Demountable Interior Walls

…creating a more flexible sustainable facility.

Reasons for Not Using Demountable Walls

What the customer says:

- “Not as flexible as you say they are”
- “Too expensive”
- “Not enough privacy”
- “Can’t fit into elevators…hard to place in storage”
- “Don’t like the look”
- Others?

Reasons for Using Demountable Walls

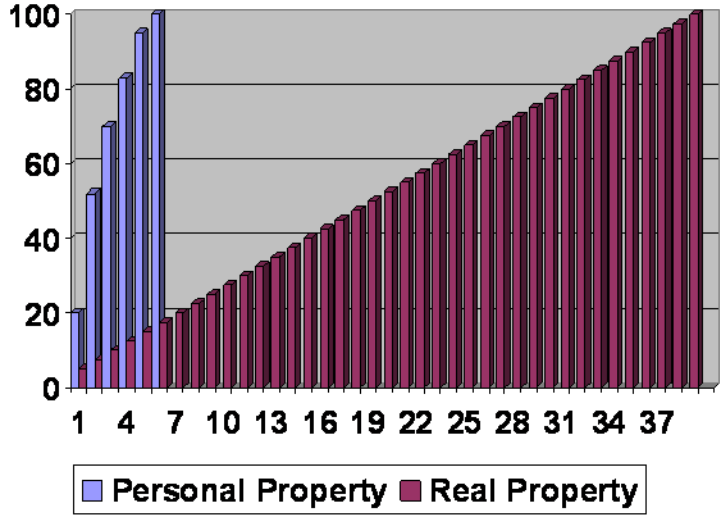
- Fluid architectural elements allow for change
- Better return on investment
- Sustainable architectural elements
- Reduce landfill waste from drywall
- Strategy to introduce natural light into spaces
- Ease and speed of construction

Benefits of Fluid Architectural Elements

- Company's space requirements change
- Provide for natural light
- Accommodating for the needs of worker privacy
- Creating collaborative spaces and team rooms
- Changes after initial installation

Better Return on Investment

- Tax savings…accelerated depreciation schedule



- Minimize real property taxes on non-performing investment

- Product re-use instead of disposal

Sustainable Architectural Elements

- Recycled and recyclable content
  - Aluminum
  - Acrylic and glass
  - Steel
  - Formaldehyde free board as required
  - Manufacturing “off fall” used for sound attenuation
- Outstanding products reuse strategy
- Supports the use of natural light
- Regional materials as needed
- Supports worker comfort
- Safety and Health

Sample Potential LEED – CI Pts

Energy & Atmosphere

- EA – 1.1 Optimize Energy Performance, Lighting Power, 1 Point

Materials & Resources

- MR – 1.2 Building Re-Use, Maintain 40% of Interior Non-Structural Components, 1 Pt.
- MR – 1.3 Building Re-Use, Maintain 60% of Interior Non-Structural Components, 1 Pt.
- MR – 2.1 Construction Waste Management, Divert 50% from Landfill, 1 Point
  (Note if MR credits 3, 4, 5, 6 and 7 are used, this credit does not apply)
- MR – 2.2 Construction Waste Management, Divert 75% from Landfill, 1 Point
  (Note if MR credits 3, 4, 5, 6 and 7 are used, this credit does not apply)
- MR – 3.1 Resource Reuse, Specify 5%, 1 Point
- MR – 3.2 Resource Reuse, Specify 10%, 1 Point
- MR – 4.1 Recycled Content, 10% (post consumer + ½ pre-consumer), 1 Point
- MR – 4.2 Recycled Content, 20% (post consumer + ½ pre-consumer), 1 Point
- MR – 5.1 Regional Materials, 20% Manufactured Regionally, 1 Point

Sample Potential LEED – CI Pts

Materials & Resources (continued)

- MR – 5.2 Regional Materials, 10% Extracted and Manufactured Regionally, 1 Point
- MR – 6 Rapidly Renewable Materials, 1 Point
- MR – 7 Certified Wood, 1 Point

Indoor Environmental Quality

- EQ – 4.1 Low Emitting Materials, Adhesives & Sealants, 1 Point
- EQ – 4.2 Low Emitting Materials, Paints, 1 Point
- EQ – 4.4 Low Emitting Materials, Composite Wood and Laminate Adhesives, 1 Point
- EQ – 8.1 Daylighting & Views, Daylight 75% of Spaces, 1 Point
- EQ – 8.2 Daylighting & Views, Daylight 90% of Spaces, 1 Point
- EQ – 8.3 Daylighting & Views, Views for 90% of Seated Spaces, 1 Point

Innovation & Design Process

- ID – 1.1-1.4 Innovation in Design, 4 Points
- ID – 2 LEED Accredited Professional, 1 Point

Facts About Standard Drywall Construction

- U.S. Environmental Protection Agency – Approximately **30%** of all landfill waste is from construction, renovation and demolition. Over **50%** is from buildings
- California Integrated Waste Management Board, 2002 – Over **10%** of drywall in new construction ends up as scrap
- A Cornell University Study concluded that for every square foot of drywall installed, *one pound* was waste
- U.S. Dept of Energy – Commercial Buildings in the U.S. use **17%** of all energy
- U.S. Environmental Protection Agency – Of the 14 Sectors that account for **84%** of all Green House Gas (GHG) emission, the construction industry was the **3rd highest** with 6% of all GHG emissions

Reasons for Using Demountable Walls

Strategy to Introduce Natural Light into Spaces

- Reduce Energy Cost
- Allow Natural Light to Flow Through the Space
- Connect Employees to the Environment
- Health and Safety

Reasons for Using Demountable Walls

Ideas in Introducing Natural Light into Spaces

Ease and Speed of Construction

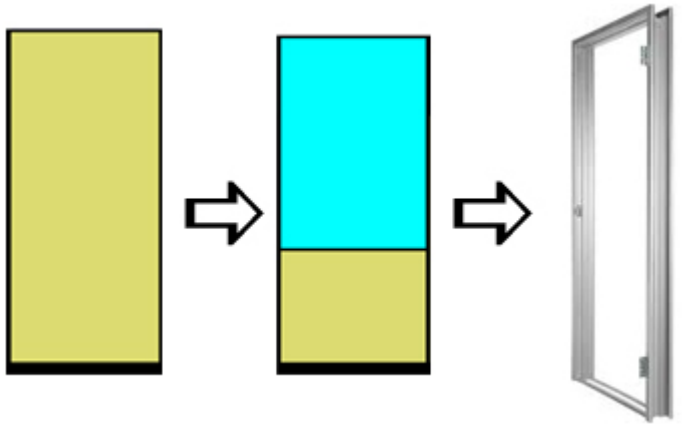
- One Contractor to build it
  - Fewer workers on jobsite (example: drywallers, painters, glazers, etc…)
  - Less coordination required

- Supports Integrated Project Delivery Method
  - Allow compression of schedule
  - Building delivered to customer more quickly
  - Allows reduction of general conditions cost

A Better Approach to Interior Wall Construction?

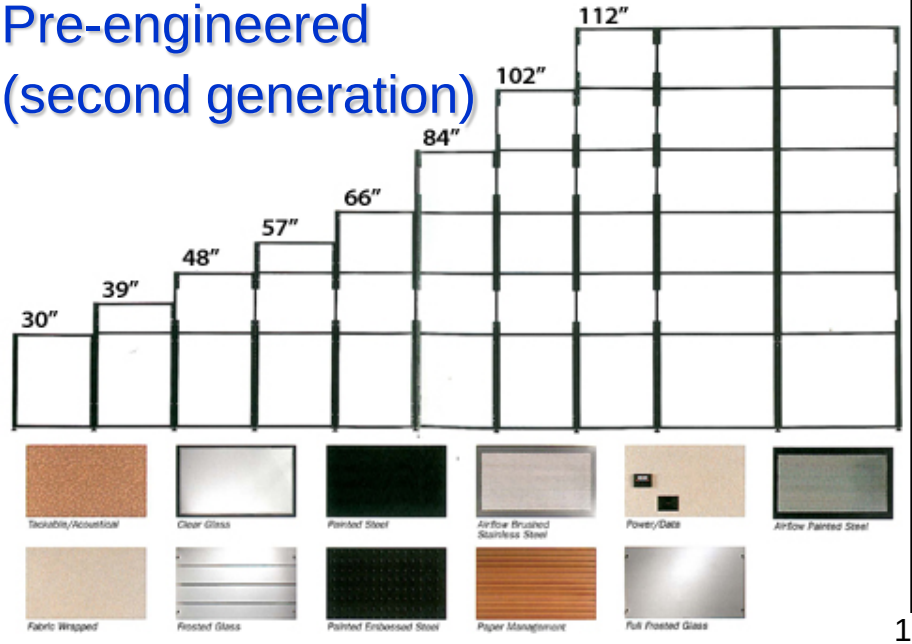
- Drywall construction
- Unitized Demountable Wall (First Generation)
- Demountable Walls Pre-engineered (Second Generation)
- New Generation Demountable Walls… “Field Fit” Capability

A Better Approach to Interior Wall Construction?



Unitized (first generation)

Pre-engineered
(second generation)



Truly Demountable “Field Fit”
…product fits to building conditions

Drywall Construction

- Approximately 85% of all building's interior dividing walls in the U.S. are constructed in this fashion!
  - European market is at approximately 15 – 20%
- Total flexibility… built per specification
- STC rating = low 40's
- Creates Significant waste and debris
- Lowest first Cost?

Unitized Demountable Walls

vs.

Pre-Engineered Demountable Walls

vs.

Demountable Walls “Field Fit”

What is the difference?

Unitized Wall (First Generation)

- Most recognized and widely used in demountable wall industry
- Manufactured to exact specification
- STC rating mid 30's to low 40's
- Quick installation… "one trip"
- Minimized interruption
- Accelerated depreciation schedule for tax benefit
- Highest first cost

Demountable Walls…Pre-engineered

(Second Generation)

- Pre-Measured, Pre-cut, machined, drilled, etc., extrusions, framing, panels, glazing, etc., readied for assembly in the field
- Construction of panel is deferred to the field and assembled in a “stick built” approach
- Provides for change within specific parameters usually solid panels and glass only
- Significant and specific parts and pieces

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Demountable Walls…Pre-engineered
(Second Generation)

- STC rating mid 30's to low 40's
- Provide easier logistical movement from point of receipt to installation site
  - Easier to get on tighter elevators and or tighter working conditions

New Generation Demountable Wall... Demountable with Field Fit

- Most current approach to demountable wall industry
- Ability to accommodate field changes or adjustments to field dimension changes
- Minimized interruptions
- Accelerated depreciation schedule for tax benefit
- Some Manufacturers offer minimal kit of parts
  - Easy to inventory
  - No special orders with long lead times
- Quick installation… “One trip!”

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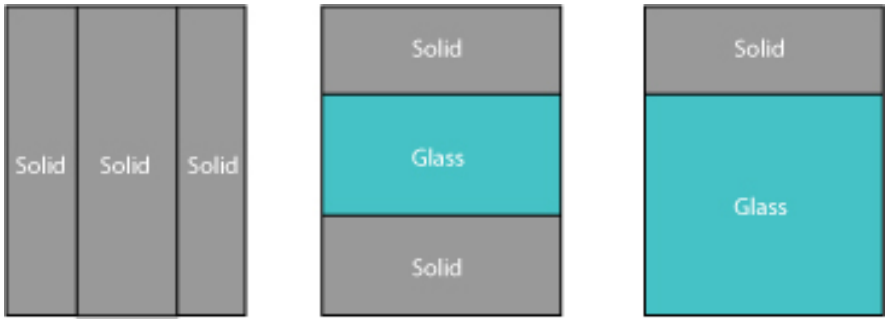
New Generation Demountable Wall... Demountable with Field Fit

- Panels can be easily changed on site after initial installation
  - Glass to solid… back to glass!
  - Move doors
  - Change finish



- Demountable components provide for easy recycling
- Ability to utilize various wall board material and substrates

New Trends in Demountable Walls Create…

- Flexibility
- Sustainability
- Reasonable investment
- Aesthetics
- Ability to change during and after install
- Competitive first cost!

Continued >

New Trends in Demountable Walls Create…

- Unlimited design flexibility
- Total customization
- Unlimited power & data flexibility
- Disassemble and rebuild into any configuration in any space

Continued >

New Trends in Demountable Walls

- Minimal kit of parts required... Easy to inventory
  - Ceiling and floor track
  - Vertical and horizontal studs
  - Glass bead
  - Reversible door and hinge set
  - Wall board and glass as required
  - Insulation
- Acoustics has improved
  - Solid walls can achieve mid-to-upper 40's STC ratings (sound masking, insulation above ceiling, etc.)
  - Double pane glass provides improved STC rating with glass elements

A Word About Acoustics

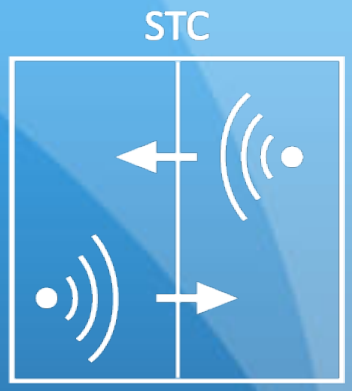
…when considering demountable walls

- Acoustics deal with complex environments and infinite number of variables
- Poor acoustics can ruin an otherwise beautiful wall installation
- Understanding NRC & STC

Primary Terms

STC – Sound Transmission Class

Number rating of a wall or structures ability to block the transfer of sound



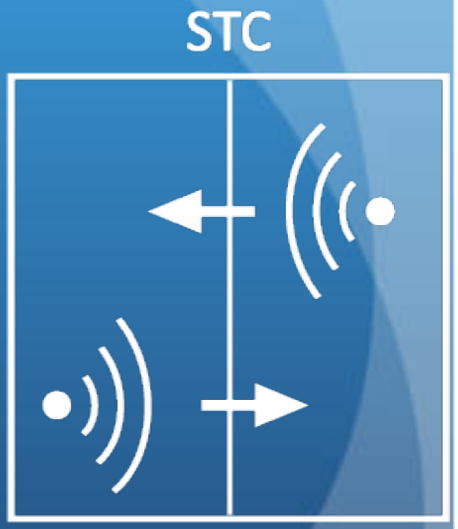
NRC – Noise Reduction Coefficient

Number rating which categorizes the sound absorptive or reflective properties of a material or environment

STC – Privacy Anyone?

STC – Sound Transmission Class

It is the primary way to infer how isolated a room or environment is relative to other rooms.



General Guidelines:

30-35 STC = Loud talking understood

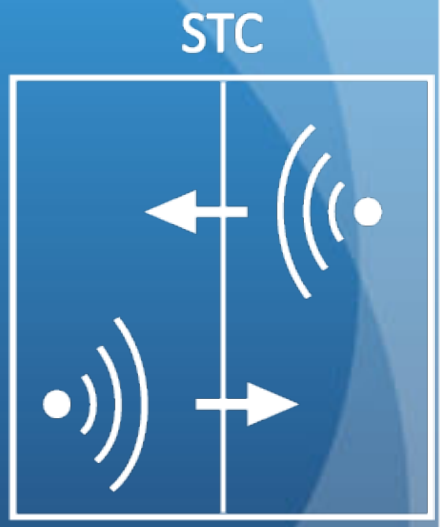
40-50 STC = Loud talking not easily understood but may have occupant awareness

60+ STC = Loud talking not audible

STC – Design with Confidence

Considerations

- Most codes require minimum of 40 STC in commercial installations
- It is harder to block low frequencies than high frequencies as the wave form is much more powerful and longer
- Adding mass to the partition wall along with decoupling and insulation will vastly improve STC



Beware of flanking paths!

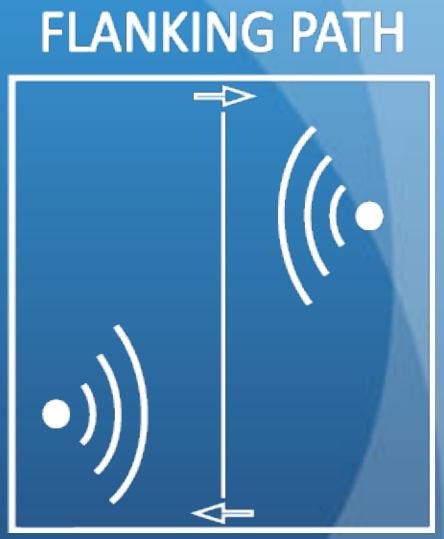
STC – Flanking Paths

Common Flanking Paths

- Ceiling and Floor Joists

Common Duct Work

- Missing or Poor Fitting Door Sweeps
- Back-to-Back Electrical or Utility boxes in same stud cavity
- Outlet gaps



STC – Improve Your Ratings

Gain Weight and Isolate

- Decouple and add length to the ventilation

Double the Wallboard

Insulate the Stud Cavity

- Insulate the ceiling plenum & floor plenum
- Seal all flanking paths
- In extremely sensitive areas use double walls with dead head ventilation
- Plan ahead for today & tomorrow

NRC – What's all the Noise About?

Noise Reduction Coefficient

- Number rating which categorizes the sound absorptive or reflective properties of a material or environment

NRC – Common Ratings

Absorptive Ratings

- Brick .00 - .03
- Wood .05 - .15
- Heavy Carpet .30 - .55
- 18oz Drapery .60 - .65
- Fiberglass 3.5” .80 - .90

NRC – Control the Reflections

Don’t Strive for Perfectly Absorbent

- Most people do not desire a room that is totally absorbent
- A little reverb is usually a good thing
- Angular geometry can be a good alternative when highly absorbent materials cannot be used
- Avoid parallel low NRC walls

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Sample Demountable Wall Applications


burwood group, inc.


SORTIE

Our Environmental Position

Environmental Responsibility

Environmental responsibility begins with a product's ability to support significant change and reuse.

Manufacturing of any kind places a burden on the environment.

Keeping this in mind, NxtWall leads the way in product reuse, while providing many other sustainable attributes.


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Thank You!