degree of Privacy</b> Normal voices in adjacent space barely audible but unintelligible most of the time. Raised voices and speakerphones partially intelligible.	50 dB Acoustic Performance
<b>'Excellent' Degree of Privacy</b> Normal voices in adjacent space mostly inaudible. Raised voices and Speakerphones audible but intelligible some of the time.	55 dB Acoustic Performance
<b>'Confidential' Degree of Privacy</b> Normal voices in adjacent space are not audible. Raised voices and Speakerphones are barely audible but not intelligible.	60 dB+ Acoustic Performance





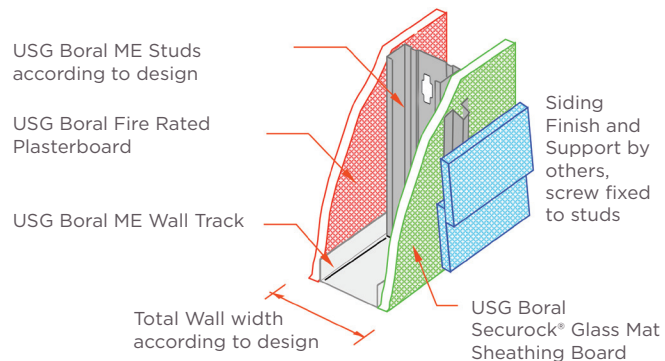
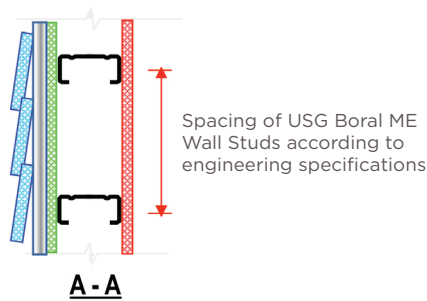
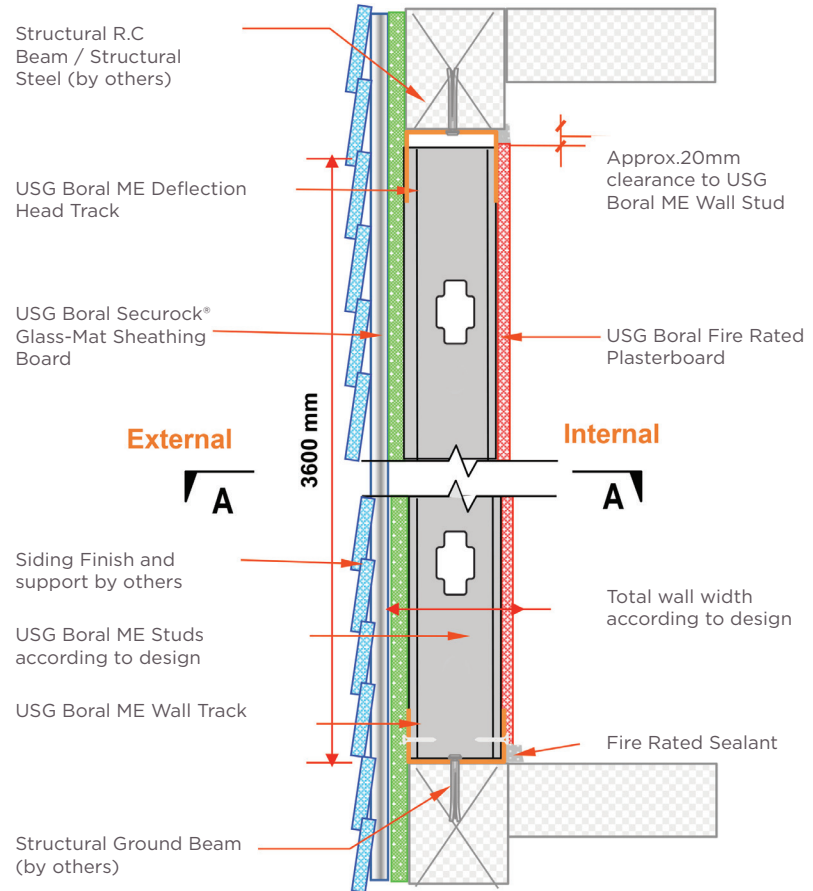
# TABLE 6: MINIMUM RECOMMENDED LEVELS OF AIRBORNE SOUND INSULATION BETWEEN SPACES

<p><b>Table shows recommended levels of airborne sound insulation based on noise activity in the source room and acceptable noise tolerance levels in the receiving room.</b></p> <p>Note: It is important to check values from both rooms and use the highest value.</p>		Noise generation in source room					
		low noise	typical noise	high noise	very high noise		
		low noise	typical noise	high noise	very high noise		
<p>Clean Utility, Store Rooms, Laboratories, Dirty Utility and Sluice Rooms, Corridor, Ward Kitchens, Pantries, Open Plan Offices, Main Kitchens, Dining, Waiting Rooms</p>	<p><b>non sensitive tolerance</b></p>	35	40	45	50		
		30	35	40	45		
		<p>Libraries/Study Areas, Multi Bed Wards, Operating Theatres, Toilets, Private Offices, Children's Multi Bed Wards, Geriatric Multi Bed Wards, Rest Rooms</p>	<p><b>moderate tolerance</b></p>	40	50	50	60
				35	45	45	55
<p>Single Bed Wards/On Call Rooms, Consulting Rooms, Treatment Rooms, Small Meeting Rooms, Children's Single Wards, Geriatric Single Wards, Training Rooms, Board Room/Large Meeting Rooms, Nurseries, Delivery Rooms</p>	<p><b>private tolerance</b></p>	45	50	55	60		
		40	45	50	55		
<p>Lecture Theatres</p>	<p><b>confidential tolerance</b></p>	50	50	55	60		
		45	45	50	55		



The information provided is intended to enable designers, architects and specifiers to select partitions which meet the acoustic requirements having made some general assumptions. USG Boral ME strongly recommend that a qualified acoustic consultant be appointed to check all acoustic specifications and details.

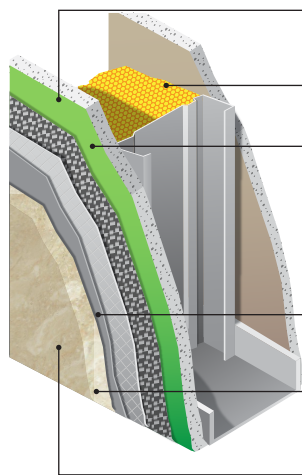
# HOSPITAL EXTERIOR FINISHING



**Note: USG Boral Securock® Brand Glass-Mat Sheathing panels can be used to form a fire-rated partition.**

## HCEW1

### DIRECT-APPLIED EXTERIOR FINISHING SYSTEM



**USG Boral Securock® Glass-Mat Sheathing Panel**

- Fastened with specified screws
- Follow specified installation guide

**Insulation**

- Technical team specification

**Full Render of USG Boral Durock Base Coat with Mesh**

1. Trowel applied to joints with mesh (<2mm), allowed to dry\*.
2. Trowel applied over entire surface (1.5mm), with embedded mesh. Skimmed smooth (max. 2.5mm), before allowed to dry

\*Curing time of 24 hours for each coat, which may be shortened depending on weather

**Stabilizer + Primer**

- Roller applied
- 24 hours of drying time

**Texture Finish**

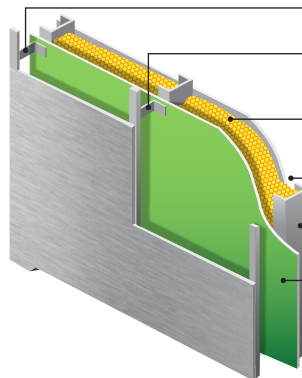
- Sprayed on with special spray gun\*\* or trowel applied
- \*\*Depending on type of finishing

**Clear Sealer**

- Roller or spray applied

## HCEW2

### METAL PANEL FACADE FINISHING SYSTEM



Proprietary bracket for curtain wall system

Proprietary railing system installed on bracket (by curtain wall system supplier)

Insulation (optional), placed in the cavity of the drywall

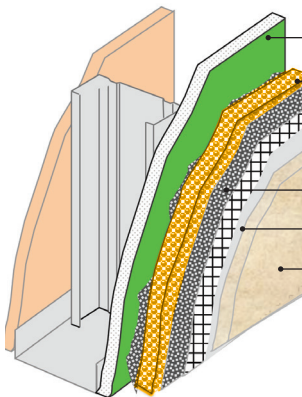
USG Boral Fire Rated Plasterboard

USG Boral ME Metal Studs System

USG Boral Securock® Glass-Mat Sheathing Panel

## HCEW3

### EIFS SYSTEMS (EPS, PIR, NEO INSULATION BOARD)



USG Boral Securock® Glass-Mat Sheathing panel

- Fastened with specified screws
- Joints finished with USG Boral Durock® Basecoat and Mesh

Mineral Wool density of 120 Kg/m<sup>3</sup>

Full render of USG Boral Durock® Basecoat with Mesh

Fineprime or approved equal

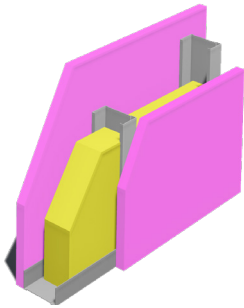
Finestone clear sealer or approved equal



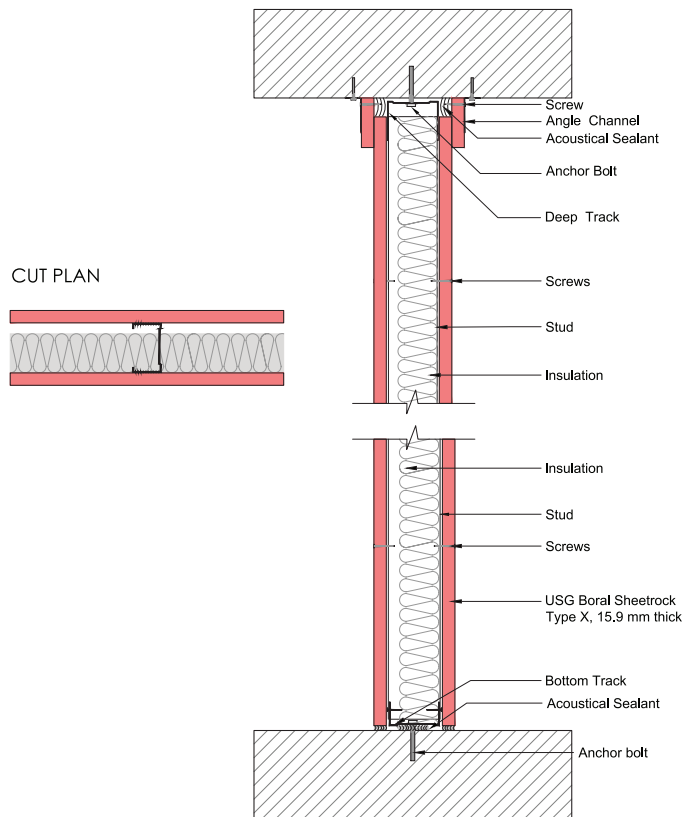
# HCW1

## PATIENT ROOM TO PATIENT ROOM (WALL-SAME FLOOR) EXAM ROOM TO EXAM ROOM (WITH ELECTRONIC MASKING)

1 HOUR FIRE RATED  
ASSEMBLY UL U 419  
47 dB



<b>Fire Rating</b>	1 hour
<b>Acoustic Performance</b>	47 dB
<b>System Thickness</b>	96mm



### WALL CONSTRUCTION

**Gypsum Board :** One layer of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X Gypsum Board applied horizontally or vertically

**Steel Studs :** 62.5mm C-Stud spaced at 600mm OC

**Steel Tracks :** Top Track: 64x50mm deep U-track  
Bottom Track: 64x30mm U-track

**Insulation:** 50mm thick Mineral Wool insulation (Density 14 kg/m<sup>3</sup>)

**Gypsum Board :** One layer of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X Gypsum Board applied horizontally or vertically

**Joint Compound :** USG Boral Sheetrock® Brand All-Purpose Joint Compound

**Acoustical Sealant:** USG Sheetrock® Brand Acoustical Sealant

**Tapes:** USG Sheetrock® Brand Paper Tape

**Screws :** First layer: 4.2 x 32mm Screw, Bugle Head - Self Drilling

**Level 5 finish :** Sheetrock® Tuff-Hide® Primer-Surfacer

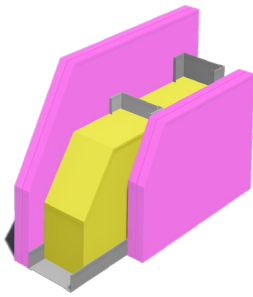
*Steel Studs and Steel Tracks Thicknesses as per design requirements.*

*Deflection head as per design requirements.*

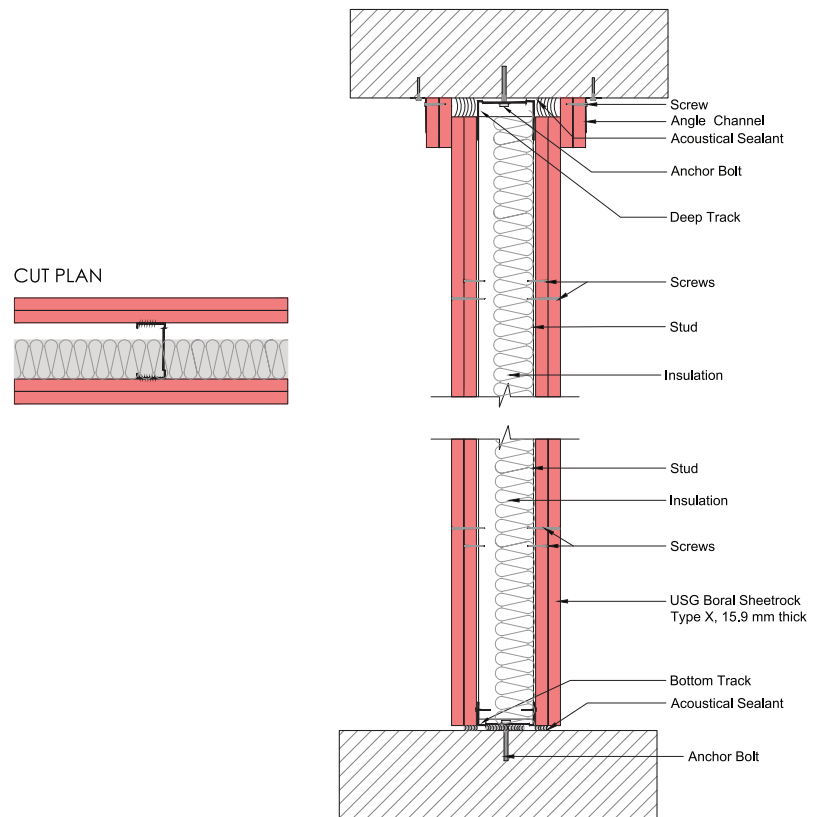
## HCW2

# PATIENT ROOM TO PATIENT ROOM (FLOOR-TO-FLOOR) EXAM ROOM TO EXAM ROOM (NO ELECTRONIC MASKING)

2 HOURS FIRE RATED  
ASSEMBLY UL U 419  
56 dB



<b>Fire Rating</b>	2 hours
<b>Acoustic Performance</b>	56 dB
<b>System Thickness</b>	136mm



## WALL CONSTRUCTION

**Gypsum Board :** Two layers of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X Gypsum Board applied horizontally or vertically

**Steel Studs :** 70.5mm C-Stud spaced at 600mm OC

**Steel Tracks :** Top Track: 72x50mm deep U-track  
Bottom Track: 72x30mm U-track

**Insulation :** 50 mm Mineral Wool (Density 14 kg/m<sup>3</sup>)

**Gypsum Board :** Two layers of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically

**Joint Compound :** USG Boral Sheetrock® Brand All-Purpose Joint Compound

**Acoustical Sealant :** USG Sheetrock® Brand Acoustical Sealant

**Tapes :** USG Sheetrock® Brand Paper Tape

**Screws :** First layer: 4.2 x 32mm Screw, Bugle Head – Self Drilling  
Second Layer : 4.2 x 50mm Screw, Bugle Head – Self Drilling

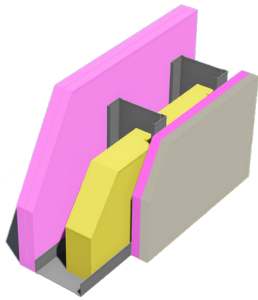
**Level 5 finish :** Sheetrock® Tuff-Hide® Primer-Surfacer

**Steel Studs and Steel Tracks Thicknesses as per design requirements.**

**Deflection head as per design requirements.**

## HCW3

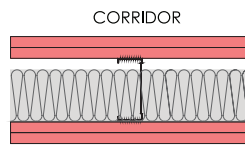
**2 HOURS FIRE RATED  
ASSEMBLY UL U 419  
55 dB**



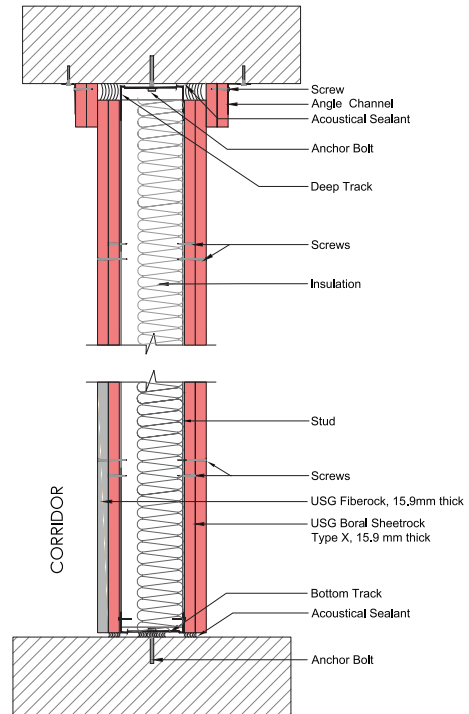
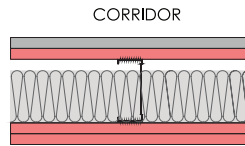
## NICU TO CORRIDOR

<b>Fire Rating</b>	2 hours
<b>Acoustic Performance</b>	55 dB
<b>System Thickness</b>	156mm

CUT PLAN AT 1200mm and above



CUT PLAN AT 1200mm and below



### WALL CONSTRUCTION

**Inner Layer :** One layer of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically

**Outer Layer :** 1 layer of USG Fiberock® 5/8" (15.9mm) thick board (Impact resistant) applied horizontally on the bottom of corridor's side 1200 mm from floor

**Gypsum Board above Fiberock®:** One Layer of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically

**Steel Studs :** 90.5mm C-Stud spaced at 600mm OC

**Steel Track :** Top Track: 92x50mm deep U-track  
Bottom Track: 92x30mm U-track

**Insulation :** 75mm thick Mineral Wool insulation (Density 14 kg/m<sup>3</sup>)

**Gypsum Board :** Two layers of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically

**Joint Compound :** USG Boral Sheetrock® Brand All-Purpose Joint Compound for Type X Gypsum Board and USG Durabond® for Fiberock® joint finishing

**Acoustical Sealant :** USG Sheetrock® Brand Acoustical Sealant

**Tapes :** USG Sheetrock® Brand Paper Tape

**Screws :** First layer: 4.2 x 32mm Screw, Bugle Head - Self Drilling  
Second Layer : 4.2 x 50mm Screw, Bugle Head - Self Drilling

**Level 5 finish :** Sheetrock® Tuff-Hide® Primer-Surfacer

**Steel Studs and Steel Tracks Thicknesses as per design requirements.**

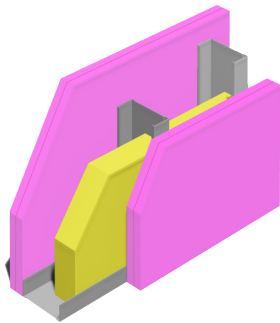
**Deflection head as per design requirements.**



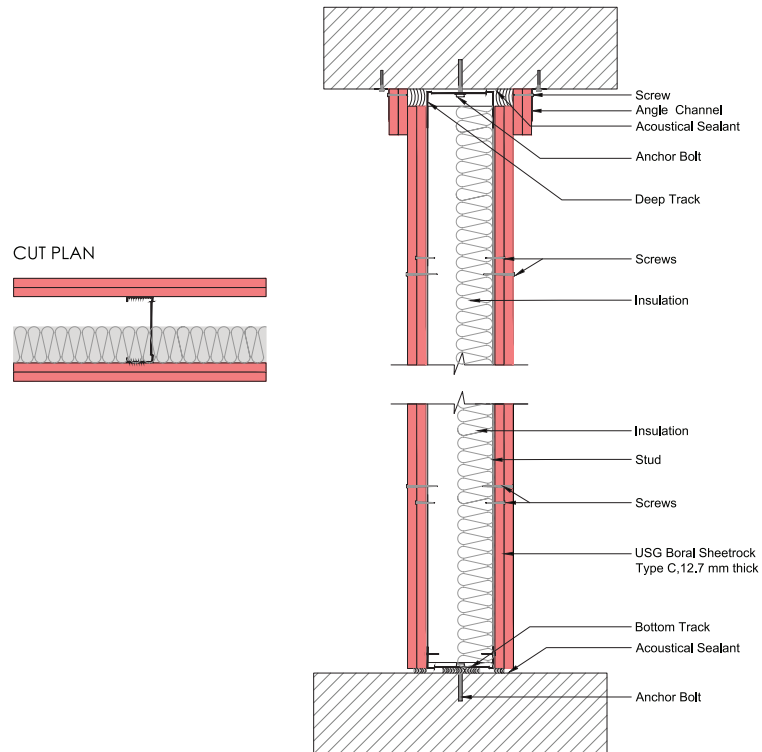
## HCW4

# TREATMENT ROOM TO TREATMENT ROOM OPERATING ROOM TO OPERATING ROOM

**2 HOURS FIRE RATED  
ASSEMBLY UL U 419  
55 dB**



<b>Fire Rating</b>	2 hours
<b>Acoustic Performance</b>	55 dB
<b>System Thickness</b>	143mm



## WALL CONSTRUCTION

**Gypsum Board** : Two layers of 1/2" (12.7mm) USG Boral Sheetrock® brand Type C gypsum board applied horizontally or vertically

**Steel Studs** : 90.5mm C-Stud spaced at 600mm OC

**Steel Tracks** : Top Track: 92x50mm deep U-track  
Bottom Track: 92x30mm U-track

**Insulation** : 50mm thick Mineral Wool insulation (Density 14 kg/m<sup>3</sup>)

**Gypsum Board** : Two layers of 1/2" (12.7mm) USG Boral Sheetrock® brand Type C gypsum board applied horizontally or vertically

**Joint Compound** : USG Boral Sheetrock® Brand All-Purpose Joint Compound

**Acoustical Sealant** : USG Sheetrock® Brand Acoustical Sealant Tapes: USG Sheetrock® Brand Paper Tape

**Screws** : First layer: 4.2 x 32mm Screw, Bugle Head - Self Drilling  
Second Layer: 4.2 x 50mm Screw, Bugle Head - Self Drilling

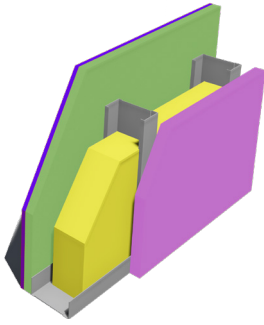
**Level 5 finish** : Sheetrock® Tuff-Hide® Primer-Surfacer

*Steel Studs and Steel Tracks Thicknesses as per design requirements.*

*Deflection head as per design requirements.*

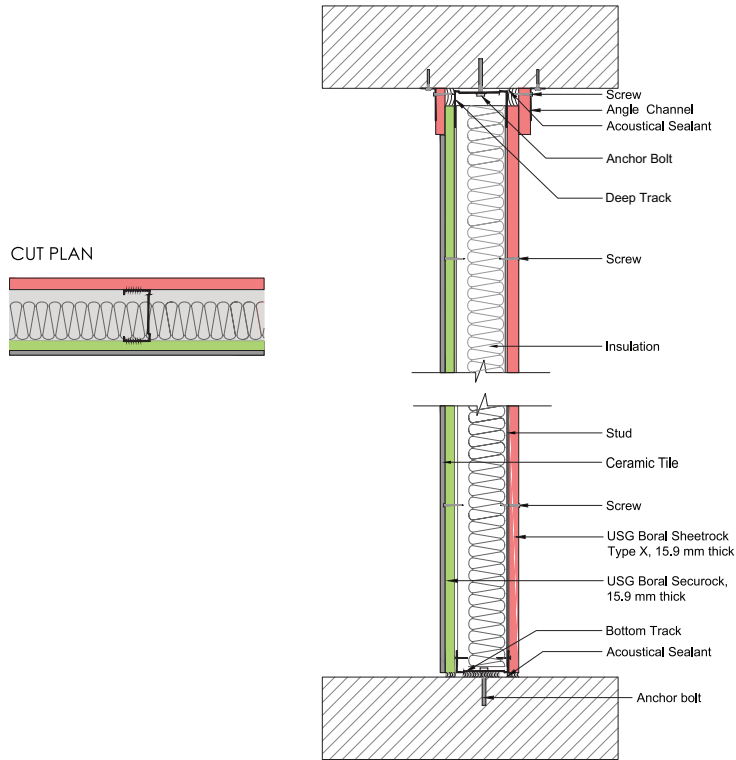
## HCW5

**1 HOUR FIRE RATED  
ASSEMBLY UL U 419  
50 dB**



## TOILET ROOM TO PUBLIC SPACE

<b>Fire Rating</b>	1 hour
<b>Acoustic Performance</b>	50 dB
<b>System Thickness</b>	110mm



### WALL CONSTRUCTION

**Gypsum Board :** One layer of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically<sup>1</sup>

**Steel Studs :** 70.5mm C-stud spaced at 600mm o.c

**Steel Track :** Top Track: 72x50mm deep U-track  
Bottom Track: 72x30mm U-track

**Insulation:** 50mm thick Mineral Wool insulation (Density 14 kg/m<sup>3</sup>)

**Substrate Layer:** One layer of 5/8" (15.9mm) USG Boral Securock® brand Type X with 6.4mm thick Ceramic Tile on opposite side.

**Joint Compound :** USG Boral Sheetrock® Brand All-Purpose Joint Compound

**Base Coat :** USG Boral Durock® Base Coat

**Acoustical Sealant :** USG Sheetrock® Brand Acoustical Sealant

**Tapes :** USG Sheetrock® Brand Paper Tape & USG 2" Interior Durock® tape

**Screws :** Gypsum layer: 4.2 x 32mm Screw, Bugle Head - Self Drilling & (1-1/4") 32mm Durock® Screw

**Level 5 finish :** Sheetrock® Tuff-Hide® Primer-Surfacer

<sup>1</sup>**Additional board of 5/8 (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum is required on the public space side to achieve the severe duty performance.**

**Steel Studs and Steel Tracks Thicknesses as per design requirements.**

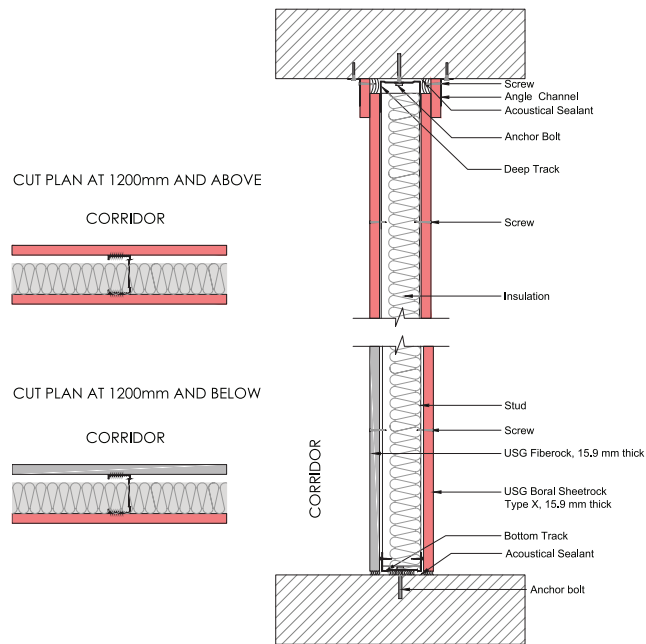
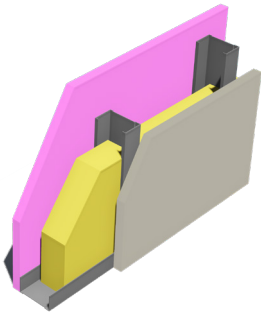
**Deflection head as per design requirements.**

## HCW6

# PATIENT ROOM TO CORRIDOR (WITH ENTRANCE) CONSULTATION ROOM TO CORRIDOR (WITH ENTRANCE)

1 HOUR FIRE RATED  
ASSEMBLY UL U 419  
47 dB

<b>Fire Rating</b>	1 hour
<b>Acoustic Performance</b>	47 dB
<b>System Thickness</b>	96mm



## WALL CONSTRUCTION

**Outer Layer :** One layer of USG Fiberock® 5/8" (15.9mm) thick board (Impact resistant) applied horizontally on the bottom of corridor's side 1200mm from floor

**Gypsum Board above Fiberock® :** One layer of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically<sup>1</sup>

**Steel Studs :** 62.5mm C-Stud spaced at 600mm OC

**Steel Track :** Top Track: 64x50mm deep U-track  
Bottom Track: 64x30mm U-track

**Insulation :** 50mm thick Mineral Wool insulation (Density 14 kg/m<sup>3</sup>)

**Gypsum Board :** One layer of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically<sup>1</sup>

**Joint Compound :** USG Boral Sheetrock® Brand All-Purpose Joint Compound for Type X Gypsum Board and USG Durabond® for Fiberock® joint finishing

**Acoustical Sealant :** USG Sheetrock® Brand Acoustical Sealant

**Tapes :** USG Sheetrock® Brand Paper Tape

**Screws :** First layer: 4.2 x 32mm Screw, Bugle Head - Self Drilling

**Level 5 finish :** Sheetrock® Tuff-Hide® Primer-Surfacer

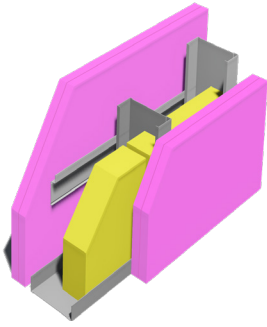
<sup>1</sup>**Additional board of 5/8 (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum is required on the corridor side to achieve the severe duty performance. Steel Studs and Steel Tracks Thicknesses as per design requirements.**

**Deflection head as per design requirements.**



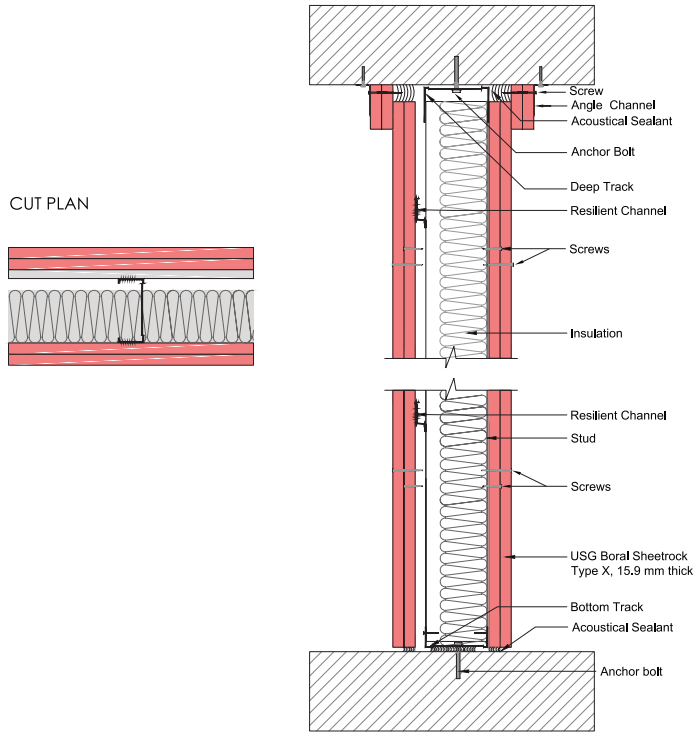
## HCW7

**2 HOURS FIRE RATED  
ASSEMBLY  
61 dB**



## PATIENT ROOM TO SERVICE AREA

<b>Fire Rating</b>	2 hours
<b>Acoustic Performance</b>	61 dB
<b>System Thickness</b>	169mm



### WALL CONSTRUCTION

**Gypsum Board :** Two layers of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically

**Steel Studs :** 90.5mm thick C-Stud spaced at 600mm OC

**Steel Track :** : Top Track: 92x50mm deep U-track  
Bottom Track: 92x30mm U-track

**Insulation :** 75mm thick mineral wool insulation Density (14 kg/m<sup>3</sup>)

**Resilient Channel :** 13mm deep Resilient channel spaced at 600mm horizontally

**Gypsum Board :** Two layers of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically

**Joint Compound :** USG Boral Sheetrock® Brand All-Purpose Joint Compound

**Acoustical Sealant :** USG Sheetrock® Brand Acoustical Sealant

**Tapes :** USG Sheetrock® Brand Paper Tape

**Screws:** First layer: 4.2 x 32mm Screw, Bugle Head – Self Drilling  
Second Layer : 4.2 x 50mm Screw, Bugle Head – Self Drilling

**Level 5 finish :** Sheetrock® Tuff-Hide® Primer-Surfacer

**Steel Studs and Steel Tracks Thicknesses as per design requirements.**

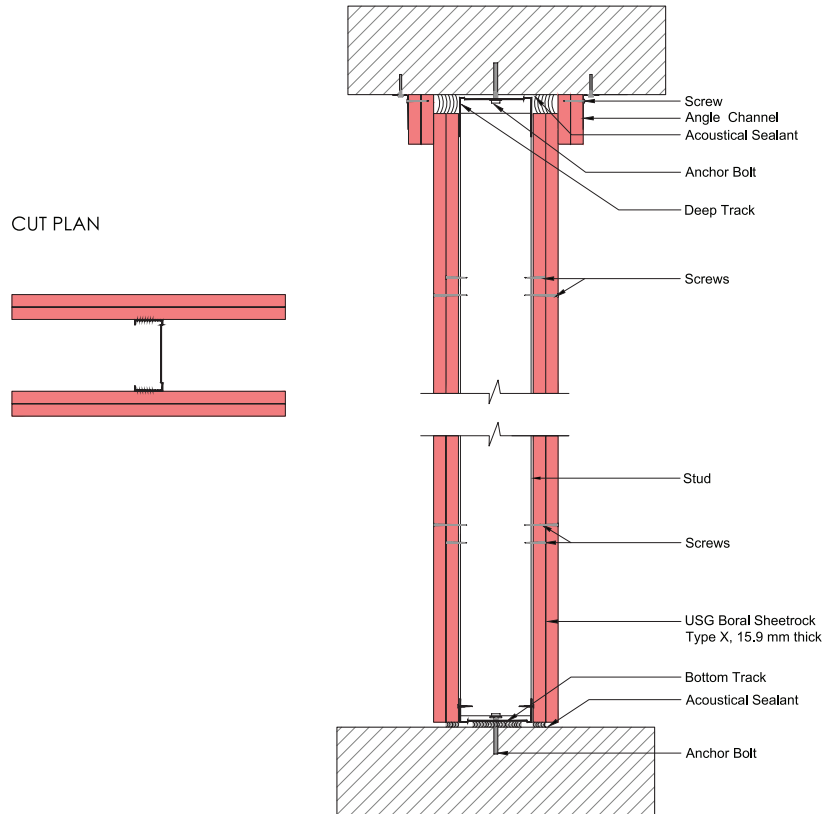
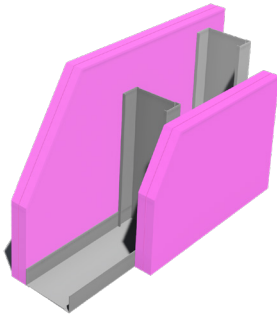
**Deflection head as per design requirements.**

## HCW8

# OUT-PATIENT/CONSULTATION ROOM TO PUBLIC SPACE

**2 HOURS FIRE RATED  
ASSEMBLY UL U 419  
50 dB**

<b>Fire Rating</b>	2 hours
<b>Acoustic Performance</b>	50 dB
<b>System Thickness</b>	156mm



## WALL CONSTRUCTION

**Gypsum Board :** Two layers of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically

**Steel Studs :** 90.5mm thick C-Stud spaced at 600mm OC

**Steel Track :** : Top Track: 92x50mm deep U-track  
Bottom Track: 92x30mm U-track

**Gypsum Board :** Two layers of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically

**Joint Compound :** USG Boral Sheetrock® Brand All-Purpose Joint Compound

**Acoustical Sealant :** USG Sheetrock® Brand Acoustical Sealant

**Tapes :** USG Sheetrock® Brand Paper Tape

**Screws :** First layer: 4.2 x 32mm Screw, Bugle Head – Self Drilling  
Second Layer: 4.2 x 50mm Screw, Bugle Head – Self Tapping

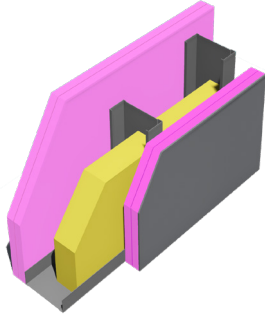
**Level 5 finish :** Sheetrock® Tuff-Hide® Primer-Surfacer

*Steel Studs and Steel Tracks Thicknesses as per design requirements.*

*Deflection head as per design requirements.*

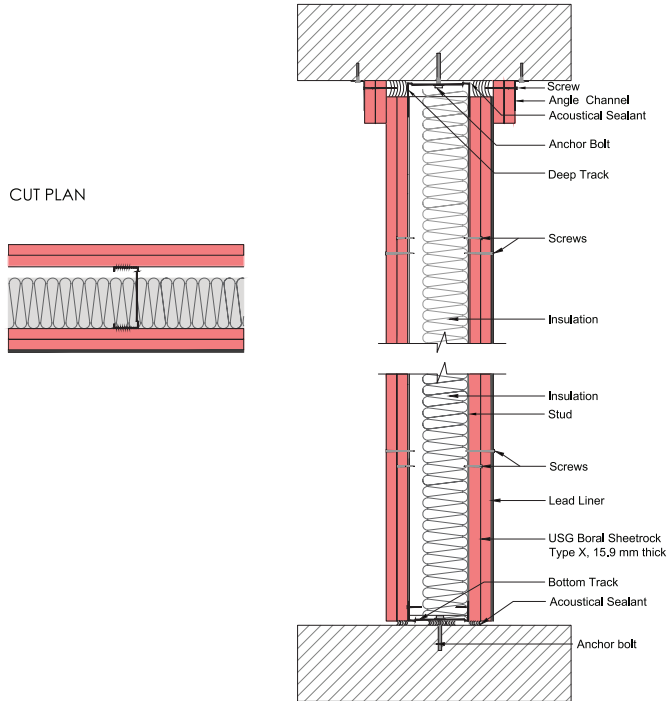
## HCW9

**2 HOURS FIRE RATED  
ASSEMBLY UL BE U 430  
60 dB**



# OPERATING ROOM TO MRI ROOM PATIENT ROOM TO MRI ROOM

<b>Fire Rating</b>	2 hours
<b>Acoustic Performance</b>	60 dB
<b>System Thickness</b>	158mm



## WALL CONSTRUCTION

**Gypsum Board :** Two layers of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically

**Steel Studs :** 90.5mm C-Stud spaced at 600mm OC

**Steel Track :** : Top Track: 92x50mm deep U-track  
Bottom Track: 92x30mm U-track

**Insulation:** 75mm thick Mineral Wool insulation (Density 14kg /m<sup>3</sup>)

**Gypsum Board :** 1 layer of 5/8" (15.9mm) thick USG Boral Sheetrock® brand Type X gypsum board applied horizontally or vertically

**Lead Lined Gypsum Board- RAY-BAR ENGINEERING CORP :** Type RBLBG using 5/8" (15.9mm) USG Sheetrock® type X board to be used with Lead Batten Strips or Lead Discs or Tabs as per UL BE U430. Minimum of lead thickness 2.5mm

**Joint Compound :** USG Boral Sheetrock® Brand All-Purpose Joint Compound

**Acoustical Sealant :** USG Sheetrock® Brand Acoustical Sealant

**Tapes :** USG Sheetrock® Brand Paper Tape

**Screws :** First layer: 4.2 x 32mm Screw, Bugle Head – Self Drilling  
Second Layer: 4.2 x 50mm Screw, Bugle Head – Self Drilling

**Level 5 finish :** Sheetrock® Tuff-Hide® Primer-Surfacer

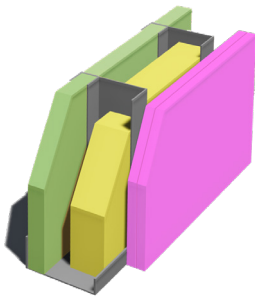
**Steel Studs and Steel Tracks Thicknesses as per design requirements.**

**Deflection head as per design requirements.**



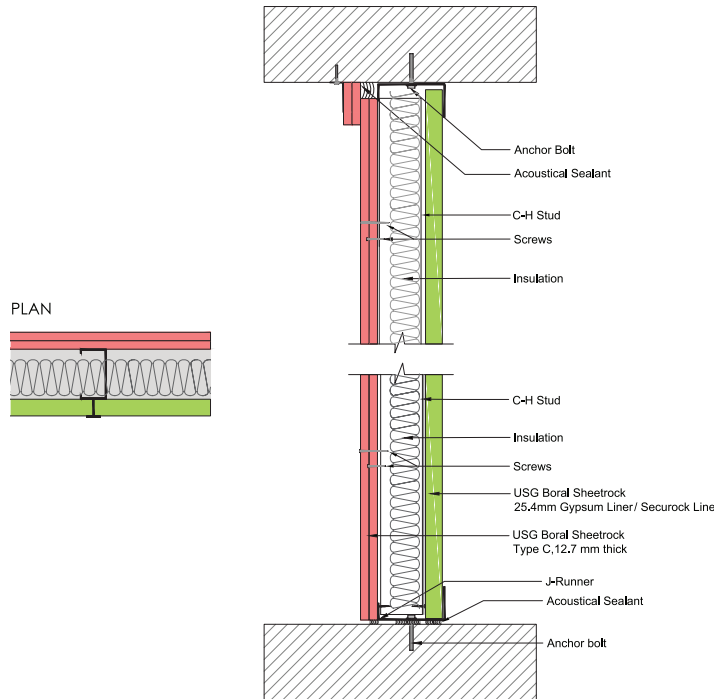
# HCSW1

**2 HOURS FIRE RATED  
ASSEMBLY UL U 415  
50 dB**



# SHAFTWALL SYSTEM

<b>Fire Rating</b>	2 hours
<b>Acoustic Performance</b>	50 dB
<b>System Thickness</b>	127mm



## WALL CONSTRUCTION

- Gypsum Board :** Two layers of 1/2" (12.7mm) thick USG Boral Sheetrock® brand Type C gypsum board applied horizontally or vertically
- CH-Stud :** 4" (101.6mm) x 0.9mm thick CH-Stud spaced at 600mm OC
- E-Stud :** 4" (101.6mm) x 0.9 mm thick E-Stud installed at corners
- J-Runner :** 4" (101.6mm)x0.9 mm thick J-Runner installed at top and bottom
- Insulation :** 75mm thick Mineral Wool insulation (Density 14kg /m<sup>3</sup>)
- Gypsum Board :** One layer of 1" (25.4mm) thick USG Boral Sheetrock® brand Gypsum Liner or Securock Liner® friction fit
- Joint Compound :** USG Boral Sheetrock® Brand All-Purpose Joint Compound
- Acoustical Sealant:** USG Sheetrock® Brand Acoustical Sealant
- Tapes :** USG Sheetrock® Brand Paper Tape
- Screws :** First layer: 4.2 x 32mm Screw, Bugle Head - Self Drilling  
Second Layer: 4.2 x 50mm Screw, Bugle Head - Self Drilling
- Level 5 finish :** Sheetrock® Tuff-Hide® Primer-Surfacer

*Deflection head as per design requirements.*

## SHAFTWALL STEEL COMPONENTS

CH Stud Sizes	J Runner Size	E Stud Sizes
63.5MM, 101.6MM, 152.4MM	63.5MM, 101.6MM, 152.4MM	63.5MM, 101.6MM, 152.4MM



# HEALTHCARE CEILINGS FINISHES



# TABLE 7: HEALTHCARE CEILING REQUIREMENTS

AS PER 2018 FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS

Room Type	Requirement	Room
<b>General Areas</b>	<ul style="list-style-type: none"> <li>Cleanable with routine housekeeping equipment</li> <li>Acoustic &amp; lay-in ceilings shall not have ledges or crevices</li> </ul>	All rooms except as noted below
<b>Semi-restricted Areas</b>	<ul style="list-style-type: none"> <li>Smooth and without crevices</li> <li>Scrubbable</li> <li>Water repellent</li> <li>Non-perforated</li> <li>Capable of withstanding cleaning with chemicals</li> <li>Lay-in ceilings shall be gasketed or each tile should weigh at least one pound per square foot</li> <li>Perforated, reveal, serrated, or highly textured tiles shall not be permitted</li> </ul>	Procedure rooms, Class 2 imaging rooms, endoscope processing rooms, decontamination rooms, clean corridors, and central sterile supply
<b>Restricted Areas</b>	<ul style="list-style-type: none"> <li>Monolithic construction</li> <li>Scrubbable</li> <li>Capable of withstanding cleaning and/or disinfecting chemicals</li> <li>All access openings shall be gasketed</li> </ul>	Operating rooms, Class 3 imaging rooms, sterile compounding and hazardous drug compounding pharmacies
<b>Food &amp; Nutrition Service &amp; Laundry Areas</b>	<ul style="list-style-type: none"> <li>Either a sealed monolithic and scrubbable gypsum board ceiling or a lay-in ceiling</li> <li>Non-corrosive grid</li> <li>Smooth</li> <li>Scrubbable</li> <li>Water repellent</li> <li>Non-perforated</li> <li>Capable of withstanding cleaning with chemicals</li> <li>Each tile should weigh at least one pound per square foot</li> <li>NRC 0.80 or higher is recommended</li> </ul>	Food preparation, food storage, ware washing & laundry areas
<b>Mechanical, Electrical, and Communication Rooms</b>	Omission of suspended ceilings in these areas shall be permitted	Mechanical rooms, electrical rooms, communication rooms





# TABLE 8: USG BORAL RECOMMENDED CEILINGS PRODUCTS

AS PER 2018 FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS

Space	Room Type as per 2018 FGI Guidelines for Design and Construction of Hospitals	USG Boral ME Ceiling Recommendation
Lobbies	General Areas	Sonata Healthcare Halcyon Healthcare Louna Ensemble Monolithic Acoustical Gypsum
Waiting Areas	General Areas	
Corridors	General Areas	Metal Torsion Spring System Sonata Planks
Patient Rooms	General Areas	Sonata Healthcare Sparta Taiga Hygiene
Nurse's Stations	General Areas	
Laboratories	General Areas	Sonata Healthcare Halcyon Healthcare Taiga Hygiene
Class 1 MRI & Imaging Rooms	General Areas	
Pharmacies	General Areas	Clean Room Non Perforated Metal Clip-In Plain
Hydro-therapy Rooms	General Areas	Sparta Clean Room Non Perforated
ICU / NICU	General Areas	Halcyon Healthcare 38mm thick with AXCE Gasketed Grid
Treatment / Procedure Rooms	Semi-restricted Areas	Sonata Healthcare with AXCE Gasketed Grid Metal Torsion Spring System Plain Metal Clip-In Aluminum Plain Ensemble Monolithic Acoustical Gypsum
Class 2 MRI & Imaging Rooms	Semi-restricted Areas	
Endoscope Processing Rooms	Semi-restricted Areas	
Decontamination Rooms	Semi-restricted Areas	
Clean Corridors	Semi-restricted Areas	
Central Sterile Supply	Semi-restricted Areas	
Operation Theaters	Restricted Areas	
Class 3 MRI & Imaging Rooms	Restricted Areas	
Sterile Compounding Pharmacies	Restricted Areas	
Hazardous Drug Compounding Pharmacies	Restricted Areas	
Food Preparation	Food & Nutrition Service & Laundry Areas	Sonata Healthcare with AX Corrosive Resistant Grid Halcyon Healthcare with AXCE Gasketed Corrosive Resistant Grid Clean Room Non Perforated Metal Torsion Spring System Plain Metal Clip-In Aluminum Plain
Food Storage	Food & Nutrition Service & Laundry Areas	
Ware Washing	Food & Nutrition Service & Laundry Areas	
Laundry Areas	Food & Nutrition Service & Laundry Areas	

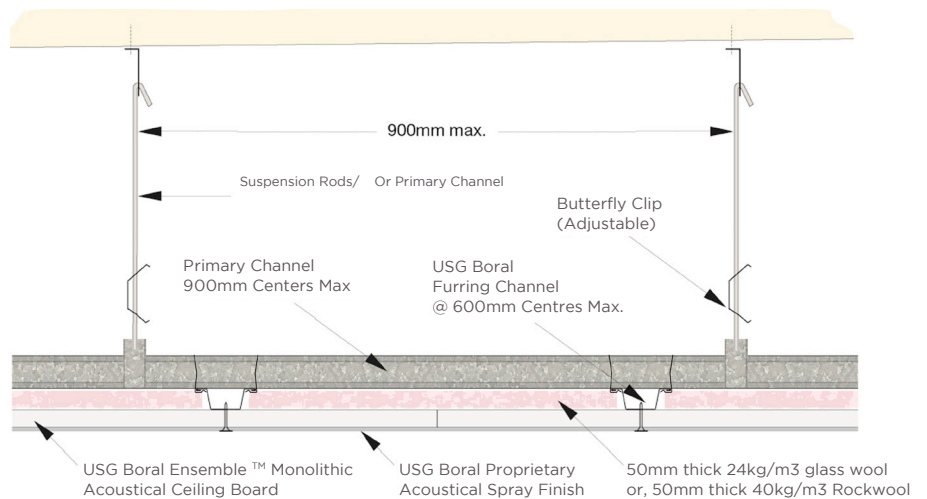
HCC1

# ENSEMBLE™ MONOLITHIC ACOUSTICAL CEILING SYSTEM

## DESCRIPTION

- **USG Boral Ensemble™ Monolithic Acoustical Ceiling System** is a lightweight, non-combustible, high acoustic seamless ceiling system consist of USG Boral Ensemble™ Brand Panels 12.5mm thick screw fixed to framing system and finished using USG Boral Ensemble Spray Applied Finish.

- USG Boral Ensemble™ Brand Panels 12.5mm thick



## CEILING CONSTRUCTION

**Lining:** USG Boral Ensemble™ Brand Panels 12.5mm thick

**Framing:** USG Boral Primary Channel  
USG Boral Furring Channel  
USG Boral Wire Connecting Clip  
USG Boral Primary Channel Bracket  
USG Boral Butterfly Clip  
USG Boral Suspension Rod

**Insulation:** as required

**Fastener:** 25mm Type 'S' Needle Point Screws

**Joint Tape:** USG Boral Paper Tape 50mm width

**Jointing Compound:** 1<sup>st</sup> and 2<sup>nd</sup> Coat : SHEETROCK® All Purpose Joint Compound or USG Boral Premium Premix  
3<sup>rd</sup> Coat : SHEETROCK® Lightweight All-Purpose Joint Compound

**Final Finish:** USG Boral Ensemble Spray Applied Finish

To ensure the performance of this system meets the USG Boral Warranty requirements, only USG Boral products are to be used and installed correctly in accordance to USG Boral specifications and recommendations.

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## APPLICATION AS PER 2018 FGI GUIDELINES

- Central Sterile Supply
- Class 2 MRI & Imaging Rooms
- Class 3 MRI & Imaging Rooms
- Clean Corridors
- Decontamination Rooms
- Endoscope Processing Rooms
- Hazardous Drug Compounding Pharmacies
- Lobbies
- Operation Theaters
- Sterile Compounding Pharmacies
- Treatment / Procedure Rooms
- Waiting Areas

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## PERFORMANCE

**Mass:** 6.7 kg/m<sup>2</sup>

**Acoustic rating :** NRC 0.65 and  $\alpha_w$  0.70

**Insulation :** Glass wool 50mm thick 24kg/m<sup>3</sup> or Rockwool 50mm thick 40kg/m<sup>3</sup> both faced with back fleece

**Light reflectance :** 0.85

**Fire rated:** Class A

**Finish:** White, seamless, spray-applied fine texture with low VOC - emitting material

To ensure the performance of this system meets the USG Boral Warranty requirements, only USG Boral products are to be used and installed correctly in accordance to USG Boral specification and recommendations.

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## ARCHITECTURAL SPECIFICATION

**USG Boral Ensemble™ Monolithic Acoustical Ceiling System** consist of USG Boral Ensemble™ Brand Panels 12.5mm thick screw fixed staggered onto USG Boral Dry Wall ceiling system (Primary Channel @ 900mm centers max., Furring Channel @ 600mm centers. max., Suspension Bracket to connect rod and Primary Channel, 50mm thick 24kg/m<sup>3</sup> glass wool or 50mm thick 40kg/m<sup>3</sup> Rockwool insulation with back fleece placed on top of panels, board joints to be flush finished using USG Boral Paper Tape 50mm width and SHEETROCK® All Purpose Joint Compound or USG Boral Premium Premix (1st and 2nd coat) and SHEETROCK® Lightweight All-Purpose Joint Compound (3rd coat) jointing compound.

All board surface to be final finished with 2 - 3mm thick **USG Boral Ensemble Spray Applied Finish**, all fixed in accordance to manufacturer's instruction and recommendation.



## HCC2

# METAL CEILING CLIP IN

### STANDARD SPECIFICATION

#### RAL Colors



#### Wooden Finish



### CLIP-IN CEILINGS SYSTEM

#### Features & Benefits:

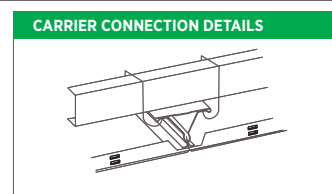
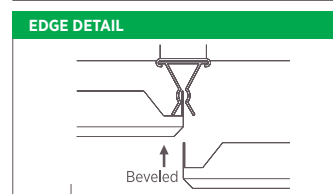
- USG Boral ME offers a wide range of high quality metal panels that increase the aesthetic and functional value of your hospital interiors within relatively a modest ceiling budget.
- Clip-in Metal ceiling panels are all antibacterial tiles which are press formed from aluminum alloy series 3000 or mild steel in various RAL Colors or wooden textures
- Powder coating application having a coating thickness between 70-90 microns.
- Panel thickness ranges from 0.6 up to 1.4mm, other thickness is available upon request.
- Suspension components are made of galvanized steel or and prepainted steel/ Aluminum.

#### Applications as per 2018 FGI Guidelines:

- Central Sterile Supply
- Class 2 MRI & Imaging Rooms
- Class 3 MRI & Imaging Rooms
- Clean Corridors
- Corridors
- Decontamination Rooms
- Endoscope Processing Rooms
- Food Preparation
- Food Storage
- Hazardous Drug Compounding Pharmacies
- Laundry Areas
- Operation Theaters
- Pharmacies
- Sterile Compounding Pharmacies
- Ware Washing

**TABLE 9: METAL CEILING CLIP IN SUSPENSION COMPONENTS**

DESCRIPTION & MATERIAL	APPLICATION	
<b>Suspension hanger</b>	Suspends primary channel from soffit	
<b>Suspension channel</b>	Provides primary support and lateral restraint	
<b>Spring tee bar (Triangle type)</b>	Suspended profiles carry and hold adjacent clip-in tiles flanges	
<b>Wire connecting clips</b>	For fastening the Spring T into the primary channel	
<b>Primary channel brackets</b>	To suspend the primary channels using hangers	
<b>Butterfly clip</b>	Provide easy plenum height adjustment	
<b>L-Trim</b>	22 x 19.5mm - 0.48 thick	
<b>U-Trim</b>	30 x 50 x 30mm - 0.48 thick	



### CUT VIEW DETAILS





**PRODUCT INFORMATION**

ITEM NO.	DESCRIPTION	TOTAL THICKNESS	EDGE DETAIL	COLOR	SUSPENSION OPTION
<b>AC-11</b> (6)(7)(8) <b>R</b> (16)(10)(06)	Clip-in panel 300x300mm Alum, Plain	0.60/0.70/0.80mm	Beveled	RAL9016/ 9010/9006	Carrier Connection
<b>AC-22</b> (6)(7)(8) <b>R</b> (16)(10)(06)	Clip-in panel 600x600mm Alum, Plain	0.60/0.70/0.80mm	Beveled	RAL9016/ 9010/9006	Carrier Connection
<b>SC-22</b> (6)(7) <b>R</b> (16)(10)(06)	Clip-in panel 600x600mm Steel, Plain	0.50/0.60mm	Beveled	RAL9016/ 9010/9006	Carrier Connection
<b>AC-14</b> (8)(9)(10) <b>R</b> (16)(10)(06)	Clip-in panel 300x1200mm Alum, Plain	0.80/0.90/1.0mm	Beveled	RAL9016/ 9010/9006	Carrier Connection
<b>AC-15</b> (8)(9)(10) <b>R</b> (16)(10)(06)	Clip-in panel 300x1500mm Alum, Plain	0.80/0.90/1.0mm	Beveled	RAL9016/ 9010/9006	Carrier Connection
<b>AC-24</b> (8)(9)(10) <b>R</b> (16)(10)(06)	Clip-in panel 600x1200mm Alum, Plain	0.80/0.90/1.0mm	Beveled	RAL9016/ 9010/9006	Carrier Connection
<b>AC-44</b> (14) <b>R</b> (16)(10)(06)	Clip-in panel 1200x1200mm Alum, Plain	1.4mm	Beveled	RAL9016/ 9010/9006	Carrier Connection



HCC3

# METAL TORSION SPRING CEILING SYSTEM

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## STANDARD SPECIFICATION

### Features & Benefits:

- Aluminum panels provide a monolithic appearance.
- Full 90-degree swing-down motion provides easy downward access to plenum areas.
- Spring clip design provides superior panel alignment.
- No reveal edges as its optimum solution for Operation room ceilings.
- Wind load tested and approved, including Miami-Dade NOA, for exterior applications with proper bracing and framing.

### Applications as per 2018 FGI Guidelines:

- Central Sterile Supply
- Class 2 MRI & Imaging Rooms
- Class 3 MRI & Imaging Rooms
- Clean Corridors
- Corridors
- Decontamination Rooms
- Endoscope Processing Rooms
- Food Preparation
- Food Storage
- Hazardous Drug Compounding Pharmacies
- Laundry Areas
- Operation Theaters
- Operation Theaters
- Sterile Compounding Pharmacies
- Treatment / Procedure Rooms
- Ware Washing



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## PRODUCT SPECIFICATION DETAILS | ACOUSTICAL CEILINGS | 09 51 33

<b>Panel Size (mm)</b>	Panel Size (mm)	600x600	600x1200	600x1800	600x2400	1200x1200
<b>Material thickness (mm)</b>	Material thickness METRIC	0.8	0.8	1.0	1.0	1.0

### General

Provide Acoustical Ceiling Material manufactured to meet requirements of this specification in accordance with ASTM E 1264

### Materials

- Type: VII, aluminum facing (pan) with mineral glass or fiber base backing.
- Pattern: Plain
- Panel Face Finish: Standard colors is RAL 9010 and many other wooden patterns are Beech, Cherry, Maple, Walnut, Alder, Oak, Mahogany and Polaris, others are available upon request
- LR: It will vary depending on paint color
- NRC: It will vary depending on acoustical backer
- CAC: It will vary depending on acoustical backer
- Edge/Joint Detail: Butt Joint.
- Suspension Grid Width 24mm
- Panel Height : 38mm
- Modular Size: 600x600mm , 600x1200mm, 600x1800mm, 600x2400mm, 1200x1200mm
- Required accessories: Stabilizer bars for all panels longer than 1524mm
- Product Name: METAL TORSION SPRING CEILING SYSTEM

### DIRECT-HUNG, METAL SUSPENSION SYSTEM FOR TORSION SPRING METAL PAN CEILING.

Wide-Face, Capped, Double-Web, Steel Suspension System: Main runners and Cross runners roll formed from cold-rolled steel sheet, prepainted, electrolytic zinc-coated or hot-dip galvanized according to ASTM A 653/A 653M, G30 (Z90) coating designation, with prefinished, cold-rolled, 24mm wide sheet metal caps on flanges.

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## SUSPENSION SYSTEM

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### A. DX MAIN TEE

- Structural Classification: Heavy-duty system.
- End Condition of Main Runners: Snap Clip.
- Face Design: Flat, flush.
- Cap Material: Steel cold-rolled sheet.
- Cap Finish: White.
- Grid Length: 3600mm

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### B. DX LONG CROSS TEE

- End Condition of Cross Runners: Snap Clip.
- Face Design: Flat, flush.
- Cap Material: Steel cold-rolled sheet.
- Cap Finish: White
- Grid Length: 1200mm

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### C. SHORT CROSS TEE

- End Condition of Cross Runners: Snap Clip.
- Face Design: Flat, flush with factory-cut slots fabricated to accept torsion-spring-hinged attachment.
- Cap Material: Steel cold-rolled sheet.
- Cap Finish: White
- Grid Length: 600mm



HCC4

# CLEAN ROOM™ NON-PERFORATED

## STANDARD SPECIFICATION



### Features & Benefits:



- Have an embossed, vinyl-laminated face with sealed back and edges for use in Class 100 (cross reference to Class 5 per ISO 14644-1) or 10M-100M clean rooms as per Federal standard 209E for Classification by Airborne particles
- Made with Fire code base materials to meet life safety codes
- Available in non-perforated finish for healthcare applications
- Classified HRC panels (High Recycled Content) which is greater than 50%
- Recommended to be used with CE grid (gasketed tee flanges) for Hospitals Laboratories and Hospitals General Areas
- Certified USDA bio based product requirements for food processing areas where Clean Room™ has achieved both Bio-Preferred initiatives: Federal Procurement Preference and Certified Product Labeling
- Cleanroom classified, meets Federal Spec. 209E for non-perforated “Clean Room™ and work station Requirements, controlled environment”
- Washable, scrubbable resistance
- High humidity resistant and anti-mold, mildew growth

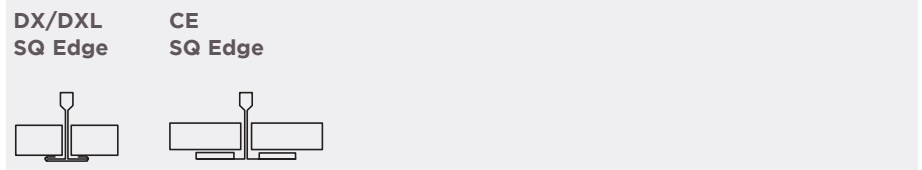
### Applications as per 2018 FGI Guidelines:

- Class 1 MRI & Imaging Rooms
- Food Preparation
- Food Storage
- Hydro-therapy Rooms
- Laboratories
- Laundry Areas
- Pharmacies
- Ware Washing





Item	Size	Edge Detail	NRC	CAC	LR	Recycled Content	VOC Emission	Cost
 <b>CLX625</b>	600x1200x15	SQ	0.15	37	80%	52%	N/A	\$\$\$\$
<b>CLX245</b>	610x1220x15							
 <b>CLX665</b>	600*600*15	SQ	0.15	37	80%	52%	N/A	\$\$\$\$
<b>CLX225</b>	610*610*15							



## PART 2- PRODUCT

### Product Specification Details | Acoustical Ceilings | 09 51 13

#### 2.1 General

Provide Acoustical Ceiling Material manufactured to meet requirements of this specification in accordance with ASTM E 1264 and EN 13964.

#### 2.2 Materials

Acoustical Ceiling Units:

1. Type X, Pattern [G] [I]
2. Embossed Vinyl-faced with field cut-edges sealed with white latex paint
3. Size 15mm thick [600 x 600] [600 x 1200]
4. Edge Detail Trim (Square)
5. Noise Reduction Coefficient (NRC) [0.15]
6. Ceiling Attenuation Class (CAC) [37 dB]
7. Light Reflectance Coefficient (LR) 0.8
8. Recycled Content [52%]
9. Color White similar to RAL 9016
10. Surface Burning Characteristics per ASTM E 84 Class A, Flame Spread: 10, Smoke development: 20 Reaction to Fire: Euroclass A2-s1,d0 in accordance with EN-13501-1
11. Underwriters Laboratories Inc. Fire-Resistance (ASTM E 119) ANSI/UL 263 Time-Rated Assembly [3hrs] [D218]
12. Clean Room Classification; ISO 5 as per ISO 14644-1
13. Thermal Resistance: 0.23 m °K/W - R 1.3
14. Humidity Resistance Maximum 99% RH / 40°C
15. Weight: 5.25 kg/m<sup>2</sup>
16. Mold Prevention: Inherent to Mold/Mildew growth
17. Relevant LEED Credit: EA Credit 1 | MR Credit 4 | MR Credit 5 | MR Credit 6 | IEQ Credit 3 | IEQ Credit 3.2 | IEQ Credit 4.6 | IEQ Credit 8.1 | IEQ Credit 9
18. Product Name [Clean Room™]

## HCC5

### STANDARD SPECIFICATION



### LOUNA SOUND ABSORPTION

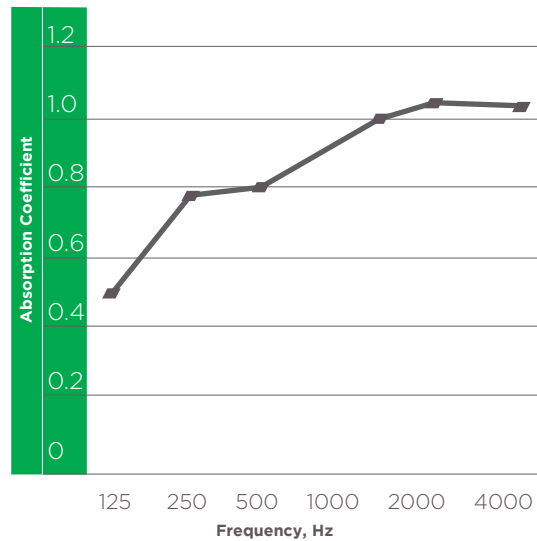
## LOUNA™

#### Features & Benefits:

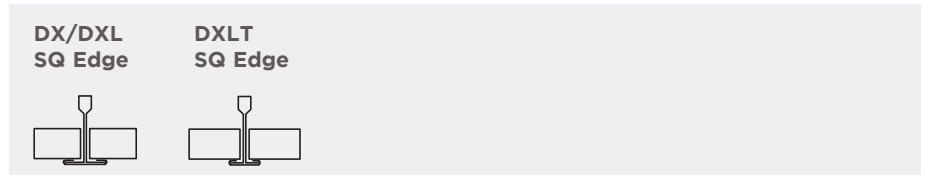
- Soft Fiber substrate with monolithic visual reducing installation time
- Exceptional Sound Absorption with NRC values up to 0.95
- High Light Reflectance (LR-0.88) reduces light fixtures & Energy use
- Washable & Scrubbable finish
- Impact & Scratch Resistant
- Available in Plank Sizes compatible with Logix Integrated Ceiling System

#### Applications as per 2018 FGI Guidelines:

- Lobbies
- Waiting Areas



	Item	Size	Edge Detail	NRC	CAC	LR	Recycled Content	VOC Emission	Cost
☂	LC665	600*600*15	SQ	0.85	24	88%	40%	N/A	\$\$\$
	LC225	610*610*15							
☂	LC669	600*600*19	SQ	0.95	24	88%	40%	N/A	\$\$\$\$
	LC229	610*610*19							
☂	LC629	600*1200*19	SQ	0.95	24	88%	40%	N/A	\$\$\$\$
	LC249	610*1220*19							
☂	LC6625	600*600*25	SQ	0.95	28	88%	40%	N/A	\$\$\$\$
	LC2225	610*610*25							



## PART 2- PRODUCT

### Product Specification Details | Acoustical Ceilings | 09 51 13

#### 2.1 General

Provide Acoustical Ceiling Material manufactured to meet requirements of this specification in accordance with ASTM E 1264.

#### 2.2 Materials

Acoustical Ceiling Units:

1. Type XII, Pattern [G]
2. Glass wool substrate finished with Fiber Glass scrim
3. Size 15, 19, 25mm thick [600 x 600] [600 x 1200]
4. Edge Detail Trim (Square)
5. Noise Reduction Coefficient (NRC) [0.85] [0.95]
6. Ceiling Attenuation Class (CAC) [24-28 dB]
7. Light Reflectance Coefficient (LR) 0.88
8. Recycled Content [40%]
9. Color White similar to RAL 9016
10. Surface Burning Characteristics per ASTM E84 Class A, Flame Spread:25, Smoke development
11. Thermal Resistance: 0.6 m<sup>2</sup> °K/W - R 3.5 (19mm), 0.74 m<sup>2</sup> °K/W - R 4.2 (25mm)
12. Humidity Resistance Maximum 99% RH / 40°C
13. Weight: 1.7 kg/m<sup>2</sup> for 15mm, 2.1 kg/m<sup>2</sup> for 19mm, 2.4 kg/m<sup>2</sup> for 25mm
14. Mold Prevention: Soft Fiber substrate is inherently resistant to the growth of mold and mildew
15. Washability / Scrubbability: Exceeds 1000 Wash/Scrub Cycles without surface break or the extent of abrasion per ASTM D4828 & D2486
16. Relevant LEED Credit: EA Credit 1 | MR Credit 4 | MR Credit 5 | MR Credit 6 | IEQ Credit 3 | IEQ Credit 3.2 | IEQ Credit 4.6 | IEQ Credit 8.1 | IEQ Credit 9
17. Product Name [Louna]

## HCC6

### STANDARD SPECIFICATION



### HALCYON™ HEALTHCARE SOUND ABSORPTION - 19 MM

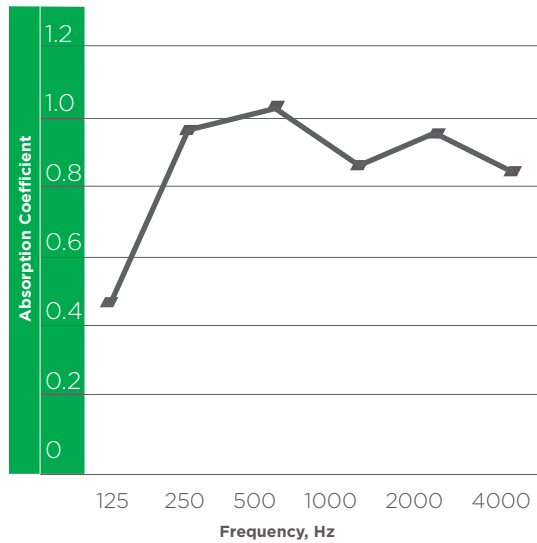
# HALCYON™ HEALTHCARE









#### Features & Benefits:

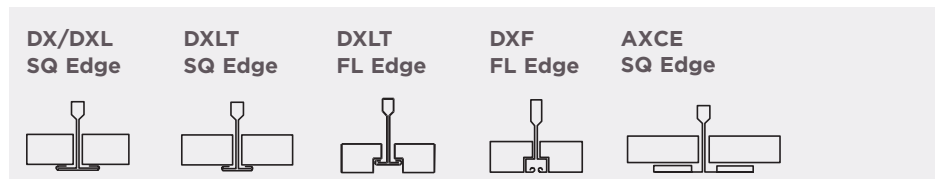
- Water repellent membrane designed to be durable and safe with common disinfectants
- Fiber Glass substrate with monolithic visual reducing installation time
- Recommended to be used with AX grid for hospitals high-humidity or wet-cleaned areas
- Exceptional Sound Absorption with NRC values up to 1
- High Light Reflectance (LR-0.88) reduces light fixtures & Energy use
- Washable & Scrubbable finish
- Impact & Scratch Resistant
- Available in Plank Sizes compatible with Logix Integrated Ceiling System

#### Applications as per 2018 FGI Guidelines:

- Class 1 MRI & Imaging Rooms
- Food Preparation
- Food Storage
- Laboratories
- Laundry Areas
- Lobbies
- ICU / NICU
- Pharmacies
- Waiting Areas
- Ware Washing



	Item	Size	Edge Detail	NRC	CAC	LR	Recycled Content	VOC Emission	Cost
	HC669-HC HC229-HC	600*600*19 610*610*19	SQ	0.95	24	88%	40%	N/A	\$\$\$\$
	HC629-HC HC249-HC	600*1200*19 610*1220*19	SQ	0.95	24	88%	40%	N/A	\$\$\$\$
	HC6625-HC HC2225-HC	600*600*25 610*610*25	SQ	1	25	88%	40%	N/A	\$\$\$\$
	HC6225-HC HC2425-HC	600*1200*25 610*1220*25	SQ	1	25	88%	40%	N/A	\$\$\$\$
	HCRF6625-HC HCRF2225-HC	600*600*25 610*610*25	FL	0.95	28	88%	40%	N/A	\$\$\$\$
	HCRF6225-HC HCRF2425-HC	600*1200*25 610*1220*25	FL	0.95	28	88%	40%	N/A	\$\$\$\$
	HC6638-HC HC2238-HC	600*600*38 610*610*38	SQ	1	31	88%	43%	N/A	\$\$\$\$
	HC6238-HC HC2238-HC	600*1220*38 610*1220*38	SQ	1	31	88%	43%	N/A	\$\$\$\$



## PART 2- PRODUCT

### Product Specification Details | Acoustical Ceilings | 09 51 13

#### 2.1 General

Provide Acoustical Ceiling Material manufactured to meet requirements of this specification in accordance with ASTM E 1264.

#### 2.2 Materials

Acoustical Ceiling Units:

1. Type XII, Form 2, Pattern [E] [G]
2. Fiber Glass Substrate finished with Painted Fiber Glass scrim
3. Size 19, 25, 38mm thick [600 x 600] [600 x 1200]
4. Edge Detail Trim (Square), Reveal (SL)(FL)
5. Noise Reduction Coefficient (NRC) [0.95][1]
6. Ceiling Attenuation Class (CAC) [24-31 dB]
7. Light Reflectance Coefficient (LR) 0.88
8. Recycled Content up to [43%]
9. Color White similar to RAL 9016
10. Surface Burning Characteristics per ASTM E84 Class A, Flame Spread:25, Smoke development: 15
11. Thermal Resistance: 0.6 m<sup>2</sup> °K/W - R 3.5 (19mm), 0.74 m<sup>2</sup> °K/W - R 4.2 (25mm) 1.12 m<sup>2</sup> °K/W (38mm)
12. Humidity Resistance Maximum 99% RH / 40°C, ClimaPlus
13. Weight 2.1 kg/m<sup>2</sup> for 19mm, 2.4 kg/m<sup>2</sup> for 25mm, 3.6 kg/m<sup>2</sup> for 38mm
14. Mold Prevention: Fiberglass substrate is inherently resistant to the growth of mold and mildew
15. Washability / Scrubbability: Exceeds 1000 Wash/Scrub Cycles without surface break or the extent of abrasion per ASTM D4828 & D2486
16. Water repellent application on Top surface up to 5 Hours
17. Relevant LEED Credit: EA Credit 1 | MR Credit 4| MR Credit 5 | MR Credit 6  
IEQ Credit 3 | IEQ Credit 3.2 | IEQ Credit 4.6 | IEQ Credit 8.1 | IEQ Credit 9
18. Product Name [Halcyon™ HealthCare]



## HCC7

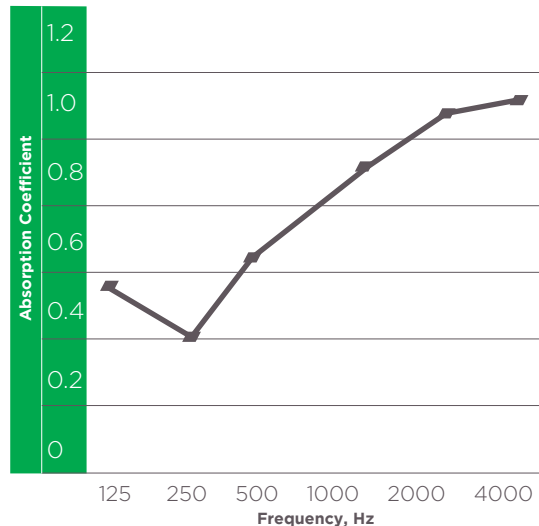
SONATA  
HEALTHCARESTANDARD  
SPECIFICATION



















## Features &amp; Benefits:

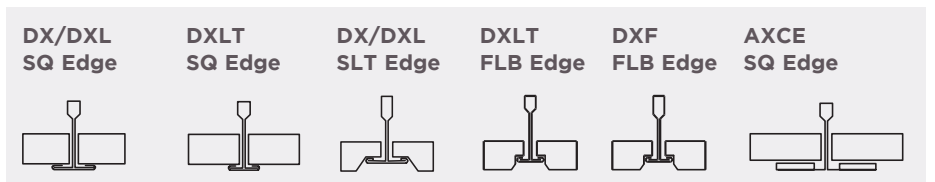
- Sonata healthcare in normal condition face and back is ISO 4 according to the norm ISO 14644-1 : 2015
- Vibrations face and back is ISO 4 according to the norm ISO 14644-1 : 2015
- The microbiological class according to the norm NF S 90-351 : 2013 is as following: M100 / area 2 (*Acinobacter baumannii*), M1 / area 4 (*Staphylococcus aureus* MRSA, *Bacillus cereus*, *Streptococcus pneumoniae*, *Escherichia coli*, *Candida albicans*), <1 / area 2,3,4 (*Aspergillus brasiliensis*)
- Recommended to be used with AXCE grid (gasketed tee flanges) for hospitals restricted and semi restricted areas
- Fine, monolithic texture Industry's highest light reflectance LR 0.89 reduces light fixtures and energy use is part of Indirect lighting
- Water repellent membrane on both top and back surfaces
- High Impact and scratch resistance, durable and cleanable surface
- Available in High NRC formulation and in optimized recycled content formulations to help maximize LEED recycled content contribution
- Washable and scrubbable finish

## Applications as per 2018 FGI Guidelines:

- Central Sterile Supply
- Class 1 MRI & Imaging Rooms
- Class 2 MRI & Imaging Rooms
- Clean Corridors
- Corridors
- Decontamination Rooms
- Endoscope Processing Rooms
- Food Preparation
- Food Storage
- Laboratories
- Laundry Areas
- Nurse's Stations
- Patient Rooms
- Pharmacies
- Treatment / Procedure Rooms
- Ware Washing

SONATA HEALTHCARE  
SOUND ABSORPTION -  
19 MM

	Item	Size	Edge Detail	NRC	CAC	LR	Recycled Content	VOC Emission	Cost
 	SC669HC SC229HC	600*600*19 610*610*19	SQ	0.75	37	89%	83%	Low	\$\$\$\$
 	SCR669HC SCR229HC	600*600*19 610*610*19	SLT	0.75	37	89%	83%	Low	\$\$\$\$
 	SCRF669HC SCRF229HC	600*600*19 610*610*19	FLB	0.75	37	89%	83%	Low	\$\$\$\$
 	SC629HC SC249HC	600*1200*19 610*1220*19	SQ	0.75	37	89%	83%	Low	\$\$\$\$
 	SCR629HC SCR249HC	600*1200*19 610*1220*19	SLT	0.75	37	89%	83%	Low	\$\$\$\$
 	SCRF629HC SCRF249HC	600*1200*19 610*1220*19	FLB	0.75	37	89%	83%	Low	\$\$\$\$
 	SC6622HC SC2222HC	600X600X22 610X610X22	SQ	0.8	40	89%	83%	Low	\$\$\$\$
 	SCR6622HC SCR2222HC	600X600X22 610X610X22	SLT	0.8	40	89%	83%	Low	\$\$\$\$
 	SCRF6622HC SCRF2222HC	600X600X22 610X610X22	FLB	0.8	40	89%	83%	Low	\$\$\$\$



## PART 2- PRODUCT

### Product Specification Details | Acoustical Ceilings | 09 51 13

#### 2.1 General

Provide Acoustical Ceiling Material manufactured to meet requirements of this specification in accordance with ASTM E 1264 and EN 13964.

#### 2.2 Materials

Acoustical Ceiling Units:

1. Type IV, Form 2, Pattern [E] [G]
2. Mineral Fiber Substrate manufactured in wet Felted Technology and finished with Painted Fiber Glass scrim
3. Size 19, 22mm thick [600 x 600] [600 x 1200] [300 x 1200] [300 x 1500]
4. Edge Detail Trim (Square), Reveal (SLT) (FLB)
5. Noise Reduction Coefficient (NRC) [0.75] [0.8]
6. Ceiling Attenuation Class (CAC) [37-40 dB]
7. Light Reflectance Coefficient (LR) 0.89
8. Recycled Content [up to 83%]
9. Color White similar to RAL 9016
10. Surface Burning Characteristics per ASTM E84 Class A, Flame Spread:20, Smoke development:70 Reaction to Fire: Euroclass A2-s1,d0 in accordance with EN-13501-1
11. Underwriters Laboratories Inc Fire Resistance ASTM E119 ANSI/UL 263 Time-Rated Assembly (2Hrs) (J201)
12. Clean Room Classification; ISO 4 as per ISO 14644-1
13. Thermal Resistance: 0.31 m °K/W - R 1.8 (19mm)
14. Humidity Resistance Maximum 99% RH / 40°C
15. Weight: 5 kg/m
16. Mold Prevention application per ASTM D3273-1, Rate 10 per D3274
17. Washability / Scrubbability: Exceeds 1000 Wash/Scrub Cycles without surface break or the extent of abrasion per ASTM D4828 & D2486
18. Water repellent membrane on Top & Back surface up to 5 Hours
19. Relevant LEED Credit: EA Credit 1 | MR Credit 4 | MR Credit 5 | MR Credit 6 | IEQ Credit 3 | IEQ Credit 3.2 | IEQ Credit 4.6 | IEQ Credit 8.1 | IEQ Credit 9
20. Product Name [Sonata HealthCare]



## HCC8

## SPARTA

STANDARD  
SPECIFICATION

Plain White



Star Plus

**Features & Benefits:**

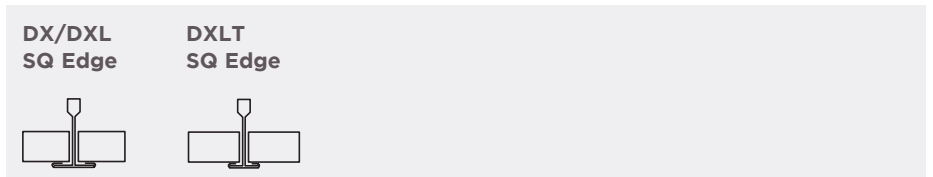
- Laminated Washable Vinyl facing for easy maintenance
- Available only in Plain facings with smooth appearance for Plain White pattern and light texture for Star Plus pattern
- Ultra high humidity resistant and sag resistance ensures durability in standard or extreme environmental conditions. May be installed early in the hospital program
- It comes with Aluminum Foil backing which acts as a vapor barrier and resists breathing so panel stays cleaner longer
- Scrub resistant. Dirt marks are easy to remove
- Scuff and scratch resistant, for longer life
- Very suitable for Healthcare applications
- Economical and easy to trim and install

**Applications as per 2018 FGI Guidelines:**

- Hydro-therapy Rooms
- Nurse's Stations
- Patient Rooms



	Item	Size	Edge Detail	NRC	CAC	LR	Recycled Content	VOC Emission	Cost
☂	LSP665	600*600*15	SQ	0.15	35	84%	32%	Low	\$
	LSP225	610*610*15							
☂	LPW665	600*600*15	SQ	0.15	35	84%	32%	Low	\$
	LPW225	610*610*15							
☂	LSP669	600*600*19	SQ	0.15	36	84%	32%	Low	\$\$
	LSP229	610*610*19							
☂	LPW669	600*600*19	SQ	0.15	36	84%	32%	Low	\$\$
	LPW229	610*610*19							



## PART 2- PRODUCT

### Product Specification Details | Acoustical Ceilings | 09 51 13

#### 2.1 General

Provide Acoustical Ceiling Material manufactured to meet requirements of this specification in accordance with ASTM E 1264.

#### 2.2 Materials

Acoustical Ceiling Units:

1. Type X, Pattern [G]
2. Smooth and textured laminated panels
3. Size 15, 19mm thick [600 x 600]
4. Edge Detail Trim (Square)
5. Noise Reduction Coefficient (NRC) [0.15]
6. Ceiling Attenuation Class (CAC) [35-36 dB]
7. Light Reflectance Coefficient (LR) 0.84
8. Recycled Content [32%]
9. Color White similar to RAL 9016
10. Thermal Resistance: 0.23 m<sup>2</sup> °K/W - R 1.3 (15mm), 0.31 m<sup>2</sup> °K/W - R 1.8 (19mm)
11. Clean Room Classification; ISO 5 as per ISO 14644-1
12. Humidity Resistance Maximum 99% RH / 40°C
13. Weight: 3.5 kg/m<sup>2</sup> 15mm, 4.5 kg/m<sup>2</sup> 19mm
14. Mold Prevention: Inherent to Mold/Mildew growth
15. Relevant LEED Credit: EA Credit 1 | MR Credit 4 | MR Credit 5 | MR Credit 6 | IEQ Credit 3 | IEQ Credit 3.2 | IEQ Credit 4.6 | IEQ Credit 8.1 | IEQ Credit 9
16. Product Name [Sparta]



HCC9

# TAIGA HYGIENE

## STANDARD SPECIFICATION



### Features & Benefits:

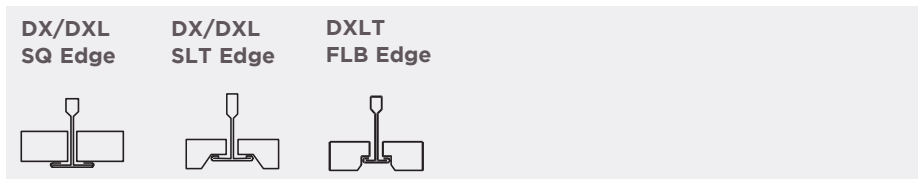
- Taiga Hygiene in normal condition face and back is ISO 4 according to the norm ISO 14644-1 : 2015
- Vibrations face and back is ISO 4 according to the norm ISO 14644-1 : 2015
- The microbiological class according to the norm NF S 90-351 : 2013 is as following: M100 / area 2 (Klebsiella pneumoniae), M1 / area 4 (Acinobacter baumannii, Staphylococcus aureus MRSA, Bacillus cereus, Streptococcus pneumoniae, Escherichia coli, Candida albicans), <1 / area 2,3,4 (Aspergillus brasiliensis)
- Taiga Hygiene has been developed to meet the most stringent demand on hygiene and clean ability
- All Taiga Hygiene items have a special fungicide treatment in the core and on the finished painted surface to enhance the resistance to growth of micro-organisms and ensure regular clean ability. It contains a broad spectrum antimicrobial additive on the face and the back of the panel that provides resistance against the growth of mold and mildew
- High light reflectance performance 86%
- High humidity resistant in ClimaPlus, suitable for applications with intermittent heating and Cooling

### Applications as per 2018 FGI Guidelines:

- Class 1 MRI & Imaging Rooms
- Laboratories
- Nurse's Stations
- Patient Rooms
- Pharmacies



	Item	Size	Edge Detail	NRC	CAC	LR	Recycled Content	VOC Emission	Cost
☔	NA4107M-ME	600*600*15	SQ	0.15	33	86%	32%	Low	\$\$
	NA4107M-IM	610*610*15							
☔	NB4107M-ME	600*600*15	SLT	0.15	33	86%	32%	Low	\$\$
	NB4107M-IM	610*610*15							
☔	NC4107M-ME	600*600*19	FLB	0.15	36	86%	32%	Low	\$\$
	NC4107M-IM	610*610*19							
☔	NA4997M-ME	600*600*19	SQ	0.15	36	86%	32%	Low	\$\$\$
	NA4997M-IM	610*610*19							
☔	NB4997M-ME	600*600*19	SLT	0.15	36	86%	32%	Low	\$\$\$
	NB4997M-IM	610*610*19							



## PART 2- PRODUCT

### Product Specification Details | Acoustical Ceilings | 09 51 13

#### 2.1 General

Provide Acoustical Ceiling Material manufactured to meet requirements of this specification in accordance with ASTM E 1264 and EN 13964.

#### 2.2 Materials

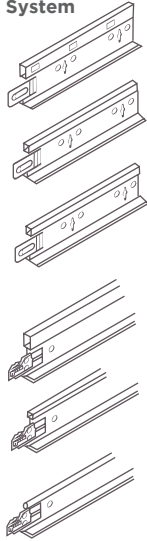
Acoustical Ceiling Units:

1. Type III, Form 2, Pattern [G]
2. Plain finish panels
3. Size 15, 19mm thick [600 x 600]
4. Edge Detail Trim (Square), Reveal (SLT)
5. Noise Reduction Coefficient (NRC) [0.15]
6. Ceiling Attenuation Class (CAC) [33-36 dB]
7. Light Reflectance Coefficient (LR) 0.86
8. Recycled Content [32%]
9. Color White similar to RAL 9016
10. Surface Burning Characteristics per ASTM E 84 Class A, Flame Spread: 10, Smoke development: 20 Reaction to Fire: Euroclass A2-s1,d0 in accordance with EN-13501-1
11. Thermal Resistance: 0.23 m<sup>2</sup> °K/W - R 1.3 (15mm), 0.31 m<sup>2</sup> °K/W - R 1.8 (19mm)
12. Clean Room Classification; ISO 4 as per ISO 14644-1
13. Humidity Resistance Maximum 99% RH / 40°C for ClimaPlus
14. Weight: 3.5 kg/m<sup>2</sup> 15mm, 4.5 kg/m<sup>2</sup> 19mm
15. Mold Prevention application per ASTM D3273-1, Rate 10 per D3274
16. Washability / Scrubbability: Exceeds 1000 Wash/Scrub Cycles without surface break or the extent of abrasion per ASTM D4828 & D2486
17. Relevant LEED Credit: EA Credit 1 | MR Credit 4 | MR Credit 5 | MR Credit 6 | IEQ Credit 3 | IEQ Credit 3.2 | IEQ Credit 4.6 | IEQ Credit 8.1
18. Product Name [Taiga Hygiene]

# DONN® EXPOSED GRID FOR HEALTHCARE APPLICATION

## DONN® DX 24mm EXPOSED GRID

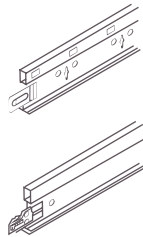
24mm Tee System



	PROFILE	PRODUCT	PROFILE HEIGHT	COMPONENT LENGTH	THICKNESS
MAIN TEE	Deep	Heavy-Standard	38mm	3600/3660mm	0.30mm
		Fire Rated	38mm		0.38mm
	Medium	Intermediate Duty	33mm	3600/3660mm	0.30mm
CROSS TEE	Deep	Fire Rated	38mm	1200/1220mm	0.30mm
		Fire Rated	38mm	600/610mm	
	Medium	Intermediate Duty	33mm	1200/1220mm	0.30mm
		Intermediate Duty	33mm	600/610mm	
	Shallow	Light Duty	25.5mm	1200/1220mm	0.30mm
		Light Duty	25.5mm	600/610mm	
	A Square Edge (SQ)	B Shadowline Tapered (SLT)	C Shadowline (SL)	D Shadowline Bevel (SLB)	
USG Boral ME Panel Edge Detail					

## DONN® CENTRICITEE 15mm EXPOSED GRID

15mm Tee System



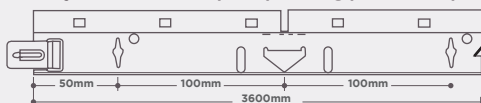
	PROFILE	PRODUCT	PROFILE HEIGHT	COMPONENT LENGTH	THICKNESS
MAIN TEE	Deep	Main Tee-Centricitee Heavy Duty- Fire Rated	38mm	3600/3660mm	0.38mm
CROSS TEE	Deep	Cross Tee (Heavy) Cross Tee ( Heavy)	38mm 38mm	1200mm 600mm	0.30mm
	A Square Edge (SQ) <sup>2</sup>	B Fineline Bevel Edge (FLB)	C Fineline (FL)	D Interline Tapered (ILT)	Patented self centering device in cross tees automatically centers ceiling panel grid module
USG Boral ME Panel Edge Detail					

### Fire Rated Option

DONN® DXLT24 is available as a Fire Rated upon request option providing protection up to 2 hours, subject to assembly design

DONN® DXLT15 is available only as a Fire Rated option providing protection up to 2 hours, subject to assembly design

Main Tee (Fire Rated)



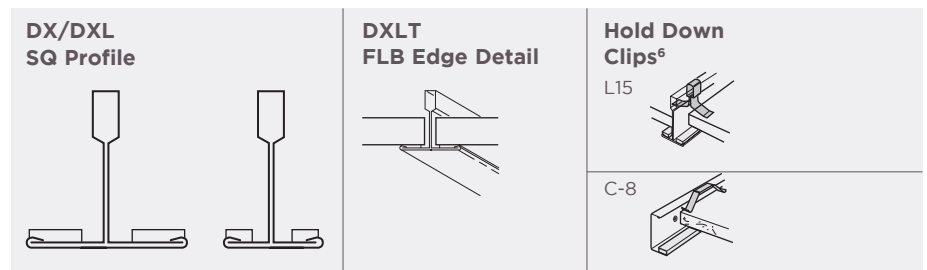
**USG DONN® BRAND  
CE™ ACOUSTICAL  
SUSPENSION SYSTEM**

**Features & Benefits:**

- Meets 2018 Guidelines For Healthcare Facilities. Grid system with factory-applied white, closed-cell foam gaskets for controlled environments.
- Min.G30 **hot-dipped galvanized** body provides corrosion protection. Supports Clean Room HEPA filters and lights.
- ICC-ES evaluated for building code compliance and seismic installations (ICC-ESR-1222)
- Capable of withstanding cleaning and/or disinfecting chemicals as tested in accordance with ASTM D402

**Applications as per 2018 FGI Guidelines:**

- Clean rooms
- Hospitals
- Food processing areas
- Healthcare facilities
- Certified to meet ISO 14644-1 Class 5 (Fed.Standard 209E Class 100)



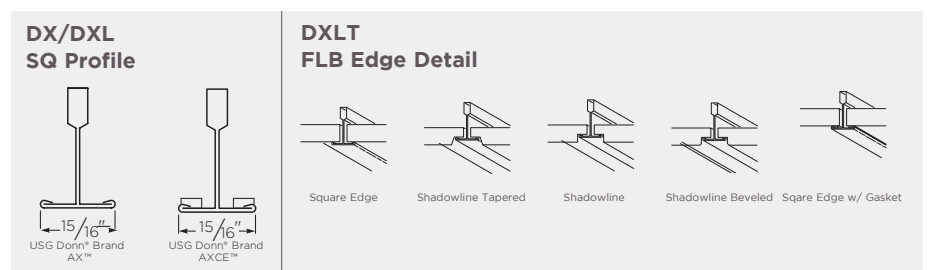
**USG DONN® BRAND AX™  
/AXCE™ ACOUSTICAL  
SUSPENSION SYSTEM**

**Features & Benefits:**

- Meets 2018 Guidelines For Healthcare Facilities.
- Noncorrosive **aluminum** 15/16” exposed grid system with stainless steel clip, ideal for high-humidity or wet-cleaned areas.
- Capable of withstanding cleaning and/or disinfecting chemicals as tested in accordance with ASTM D5402.
- Tested for environmental conditions in accordance with ASTM C635.
- Aluminum components can be used in nonmagnetic environments and meet USDA/FSIS requirements.
- Cross-tee override-ends resist twisting and give a professionally finished look.
- Proprietary stainless steel Quick-Release™ clip.
- Up to 90% recycled content.
- Factory applied, white closed cell foam gasket.

**Applications as per 2018 FGI Guidelines:**

- Healthcare facilities, restricted and semi-restricted areas
- MRI rooms
- Magnetic-free zones
- High-humidity areas
- Food processing areas
- Certified to meet ISO 14644-1 Class 5 (Fed. Standard 209E Class 100)





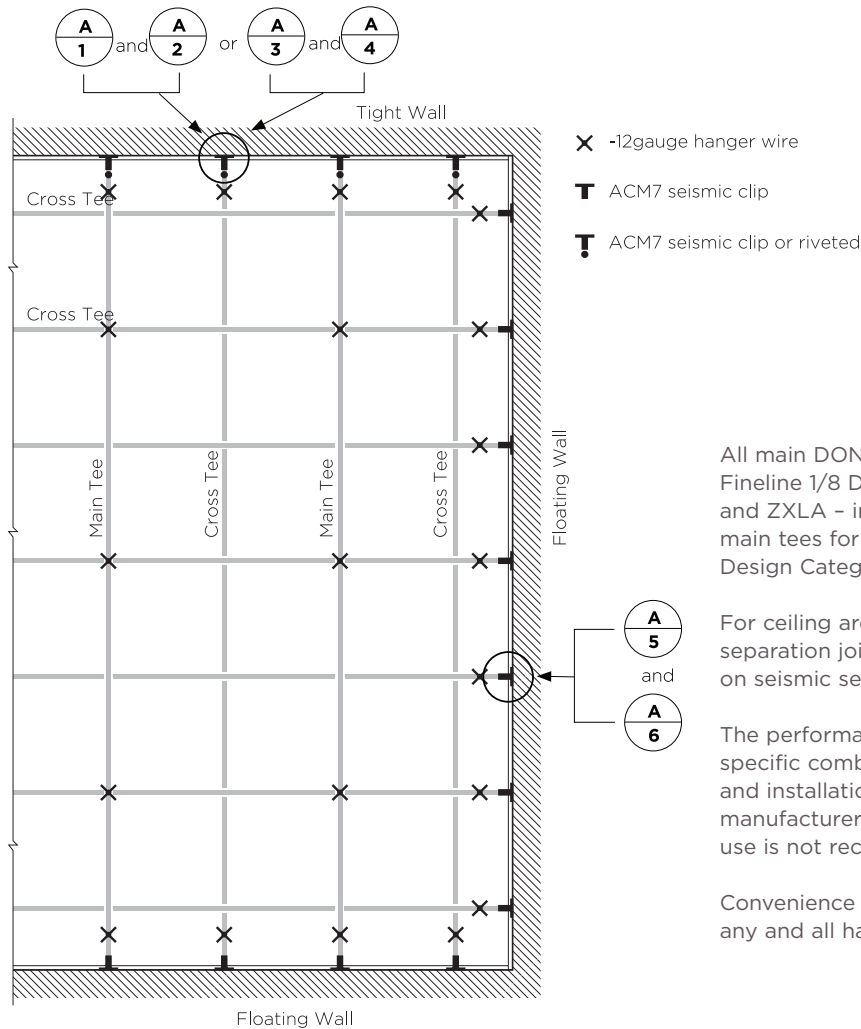
# DONN® SUSPENSION SYSTEM SEISMIC SOLUTIONS

Categories D, E, and F Category C

## System Summary

<b>Suspension System Duty Rating</b>	Heavy
<b>Wall Molding</b>	7/8"
<b>Seismic Clip</b>	ACM7
<b>Two Adjacent Floating Sides - With Gap</b>	3/49 gap; ACM7 seismic clip with fastener attachment to tee through slot (optional), and no fastener through wall molding.
<b>Two Adjacent Fixed Sides - Tight, No Gap</b>	Tight, no gap; ACM7 seismic clip with fastener attachment to tee (optional), and one fastener through wall molding (optional)
<b>Perimeter Hanger Wires</b>	Yes
<b>Stabilizer Bars</b>	None

## Construction Details



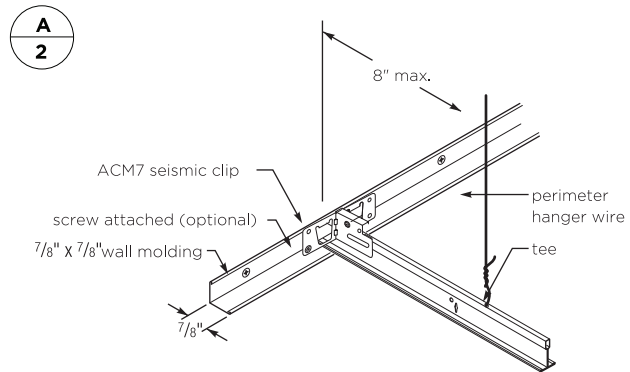
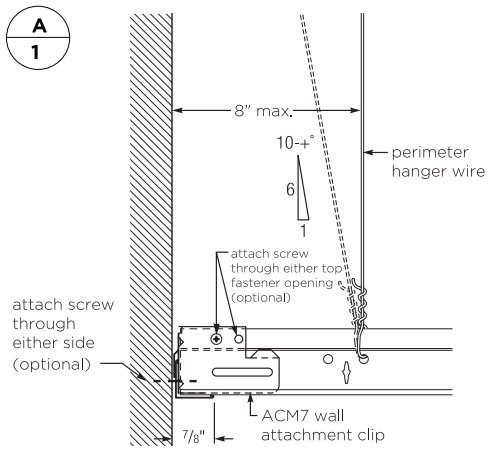
All main DONN® suspension systems - DX/DXL, Finline DXF, Finline 1/8 DXFF, Centricitee DXLT/DXLT, CE, DXW, DXLA, and ZXLA - include the Code compliant and heavy-duty main tees for Seismic Design Categories D, E, and F.

For ceiling areas exceeding 2,500 ft.2 (232 m<sup>2</sup>), a seismic separation joint may be required. See SC2496 for information on seismic separation joints.

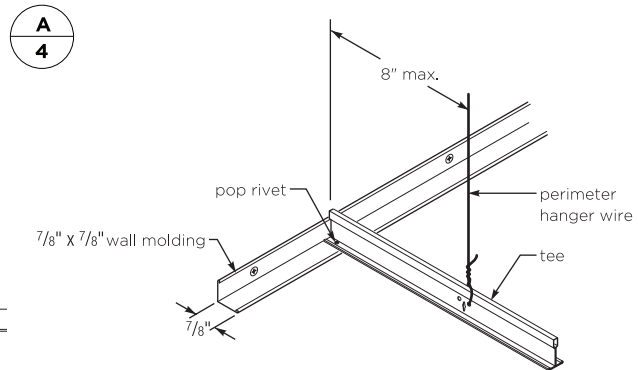
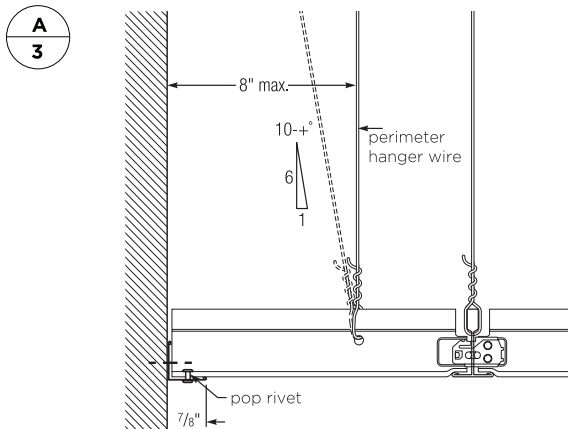
The performance of DONN® seismic systems is based on the specific combination of superior components, and design and installation methods shown. Components from other manufacturers were not evaluated, and their use or any mixed use is not recommended.

Convenience holes located in the tee bulb may be used for any and all hanger wires.

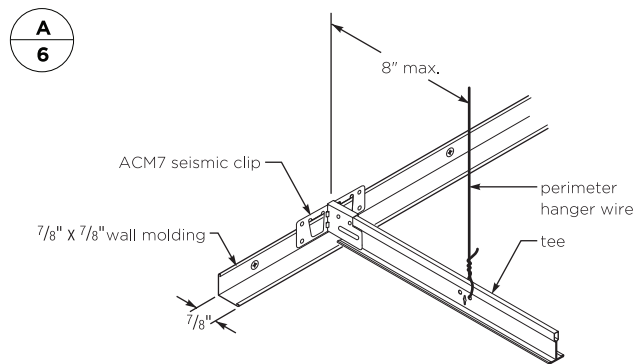
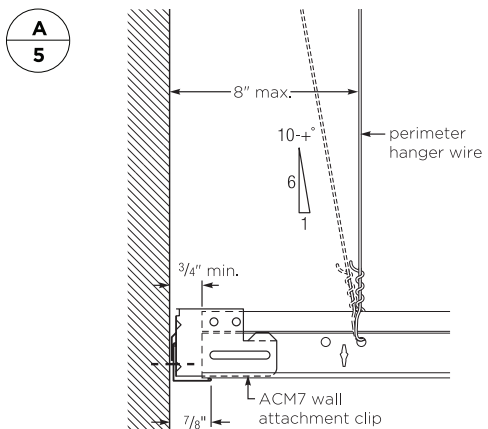
### ACM7 Clip, Tight Wall



### Tee Rivet, Tight Wall



### ACM7 Clip, Tight Wall

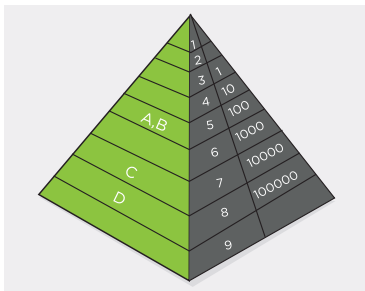


# ENVIRONMENTAL AIR QUALITY

## INDOOR AIR QUALITY

The Indoor Air Quality is affected equally by heating, ventilation and air conditioning, construction engineering, the quality of construction work, building materials as well as the operation and maintenance of the building. USG Boral ME Ceiling panels do not contain asbestos, carcinogens, mutagens or substances toxic to reproduction. It is important to identify the indoor-related time value, which is the time it takes from the installation of a product until the emission of ammonia, formaldehyde, VOC (Volatile Organic Compounds) and particles to decay below specified levels. This is based on odour and mucus irritation thresholds for eyes and the upper respiratory passage as well as standard room considerations. USG Boral ME products are classified to have low impact on indoor air quality. Even when installed in a fully furnished room with very little fresh air, the concentrations of VOCs & Formaldehyde are well below acceptable levels.

### Clean Room Classification



**All USG Boral ME products are classified as E1 products which guarantee that the products are below the lowest EU requirement for Formaldehyde emission.**

Many USG Boral ME ceiling panels help to support healthy environments with reduced Volatile Organic Compound (VOC) emissions: Ceiling with Little or No Formaldehyde Requirements as per CHPS (Collaborative For High Performance Schools)

- Zero VOC Emission for All CAST Ceilings (level < 2mg or 1.6 ppb)
- Low-Emitting Ceilings (level < 9 µg/m<sup>3</sup>)
- Meets minimum Standards (state of Washington Level < 50 ppb)

## CLEANLINESS

The dust particles can also impact on the health of people and be critical in special industries in the pharmaceutical, electronics and food industries and in certain hospital environments.

The international EN ISO 14644-1 standard (classes 1 to 9) is used for the classification of air cleanliness. This is the official standard, but the US Federal standard 209E (classes 1 to 100 000) is also widely spread.

**TABLE 10: CLEAN ROOM™ CLASSIFICATION**

FED STD 209D/209E		ISO 14644-1	Industry Application Areas		
English	Metric	ISO Class			
-	-	1			
-	-	2			
1	M1.5	3	Micro-electronics		
10	M2.5	4			
100	M3.5	5			
1,000	M4.5	6		Pharmaceutical	Electronics and Food
10,000	M5.5	7			
100,000	M6.5	8			Automotive and Space
-	-	9			

**A selective number of USG Boral ME products are certified class ISO 5 meeting the requirement of demanding clean rooms in regard to particle emissions.**

# MOLD PREVENTION

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## NO GROWTH OF MICRO-ORGANISMS

Excessive humidity and moisture in a hospitals can promote the development of microorganisms such as mold or bacteria and cause allergic reactions, respiratory illness or skin problems.

USG Boral ME address the issue of mold and microbial growth by providing acoustical ceiling tiles treated with a USG Boral ME antimicrobial treatment that provides broad spectrum control for mold/mildew.

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## YOU CONTROL MOISTURE. WE HELP CONTROL MOLD

### USG Boral ME's position on ASTM D3273 and ASTM C473

In the absence of specific tests for the broad category of construction products, the industry uses ASTM C473 and D3273. ASTM C473 measures water absorption of panels as a percentage of weight. ASTM D3273 measures resistance to mold growth on the surface of interior coatings rather than building materials. These test results do not represent definitive installed performance in specific project conditions. Products are being classified out of this test per ASTM D3274 where Rate 10 is designated for No Growth of Mold after 4 weeks Incubation. Special Products for HealthCare application like Taiga Hygiene & Sonata HC comes directly with Mold Prevention application per ASTM D3273.

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## PRODUCTS ALONE CANNOT CONTROL MOISTURE OR PREVENT MOLD

All products become susceptible to mold growth under unfavorable conditions. The EPA has found that mold will grow even on stainless steel, glass and all surfaces, given the right conditions.

In addition to mold growth, it is now important to install products that have low impact on Indoor Air Quality on other term on Comfort and Health.

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## WATER SHIELD

In its continuous improvement, USG Boral ME offers an invention in mineral fiber ceiling tiles.

Normally, the ceiling tiles have a tendency to stain when in contact with water due to condensation on pipes and duct work above the ceiling. The condensate can drip into the backside of the ceiling tiles and migrate to the visible side of the tile.

The water droplets can leach tannin from recycled materials and other cellulosic based materials and staining agent from the paint surface of the tile.

USG Boral ME's new invention provides an economical solution to minimize water stains at the visible face of the panel. This invention creates a barrier to water droplets at the backside of the panel allowing the droplet to evaporate before it can migrate through the panel.

This treatment provides a Water Shield to mineral fiber tiles in a practical and cost effective way.

Sonata™ & Halcyon™ for HealthCare application features with Water repellent membrane on it's finished surface for more durable and safety with common disinfectant. It Exceeds FGI 2018 guidelines for healthcare applications and meets USDA/FSIS guidelines for use in food-processing areas. It Achieve FDA standards for being smooth, durable and easily cleanable- all of which can enhance the indoor environmental quality of your healthcare spaces.





# HEALTHCARE INTERIOR FINISHES





USG BORAL

# FINISHING SOLUTIONS

USG Boral ME Offering the industry's broadest selection of finishing solutions, our high-quality joint compounds, joint tapes, beads and trims deliver superior performance for every job, every time. Whether you're taping, applying a finish coat or patching a crack, there is a USG Boral finishing product to meet your needs.

## 1. Joint Compounds, Ready Mixed

USG Boral ME ready-mixed joint compounds are drying-type products that are vastly superior to ordinary ready-mixed compounds and are preferred for consistently high-quality work. These formulations are specially premixed to a creamy, smooth consistency essentially free of crater-causing air bubbles. They offer excellent slip and bond and easy workability. Available for hand or machine-tool applications.

### SHEETROCK® All Purpose Joint Compound

Air-drying, lightweight compound suitable for all three coat applications or as a finishing coat for all plasterboard joints, angles and fastener heads. Complies with ASTM C475.



- Premium grade lightweight, all purpose or finishing compound.
- May be used for all three coats or as a finishing coat.
- Excellent workability, easy application by hand or with mechanical tools.
- Minimal mixing & cleaning of tools.
- Can be sanded by hand or with mechanical sanding tools.
- Excellent surface for painting.

### Premium Premix Joint Compound

Air-drying lightweight compound suitable for all three coat applications or as a finishing coat for all plasterboard joints. Angles and fastener heads. Complies with ASTM C475.



- Minimal shrinkage
- Easy sanding
- Exceptional crack-resistance
- Excellent bond
- Smooth finish

## 2. Joint Compounds, Lightweight

### SHEETROCK® Brand Dust Control Joint Compound

Sheetrock® Brand Dust Control Joint Compound creates less mess and offers faster cleanup.



- Dust-control formulation substantially reduces airborne dust (independently verified with Worker Industrial Hygiene Testing)
- Weighs up to 25% less than conventional compounds
- Low shrinkage — requires only two coats over metal
- Sands with the ease of a topping compound
- Great for remodeling projects
- Achieved GREENGUARD Gold Certification and qualifies as a low VOC emitting material (CDPH Standard Method V1.1, also known as CA Section 01350)

## SHEETROCK® Lightweight All-Purpose Joint Compound

More flexible and easier than other joint compounds for embedding joint tape and for filling and finishing gypsum panel joints, corner bead, trim and fasteners. Also for hand-applying simple textures. Complies with ASTM C475.



For professional drywall finishing

- High performance compound.
- Minimizes cratering.
- Excellent workability (including better slip and pull).
- Low shrinkage, easy sanding.

## 3. Joint Compound, Powder Form

### SHEETROCK® BRAND Drying-Type Powder Joint Compounds



For Superior Drywall Finishing

- Fast smooth application.
- Three job-tested types—taping, topping, all purpose.
- Easy to mix, offer ample working time.
- Retain consistency—will not thin out or settle.
- Can be used for simple, hand-applied textures.

### General Purpose Basecoat



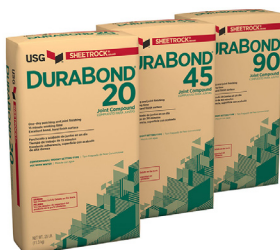
- Specially formulated for cement board system.
- High flexibility.
- Good bonding to the substrate.
- Designed for use in EIFS systems.
- Asbestos-free product.

### DUROCK® Basecoat



- Specially formulated for Durock® system.
- High flexibility.
- Exceptional bond to the substrate.
- High performance designed for use in EIFS system.
- Asbestos-free product.

### SHEETROCK® BRAND DURABOND® JOINT COMPOUND



Sheetrock® Brand Durabond® Joint Compounds provide a hard, plaster-like surface when dry and are virtually unaffected by humidity.

- Used for interior Fiberock® Jointing panels
- Unique humidity resistance
- Exceptional bond, low shrinkage
- Unusual check-crack resistance in heavy fills
- Choice of setting times

### 3. Joint Tapes

From the originator of modern joint finishing, USG Boral reinforcing tapes add strength and crack resistance for smooth concealment at flat joints and inside corners. USG Boral joint tapes are high quality and easily applied, and are available for specialized uses.

To prevent cracking and ensure good joint performance, paper tape is always recommended. These products must be used with ready-mixed compounds to ensure good joint performance. While the high strength of setting-type compounds produces a strong joint with either paper or fiberglass mesh tape, even with setting-type compounds, paper joint tape performs best.

#### SHEETROCK® Brand Paper Joint Tape



For strength and crack resistance in drywall joint treatment

- High tensile strength to resist tearing, stretching and distortion
- Wafer-thin paper for easier joint treatment
- Roughened surface for superior bond
- Accurately center-creased to improve corner treatment

#### SHEETROCK® Brand Fiberglass Drywall Tape

While fiberglass mesh tape is stronger than paper tape in expansion under ultimate tensile load, it does not reinforce the joint compound in compression, bending or shear, and will allow visible cracking of the joint compound to occur at lower loads as the glass mesh stretches. The only time USG Boral recommends mesh tape is when you're using our fiberglass drywall tapes with USG setting-type joint compounds.



Unique cross-fiber construction provides greater drywall joint strength and crack resistance

- Self-adhesive tape goes on quickly—eliminates bedding coat and provides smooth finished joints with just two coats.
- Use Sheetrock® Brand DURABOND® Setting-Type Joint Compound or Sheetrock® Brand EASY SAND™ Lightweight Setting-Type Joint Compound for first coat over tape.
- Provides 2-coat, 1-day joint finishing.

#### Durock® Brand Interior And Exterior Tapes



For joint reinforcement of USG Durock® Brand Cement Board, USG Fiberock® Brand Underlayment and Tile Backerboard, USG Durock® Brand Glass-Mat Tile Backerboard, and USG Durock® Brand UltraLight Foam Tile Backerboard.

- Alkali-resistant glass-fiber construction
- Reinforces joints and corners of cement board in exterior substrate applications and interior tile or thin-brick applications
- Sizes for interior (2" wide) and exterior (4" wide) joint reinforcement



## 4. Preparation Solutions

### SHEETROCK® Brand Tuff Hide™ Primer-Surfacer



- Skim coats and primes in one spray application
- Achieves a Level 5 finish faster
- High build spray for a smoother, more beautiful finish
- Durable coating hides minor surface defects
- Excellent for critical light areas
- Ideal finish for ceilings
- Dries white; can be tinted to match final top coat
- For professional use only

### SHEETROCK® Brand Acoustical Sealant



- Makes promised ratings a reality
- Excellent sound-flanking material (supports high acoustic ratings)
- Superior performance as a fire caulk in UL Classified joint and through penetration firestop systems
- Ideal for use in smoke and/or sound assemblies
- Meets ASTM C834 specifications for latex sealants
- Grade 0°F (-18°C) low temperature flexibility, strong bond
- Low VOC

## 5. Finishing Solutions

### USG Boral Ensemble Finish



- Acoustically transparent, technologically advanced formulation
- White color with a fine, granular texture
- High light reflectance (LR-0.85)
- Lightweight, only 12kg per 17L pail
- Quick drying, recoat in 20-40 minutes
- Applied with pneumatic spray equipment for economical installation





# COMPANY CERTIFICATION AND COMPLIANCE

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## ENVIRONMENTAL STATEMENT

Recycling is only a part of the story. Careful production methods are good for the environment and increase efficiency.

Our practices include:

- Using clean fuels (NG)
- Treating and recycling water (Saving of 300 m<sup>3</sup> daily at USG Boral ME)
- Reducing waste (Recycling): Waste from the production line and panels chipped or broken during processing are returned to the manufacturing cycle, keeping them out of landfills
- Offering specialized ceiling panels and wallboards: High-durability acoustical panels extend the useful life of ceilings and walls and reduce operating and replacement costs. Ceiling panels with high light reflectance can enhance indirect lighting, reducing the number of light fixtures needed and lowering energy consumption
- Recycling old ceiling and wallboards panels
- Product life cycle: USG Boral ME's commitment to health, safety and environmental responsibility is evident at every stage in the life cycle chain. USG Boral ME has been granted to ISO 14000 certificate. This indicates that environmental aspects such as emissions into the air, waste handling, utilization of natural resources and energy efficiency are paid attention to at USG Boral ME and the environmental impacts of production are constantly improved. In addition to ISO 14000 certification, USG Boral ME is working to prove the environmental profile of USG Boral ME products by acquiring EPD (Environmental Product Declaration) to it's Ceiling family range.

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## LEED REQUIREMENTS

USG Boral team can assist you with the required LEED documentation whether you require pre-consumer or post-consumer recycled content for the material being used or other documents.

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## ASBESTOS FREE

USG Boral acoustical ceiling tiles, gypsum boards and Jointing Compounds have been tested for asbestos content where no asbestos content result was obtained.

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## GREEN FACTS

- More than 70% of manufacturing waste is recycled into ceiling products
- The majority of the Ceilings product offering contains 50% recycled content or higher
- USG Boral ME mineral fiber ceiling panels incorporate steel mill slag waste as well as post-consumer waste
- USG Boral ME has an Environmental certificate for it's facility in Dammam for compliance with PME (Presidency of Metrology and Environment) according to Local regulations
- All USG Boral ME panels feature low VOC emission and comply with the Collaborative for High Performance Schools (CHPS) standards

**ISO CERTIFICATION**

USG Boral Middle East is up to date with the latest ISO 9001:2015 and ISO 14001:2015 Certifications.



Australia  
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