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# Engineering Analysis

## Building Science Solutions

### SCOPE OF WORK

Acoustical Consulting Services

### PROJECT NUMBER

T6812.01

### CUSTOMER COMPANY & CONTACT

Customer Company  
Bilco Brick Corporation  
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### PROJECT INFORMATION

TMS 302 Analysis for Bilco Bricks

### INTERTEK CONTACT INFORMATION

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### DATE ISSUED

April 3, 2026



## 1. SCOPE

Intertek’s Building Science Solutions (BSS) Noise, Acoustics, and Vibration (NAV) group was contracted by Bilco Brick Corporation to conduct an acoustical analysis of one of their concrete brick products according to The Masonry Society (TMS) standard “TMS 302 Standard Method for Determining Sound Transmission Ratings for Masonry Walls”.

Results obtained are based on calculations according to the TMS 302 standard using data provided by Bilco Bricks. All data was verified with a review of the published data available on Bilco Brick’s website ([bilcobrick.com](http://bilcobrick.com)) as of April 2<sup>nd</sup>, 2026.

This report does not constitute certification of this product nor an opinion or endorsement by Intertek BSS NAV.

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## 2. BUILDING CODES AND STANDARDS

The International Building Code (IBC) published by the International Code Council (ICC) is the most widely adopted building code in the United States. The latest version of the ICB was published in 2024. In the [2024 IBC, Section 1206](#) is on sound transmission. [Section 1206.2](#) requires all “Walls, partitions and floor-ceiling assemblies separating *dwelling units* and *sleeping units* from each other or from public or service areas shall have a sound transmission class of not less than 50 where tested in accordance with ASTM E90....”

Section 1206.2.1 of the 2024 IBC provides an option to determine the sound transmission class of concrete masonry and clay masonry assemblies through the method contained in “TMS 302 Standard Method for Determining Sound Transmission Ratings for Masonry Walls”

TMS 302 is based on collaborative research by the Brick Institute of America, National Concrete Masonry Association and the National Research Council of Canada. The standard presents empirical models for the STC of masonry, based on the surface mass of the material. It also includes adjustments to the results for the addition of gypsum board walls.

## 3. PHYSICAL PROPERTIES

Bilco Brick has requested the analysis of both their King Size and Modular Size bricks as shown in Table 1. This data was obtained from technical specification listed on the Bilco Brick website as accessed on April 2<sup>nd</sup>, 2026.

Table 1: Physical Properties of Product Under Review			
		Size of Brick	
		King	Modular
Unit	Width (in)	9.625	7.625
	Height (in)	2.625	2.25
	Depth (in)	2.75	3.625
	Approx Weight (lbs)	5.5	4
Surface area per brick (in <sup>2</sup> )		25.27*	17.16*
Surface area per brick (ft <sup>2</sup> )		0.1755*	0.1191*
Surface mass (lbs/ft <sup>2</sup> )		31.3*	33.6*

\* Calculated based on data presented above

#### 4. METHODOLOGY

Section 7.3.2: “Concrete Masonry Construction” gives the equation to calculate the STC rating of concrete masonry assemblies. That equation is:

$$STC = 20.5 W^{0.234}$$

Section 7.3.2.1: “Effect of Gypsum Wallboard on STC Rating of Concrete Masonry Assemblies” gives the equation for adding gypsum board spaced away from the masonry wall, with and without insulation. The equation for the increase in STC rating for adding gypsum wall board spaced from the wall, with insulation in the cavity is:

$$DSTC = 3.0d + 1.87$$

#### 5. CALCULATION RESULTS

Using the equations above, the minimum calculated STC rating for either the King or Modular size brick is **STC 46**. The addition of a layer of gypsum board with a three-inch cavity between it and the brick wall **increases the STC rating by 10.87 STC points**. This will increase the STC rating to **STC 57**

#### 6. DISCUSSION

When used in its normal application, a brick wall will include more than just brick and drywall. There will be extra layers of shear wall material, insulation, studs, and possible waterproofing layers. Therefore, the calculated STC ratings above can be considered to be lower limits. This is a generalization. Specific applications should be studied for compliance with local building code.

#### 7. SUMMARY

Based on the analysis above, most wall assemblies built with Bilco Bricks with added insulated air space and gypsum boards will have STC ratings above STC 50.