Integrated Project Delivery Team Creates the Lowest Cost, Quietest Solution for Cathedral Hill Hospital

California Pacific Medical Center, a Sutter Health affiliate, plans to build a new 555-bed hospital with top of the line medical services making it easier for patients to access health care in San Francisco. The new hospital is organized around comprehensive centers of care rather than traditional departments, enhancing the delivery of patient care while improving space efficiencies, workflow and productivity. The Cathedral Hill Hospital is designed to meet LEED silver rating, making it one of the largest hospital projects to seek LEED certification.

Hospitals in general are noisy. Research has proven that a quiet hospital environment improves patient healing and medical staff satisfaction.\(^1\) The noise from equipment, patient intake and discharge areas, nursing stations, and common areas plus the regulatory requirements for patient privacy, makes having rooms designed to mitigate utmost sound transmission a critical design. The General Contractor of HerreroBoldt Partners, Acoustical Consultants Shen Milsom and Wilke (SM&W), sub contractor KHS&S Architect, SmithGroup and Serious Materials worked together to design the most cost effective hospital that met the noise requirements designed in the project.

"QuietRock ES exceeds required sound requirements on the job and at a low overall cost. It allows for easier installation than the standard double layer construction needed to accomplish the same task which saves time and money. Best soundproofing drywall overall."

-Roger Morton, KHS&S

Visit www.QuietRock.com for product documentation, field testing reports, product selection tools for any wall assembly, and additional case studies.
Measuring the Acoustical Design Options

Certain walls within the hospital have specific noise control requirements that need to be achieved. The acoustical consultant on the project, Shen Milsom Wilke, wanted a more conservative design. After reviewing the QuietRock product they requested an acoustic performance test of the walls by a NVLAP-accredited laboratory. Assemblies with multiple layers of standard type X and walls built with QuietRock EZ-Snap were tested in a controlled environment at Western Electro-Acoustic Laboratories (WEAL) for a fair and unbiased comparison.

Sound separation between the rooms - the amount of noise that would pass between room based on the proposed wall assemblies was a concern to the team. Cathedral Hill Hospital has three different acoustical requirements for the walls: STC 40, 45 and 50. STC 45 walls are used between patient rooms and walls between toilet rooms and public spaces.

STC 50 designed walls are placed in the following areas:

- Between a patient room and public space containing no door
- Partitions between an exam room and public space containing no door
- Partitions around consultation rooms
- Partitions between exam or treatment rooms
- Partitions between MRI rooms and public spaces

The originally designed STC 45 wall for Cathedral Hill Hospital had 3-layers of Type X gypsum. The STC 50 wall was designed using 4-layers of Type X gypsum. However, a recent research study published in the *Sound and Vibration* magazine indicates that 3 or 4 layers of gypsum may not be sufficient to achieve the required STC ratings for the hospital.

<table>
<thead>
<tr>
<th>QuietRock Meets &amp; Exceeds STC Requirements:</th>
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<tbody>
<tr>
<td><strong>Required STC 45 Wall</strong></td>
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<tr>
<td>3 Layers Type X</td>
</tr>
<tr>
<td>1 Layer QuietRock ES</td>
</tr>
</tbody>
</table>

**FAIL - STC 44**  **PASS - STC 49**  **FAIL - STC 47**  **PASS - STC 53**

Construction: 16 gauge steel studs spaced 16” on center

In this comparison, QuietRock ES designs performed as well or better than multi-layer gypsum assemblies. QuietRock ES proves to be the only wall assembly capable of achieving the sound requirements on steel stud construction.
Choosing by Advantages: QuietRock ES wins

Before any acoustic testing was done, Project Manager Matthew Boersma compared the costs of the gypsum walls to the walls built with QuietRock ES. Together HerreroBoldt, SM&W, KHS&S, and SmithGroup decided to use QuietRock ES based on a number of advantages.

- Replacing double layer of gypsum resulted in reduction of 101,339 SF of Gypsum delivered to the job site
- Reduced 13 truck deliveries to the job site
- Reduction of 178 Carpenter Man Days on the job
- Walls built with Quietrock exceed the recommended STC rating
- Additional space due to fewer layers of gypsum for code required clearances
- Standard 7 ¼” Door frame depth on 6” walls
- Reduction of drywall screw inspections due to only one layer of gypsum
- Reduction of 6 fewer 30yd dumpsters to remove gypsum scrap
- Increase livable space in the building by 1,300 square feet by replacing the multi-layered gypsum walls with QuietRock ES

QuietRock Saves Materials: Use less, waste less

<table>
<thead>
<tr>
<th>Description</th>
<th>Savings with QuietRock ES</th>
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</thead>
<tbody>
<tr>
<td>KHSS Estimated Labor &amp; Material Savings using Quietrock</td>
<td>$141,775</td>
</tr>
<tr>
<td>Reduction of IOR Inspections due to fewer layers of gypsum</td>
<td>$90,000</td>
</tr>
<tr>
<td>Reduction of 6 fewer 30YD dumpsters for gypsum scrap</td>
<td>$4,260</td>
</tr>
<tr>
<td>Total Cost Savings</td>
<td>$236,035</td>
</tr>
</tbody>
</table>

"After completing our analysis, it was clear that QuietRock ES would be the best solution to achieve the required STC performance, at the lowest cost, for the Cathedral Hill Hospital project. Additionally, using QuietRock ES standardizes the wall dimension and reduces variability for other in-wall systems like door frames and receptacle outlets."

- Matthew Boersma, HerreroBoldt Partners
QuietRock is Engineered to Meet & Exceed Design Goals for Healthcare Facilities

- Noise can increase heart rate, blood pressure, respiration rate, healing time and psychiatric symptoms.² QuietRock meets and exceeds sound requirements in hospitals for more comfortable healing
- QuietRock contributes to meeting HIPPA privacy and acoustic requirements
- QuietRock 530RF isolates RF interference from sensitive equipment
- Offers less building material waste compared to traditional noise reducing wall assemblies
- Saves floor space compared to traditional noise reducing wall assemblies

QuietRock ES: Lowest cost, true score and snap powered by EZ-SNAP technology

Other QuietRock Solutions

**QuietRock 530RF**
- RF shielding & reduced sound transmission all-in-one
- 5/8” STC 48 and higher

**QuietRock 528**
- Mold & abuse resistant
- DensArmor® Plus ideal for high-moisture areas
- 5/8” STC 52 and higher

**QuietSeal and QuietPutty**
- For use around wall parameter, in between panel joints, electrical outlets and more.

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