

# CASE STUDY: HUNGEXPO, BUDAPEST

The purpose of this case study is to evaluate and compare the structural steel needed to support a traditional operable wall and a Skyfold Classic wall, of equal lengths and equal 51 STC ratings, using standard floor seals and respecting each system's maximum deflection limitation required to remain operable.

## What We Do

At Skyfold Inc., we think vertical: we are the acoustic leader in vertically folding retractable walls. Our walls are more than just space dividers: they are innovative, custom, electric and premium multipurpose space solutions that allow architects, interior designers, contractors and end-users to redefine how a space is used. The easy-to-use, self-retracting system and vertical motion of the operable wall give users the flexibility to quickly divide or expand spaces.



Watch the video and see why Skyfold is the acoustic leader in vertically folding retractable walls

## Who We Are

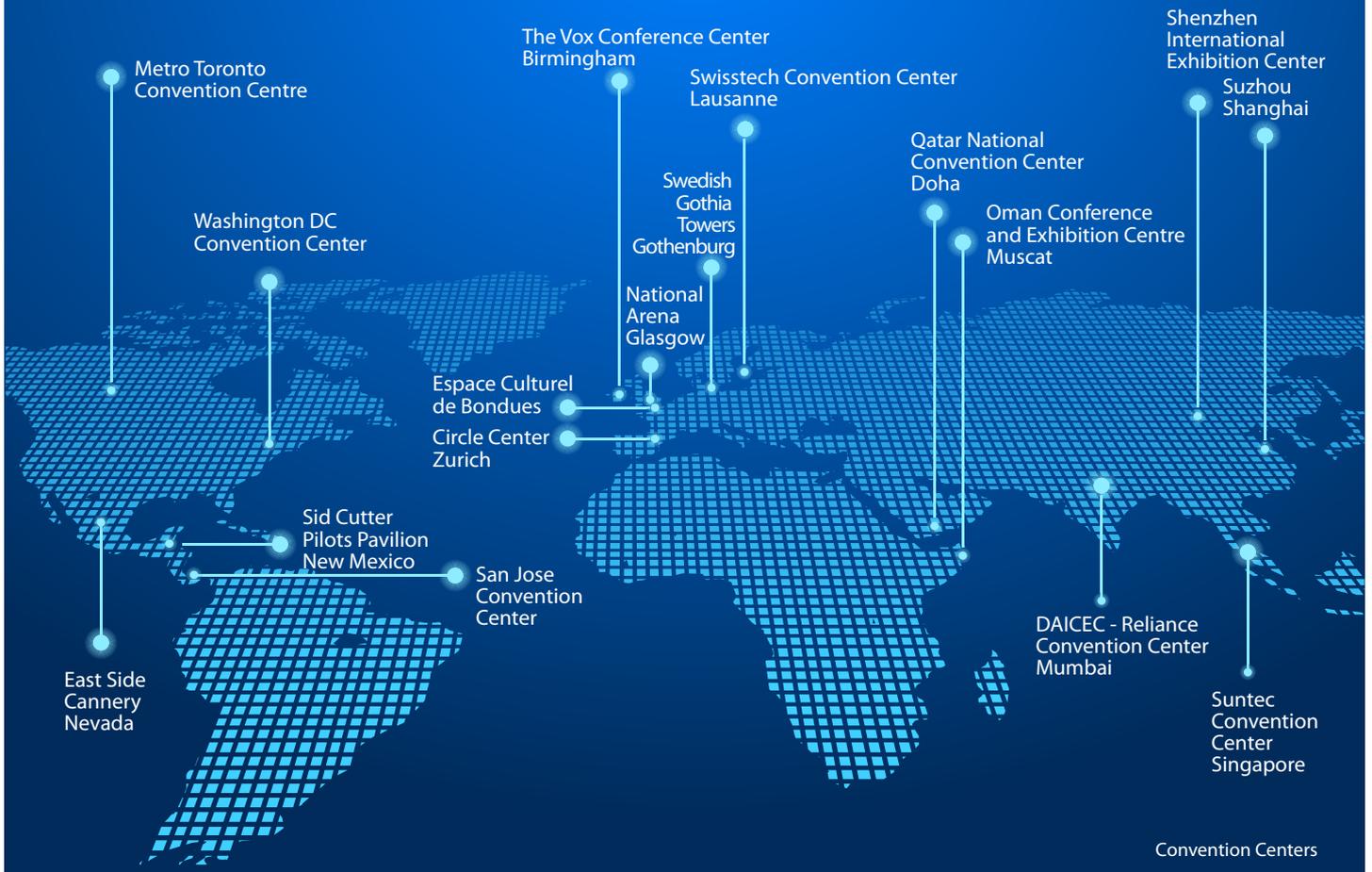
We are innovators and leaders in the movable wall industry. Our team is dedicated to setting industry standards not only with the products we provide, but also in the way we work. At Skyfold, we strive for continuous improvement and to inspire collaboration at all levels.

**We are manufacturers: All Skyfold walls are CE Certified and are expertly made in the ISO 9001-2015 certified production plant at the Skyfold Headquarters in Montreal, Canada.**

## Advantages:

- Retracts into the Ceiling to Maximize Floor Space
- Industry-Leading STC Ratings
- No Floor, Wall Tracks or Visible Hinges
- Fully Automatic
- Easy-to-Use Turn-Key or Digital Keypad Operation
- Quiet Operation
- Lightweight Panels
- Flat and Rigid
- Cost-Effective and Lightweight Structure
- Variety of Finish Options
- Can be Installed to Meet at 90°
- Can be used in Stepped or Sloped Spaces
- Equipped with a Safety Obstruction Sensor
- Made to Last

# Over 7600 walls worldwide



## Innovative Vertical Wall Technology

Zenith combines the vertically folding elements found in the Classic™ Series at the top portion of the wall with a slick straight down descent thereafter, which makes it the ideal flexible space solution for areas that may have wall obstructions which could limit the use of a vertically folding partition wall. With the Zenith's narrow path of travel, you don't have to overhaul the placement of the furniture in the space to operate the partition wall.



## Classic™ Series



## Ideal solution for rooms with high ceilings.

Developed to meet the acoustic challenges of geometrically variable spaces from the simple (offices, classrooms) to the complex (auditoriums with sloped and stepped floors).

Exceeding industry standards, the acoustic soundproofing indexes for Classic 51, 55 and 60 ensure privacy and confidentiality are respected from one space to another. The Classic NRC model reduces ambient noise within meeting and conference rooms, thereby increasing the user's comfort.

While all Skyfold walls fold vertically into a ceiling storage pocket, the Classic moves a bit differently. The accordion style of panel folding means that the Classic can reach higher ceiling heights than the Zenith and Zenith Premium modes.

# Structural Steel Construction Costs

Companies are always looking for ways to increase profits and decrease spending, but it is important to save money where you can without compromising the quality or integrity of the product. Structural steel prices vary and can change drastically from one day to another. Major construction projects take more time than just a few days to complete, so steel prices can throw your budget and your entire project into a tailspin.



## Challenge

### Reducing Costs Without Cutting Corners In Structural Steel Construction.

The design and planning that goes into a construction project is one of the smartest and cost-effective ways to scale back spending. Strategic planning from the start of your project can do the following:

- Reduce the steel required in construction
- Optimize the floor space
- Reduce labor cost

## The Skyfold Solution

### Steel Costs and Deflection Considerations—Traditional Operable Wall vs. Skyfold Classic 51

The load types and deflection limitations for the two systems are different. For traditional operable walls to remain effectively operable they are both more severe than for Skyfold. These differences translate directly into increased steel costs for traditional operable walls when compared to Skyfold.

Steel Cost Description	Skyfold 36 ft Long	Traditional 36 ft Long	Difference	Difference for 26 walls (2,359 ft total length)
**Main Support Steel	W2,001x331 x 36 ft lg @ US\$1418.09	W3,018x781 x 36 ft lg @ US\$5391.13	US\$3973.04 (US\$109.92/ft)	US\$259,691.82
Pocket Steel	0	~ US\$5391.13	US\$5392.98 (US\$149.43/ft)	US\$352,384.00
Pocket Steel Installation	0	~ US\$ 794.45	US\$794.73 (US\$22.02/ft)	US\$51,928.46
<b>Total</b>	<b>US\$1418.09</b>	<b>US\$11,576.71</b>	<b>US\$10,158.62</b>	<b>US\$665,689.14</b>
<b>Cost / Linear FT of Wall</b>	<b>US\$39.39/ft</b>	<b>US\$321.59/ft</b>	<b>US\$282.20/ft</b>	<b>US\$282.20/ft</b>

\*\*It's assumed that the installation (labor) costs for the two main steel supports are similar thus ignored for this exercise. Only the material costs are compared for the main support steel. Steel pricing was provided by a local steel distributor and do not include contractor mark-ups or taxes. A premium is paid for the W3,018x781 as it is not available at Canadian mills.

### Structural Savings

Traditional operable walls of the same STC rating can require ~135% more steel than Skyfold for the main support structure. The support steel above the Skyfold partition in the example above weighs 101 kg/m while the steel supporting the traditional partition weighs (238-101)/101 = 135% more steel is therefore needed to support the traditional operable wall

### Floor Space Gained

Traditional operable wall require side storage closets to store the wall when open. With Skyfold, the wall tucks neatly up into the ceiling thereby freeing up valuable space, with an additional advantage of no floor or wall tracks to obstruct movement.

### Pocket Storage Construction Savings

Traditional walls require side storage closets to store the wall when not in use. These structures require steel in addition to the structural rails running across the room for load support. With Skyfold, the storage and the steel structure for the wall are all located in the same place.

### Labor Savings

With Skyfold you can reconfigure the space in about three minutes with just two people pressing buttons. With other wall system, it could take at least an hour with a full team.

traditional walls require

**135% more steel**  
(US\$259,691.82)

vertically folding retractable walls

**3466ft<sup>2</sup>**  
floor space gain

construction savings

**US\$404,311.32**  
pocket structure

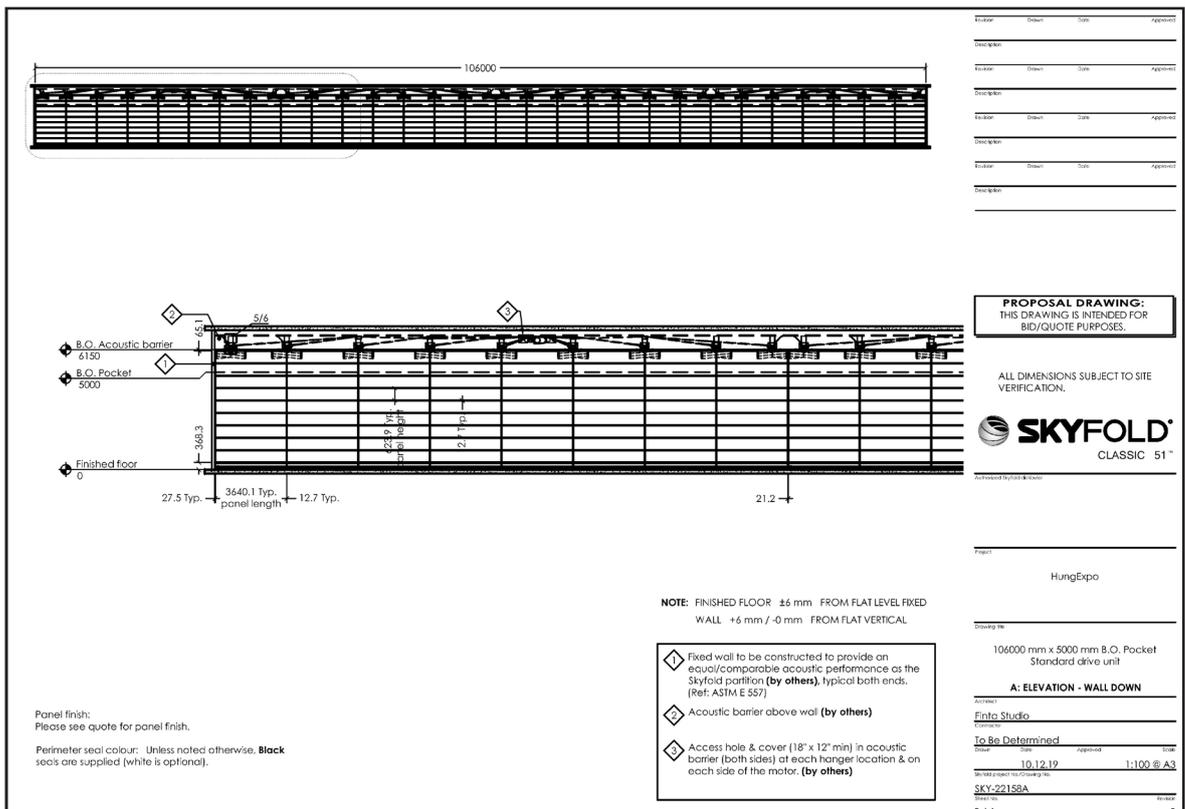
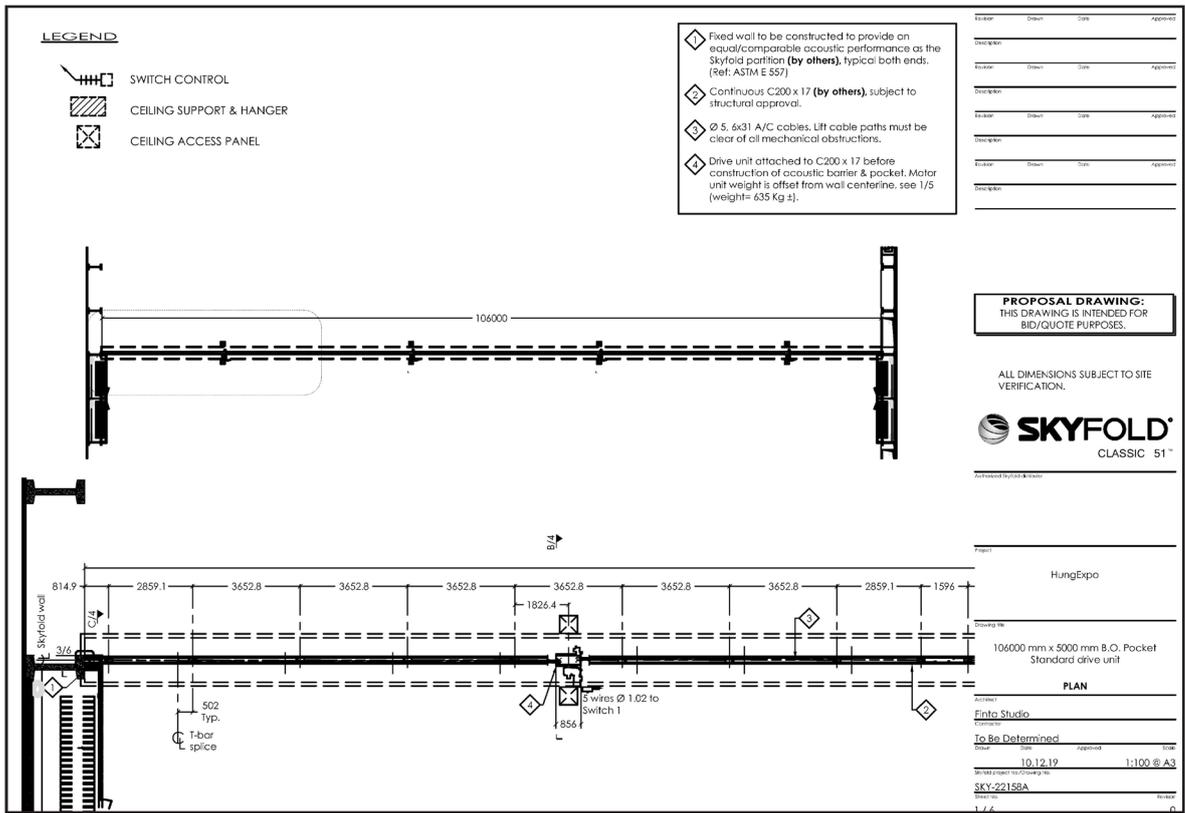
labor saving

**26 hrs**  
man hours

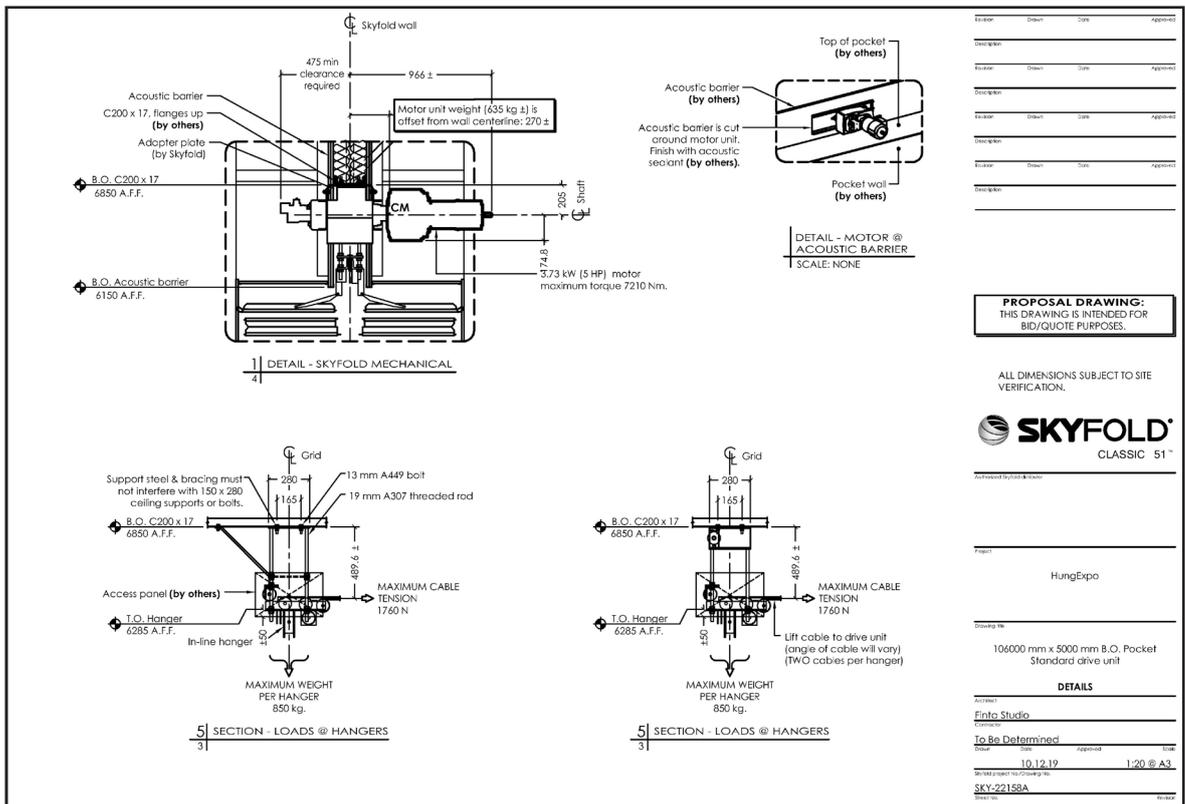
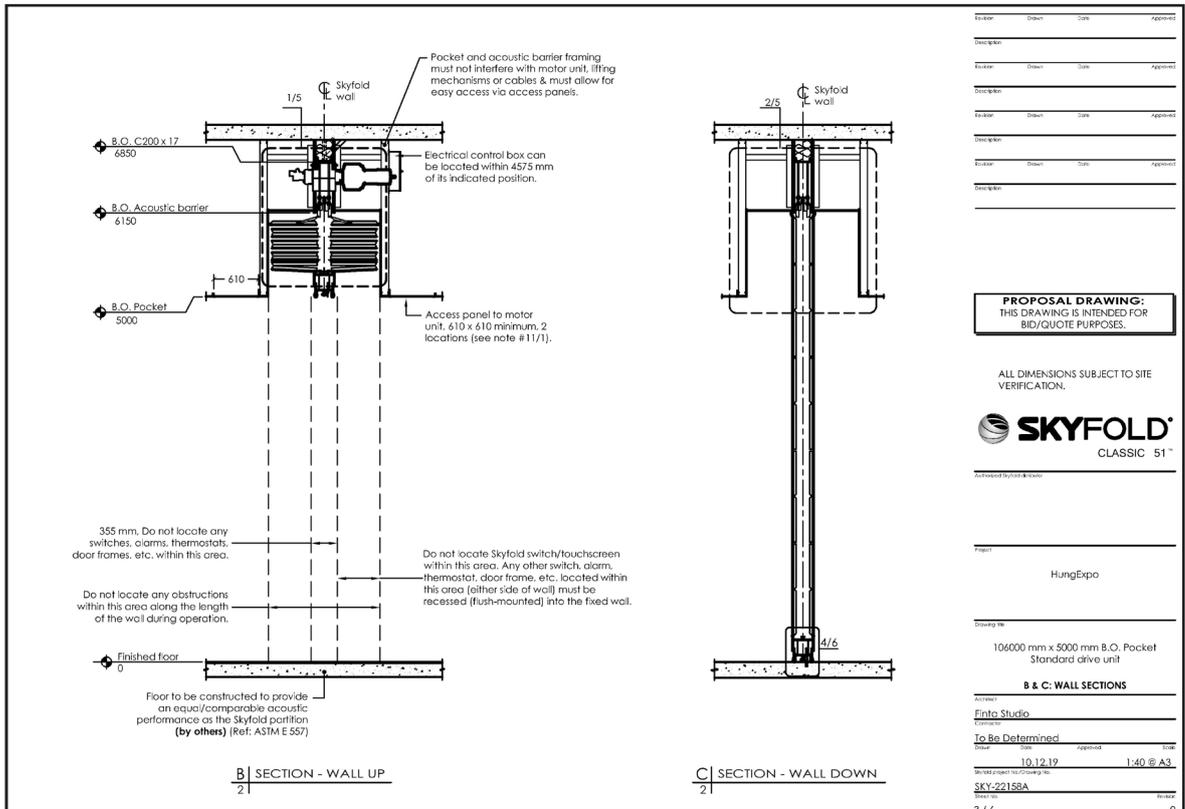
# Standard Deflection Criteria

As a standard, Skyfold® partitions are designed to accommodate a ½" (12.7mm) live load deflection at normal or typical operating conditions. In the rare event that the live load deflection exceeds ½" (12.7mm), the partitions will remain operable however, the lower panels may kick-out slightly. The partitions are also designed for a dead load deflection of 1" (24.5mm). Special components are available to accommodate larger deflections at additional costs; however, this would change the design heights of the partition. Any special design considerations must be communicated to Skyfold during the design phase and prior to order and fabrication.

It's important to note that for structural design and deflection considerations, the Skyfold load is considered as a dead load, with the same vertical load being applied to the structure whether the Skyfold is in the up (retracted) position or the down (extended) position. The Skyfold partition is leveled on the structure after it is installed and the structure has the full dead load applied.



# Plans & Sections



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