

# *Sound Advice*

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Helpful Information from *Stewart Acoustical Consultants*

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## **HUD and FHA Loan Noise Requirements**

by Noral D. Stewart

The Federal Housing Administration (FHA) and the US Department of Housing and Urban Development (HUD) have noise requirements that must be met before they will approve funding for housing projects. The requirements are based on the day-night average sound level. This is a long-term average sound level in which 10 dB is added to all sound after 10:00 pm and before 7:00 am. This is equivalent to counting any noisy event during this night period as equal to 10 similar events in the daytime. If there is reason to believe the day-night average sound level is above 65 dB, HUD and FHA will require a noise assessment. This assessment usually involves calculations according to procedures developed or approved by HUD when the noise is due to transportation systems. HUD and FHA prefer these methods to measurements, and the calculations are much less expensive than measurements. If it is believed the actual noise is less than the calculations show, the sound can be measured. If the calculations show the noise is below 65 dB, there should be no further questions.

In the unlikely event the noise is above 75 dB, HUD and FHA will probably not approve the application even with noise control steps. If levels are between 65 and 75, noise control steps are necessary for approval. If the noise reaching the site is between 65 and 70 dB, the applicant must usually satisfy one of the following requirements.

1. Show that the building construction is adequate to reduce the interior noise to 45 dB. This may not be difficult and the planned construction may be adequate if the noise is not much above 65 dB.
2. Provide a barrier or berm to reduce the outside noise reaching the site to 65 dB.
3. Provide a combination of barrier or berm and construction to reduce the level reaching the inside to 45 dB.

If the level is between 70 and 75 dB, a combination of a berm or barrier to reduce outside levels below 70, and improvement in the building construction is usually necessary for road or rail sources.

For aircraft noise, noise information will usually be available from the airport showing the expected day-night average sound level. Calculations for aircraft noise can be difficult and expensive if the airport has not done them.

Certain information concerning railroad and highway noise sources is needed for the initial calculations. This is listed on the next page. If some of this information is not available, the procedure requires certain assumptions be made.

For railroad noise, the following information is needed for the initial calculations.

1. The distance from the proposed building to the centerline of the railroad track. If there are multiple buildings or tracks, a plan should be provided.
2. Details of any topography or structure that blocks the line-of-sight between the proposed building and the railroad.
3. The location of whistleposts if the proposed site is between whistleposts where horns would be sounded.
4. For the period 7:00 am to 10:00 pm, the average number of freight trains per day.
5. For the period 7:00 am to 10:00 pm, the average number of passenger trains per day.
6. For the period 10:00 pm to 7:00 am, the average number of freight trains per day.
7. For the period 10:00 pm to 7:00 am, the average number of passenger trains per day.
8. For the freight trains, the average speed, typical number of locomotives, and typical number of cars.
9. For the passenger trains, the average speed, typical number of locomotives, and typical number of cars.
10. Are the rails welded or bolted together?

For highway noise, the following information is needed for the initial calculations.

1. The distance from the proposed building to the nearest edge of nearest lane and farthest edge of farthest lane of road.
2. Details of any topography or structure that blocks the line-of-sight between the proposed building and the road.
3. The distance to any stop signs or stoplights.
4. The road gradient if 2% or more.
5. The average speed of vehicles on the road.
6. For the period 7:00 am to 10:00 pm, the average number of vehicles per day broken into three categories: automobiles and light trucks, medium trucks (10000 to 26000 pounds) and heavy trucks.
7. For the period 10:00 pm to 7:00 am, the average number of vehicles per day broken into three categories: automobiles and light trucks, medium trucks (10000 to 26000 pounds) and heavy trucks.

If no breakdown is available between day and night traffic (and it usually is not), the procedure assumes 15% of traffic is at night.