Sound

Transmission

Classification

Assessment

Tool

Users Guide

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PROVIDING FEEDBACK & CORRECTIONS

After using the Sound Transmission Classification Assessment Tool, please tell us how the tool may be improved. Comments and corrections are all valuable.

Please send your comments or other input to ATEC@HUD.gov

Overview

The Sound Transmission Classification Assessment Tool (STraCAT) is a web-based application that automates and streamlines the completion of HUD's Figure 19 in The Noise Guidebook.   That is the form that reports the noise mitigation performance of wall systems. STraCAT uses the graph in Figure 17 of the HUD Noise Guidebook for the calculate a combined Sound Transmission Classification (STC) for a wall and other wall components (windows and doors) at a Noise Assessment Location (NAL). The final result is the effective STC of the composite barrier.

The tool is a searchable list that uses the existing STC data to evaluate wall components (wall material, windows, stud spacing and size, drywall thickness, etc.) to calculate the STC for a proposed construction.

How to Use This Tool

STraCAT is an evaluation tool. The list of wall sections and materials is not comprehensive. It reflects typical combinations. Users should find the section that most closely matches the design in their project and deduce if the attenuation credit used is reasonable.

Note: Project architects of record are responsible for completing Figure 19 or similar documentation of the acoustic performance of the building shell. If a material is included that does not have a similar counterpart in the STraCAT tables, supporting documentation from an independent source must be included. A manufacturer's self-certification is not acceptable.

Assessment Approach

The computerized assessment process very closely mimics Figure 19 of the HUD *Noise Guidebook*. The same data must be gathered. Instead of blanks on the worksheet, boxes are filled in on a screen. The wall characteristics (materials, thickness, penetrations) are the inputs.

Note: Only exposed walls parallel to the sound source can be assessed using this tool.

Only one wall can be assessed at a time, however, the number of windows and doors in the assessed wall is more robust.

Assessment Process

The process for using the Sound Transmission Classification Assessment Tool is relatively simple.

1. Go to the Noise Assessment Guidelines in the *Noise Guidebook*.

1a. Fill out *Figure 19: Description of Noise Attenuation Measures* in the Noise Assessment Guidelines (NAG) to organize the project information. Although this approach is recommended, users may go directly to STraCAT (Step 2).

For users' convenience, *Figure 19: Description of Noise Attenuation Measures* is reproduced on the next page.

Figure 19
Description of Noise Attenuation Measures
(Acoustical Construction)

Part I

Project Name _____

Location _____

Sponsor/Developer _____

Noise Level (From NAG) _____ Attenuation Required _____

Primary Noise Source(s) _____

Part II

1. For Walls (s) facing and parallel to the noise source(s) (or closest to parallel):
   a. Descripton of wall construction* _____

   _____

   b. STC rating for wall (rated for no windows or doors): _____

   c. Description of Windows: _____

   _____

   d. STC rating for window type _____

   e. Description of doors _____

   _____

   f. STC rating for doors _____

   g. Percentage of wall (per wall, per dwelling unit) composed of
      windows _____ and doors _____

   h. Combined STC rating for wall component _____

2. For walls perpendicular to noise source(s):
   a. Description of wall construction* _____

   _____

   b. STC rating for wall (rated for no windows or doors) _____

   c. Description of windows _____

   _____

   d. STC rating for windows _____

   e. Description of doors _____

   _____

f. STC rating for doors _____

g. Percentage of wall (per wall, per dwelling unit) composed of
   windows _____ and doors _____

h. Combined STC rating for wall component _____

3. Roofing component (if overhead attenuation is required due to aircraft noise):
   a. Description of roof construction _____

   _____

   b. STC rating (rated as if no skylights or other openings) _____

   c. Descripton of skylights or overhead windows _____

   _____

   d. STC rating for skylights or overhead windows _____

   e. Percentage of roof composed of skylights or windows (per dwelling unit) _____

   f. Percentage of roof composed of large uncapped openings such as chimneys _____

   g. Combined STC rating for roof component _____

4. Description of type of mechanical ventilation provided _____

   _____

Prepared by _____

Date: _____

*If walls contain vents or similar openings, attach a description of duct arrangement and insulation and a statement of how much the wall STC is reduced by the presence of the vent.
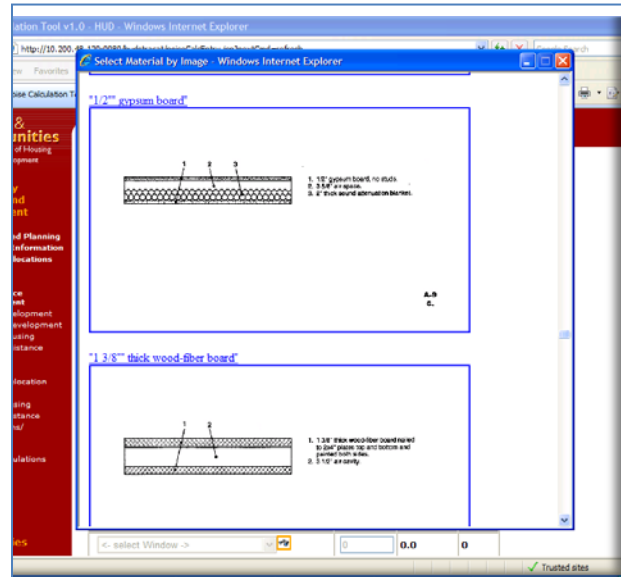
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2. Below is the Welcome Screen to the Sound Transmission Classification Assessment Tool (STraCAT**).** Users can get access to the STraCAT by going to the following URL: http://10.200.48.129:9980/hudstracat/noiseCalcEntry.jsp

2(a) Enter the following information (from Part I of Figure 19 located on page 39 of the HUD Noise Guidebook and above) into the Noise Assessment Location (NAL) identification data fields for the NAL being assessed:

Data Box Title	Information Required
Project Name	Name of the project being assessed
Project Location	Address of the project being assessed
Sponsor/Developer	Name of the organization developing the project
Prepared by	Name of the person preparing the assessment
Noise Level (in dB)	Noise level from the transmitting source (output from the DNL Calculator)
Date	Date of the assessment
Primary Noise Source(s)	Identify the major noise challenge(s) impacting the NAL

2(b) Transfer the input data from Part II of Figure 19 into the component detail entry boxes of the tool.

The wall component detail entry field is divided into three columns, these are construction detail, area and STC. The construction detail entry has a drop down menu for selection of the construction detail section to be assessed. To the side of each component construction detail there is a binoculars icon to see the component entry section selection. A sample is shown at right. The area entry field is the area of the wall area. The STC box provides the STC value calculated by the tool once the construction detail entry has been entered. The window and door component detail entry fields are divided into four columns. These are construction detail, quantity, area in units of square feet and STC.

Once the quantity of doors and windows is entered, the tool automatically provides the results of the calculation on Part III.

Here are some tips to help with the data entry:

- Boxes that need input will be white.

- There are three component detail entry boxes for all components to be assessed. These components are wall, window, and door.

- The window and door component detail entry boxes are very similar to the detail entry fields for walls. The user selects the window or door construction detail from the drop – down menu and then, enters the quantity for the type of construction detail selected.

Sound Transmission Classification Calculation Procedures

To calculate the combined STC rating from a noise assessment location with a wall having windows and doors parallel to a noise transmission source, the procedures are as follows:

Step 1. Fill in the following information (from Part I of Figure 19 located on page 39 of the HUD Noise Guidebook and above) into the Site Identification Data fields for the site being assessed:

Step 2. Transfer the input data from Part II of Figure 19 into the component detail entry fields of the tool.

Wall construction detail – Select from the drop down menu, the type of wall section to be assessed at the NAL. If not sure what type of wall section to select, click on the icon with the picture of binoculars to select the appropriate section from the various types of pictures of wall sections provided. Once the wall section is selected, the tool automatically provides the STC value for the selection. Enter the area of the wall section being assessed. Up to three different types of wall sections can be selected per assessment.

Wall component detail – The tool provides component detail entry fields for windows and doors. For windows and doors, select the type of window or door construction being assessed. If not sure which type of window or door detail to select from, click on the icon with the picture of the binoculars to select the type from the various sketches of windows or doors provided. Once the window or door section is provided, the system calculates the STC and the area per selected window or door section. Count each window and door type and enter the number of windows and doors per type in the subject wall.

Step 3. The system provides immediate results once the wall component detail entry fields are complete as follow:

STC Example: *Calculate the STC for a wall with windows and doors:*

Step 1. Enter the following information (from Part I of Figure 19 located in page 39 of the HUD Noise Guidebook) into the NAL identification data fields for the Noise Assessment Location (NAL) being assessed:

- Project Name: Railroad Overlook

- Project Location: Nowhere, New Mexico

- Sponsor/Developer: Affordable Homes

- Prepared by: Anita Walkmoor

- Noise Level(in dB): 80

- Date: 8/1/10

- Primary source: 6 lane highway

The screen should look as follows:

Step 2. Transfer the input data from Part II of Figure 19 into the component detail entry fields of the calculator.

The screen should look as follows:

Step 3. The tool provides immediate results once the data is entered into the wall component detail entry boxes.

The screen should look as follows:

Library
Laws and Regulations

HUD news

Homes

Resources

Communities

Working with HUD

Tools
Webcasts
Mailing lists
RSS Feeds
Help

USA.gov
Government Made Easy

		0.0	0
<- select wall ->		0.0	0
		80.0 Sq. Feet	42.0

Window Construction Detail	Quantity	Sq Ft/Unit	STC
3x4ft jalousie	1	12.0	20
6x5ft picture	1	30.0	29
3x5ft double hung	1	15.0	26

Door Construction Detail	Quantity	Sq Ft/Unit	STC
sliding glass	1	36.0	28
solid-core wood	1	21.0	20
<- select Door ->	0	0.0	0

Part III - Results

Percentage of wall (per wall, per dwelling unit) composed of -
Windows: 71.25 %
Doors: 45.0 %

Noise source sound level(dB):   80
Combined attenuation for wall component: 24.5 dB
Required attenuation: 38
Do Wall components meet requirements?   No

Results display area

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