DA03 – DUCT DESIGN

Amendments

Section 10-90

In equation 10-90a, replace the $4p$ r in the denominator of the left hand term inside the brackets with $2p$ rl

Section 10-95 Step 8

At the end of the first paragraph of (b) replace Fig 10-95b with Fig 10-95c

Section 10-95 Step 9

In equation 10-95j insert a minus sign in front of the 10log and in front of TL inside the brackets for the antilog term

Section 10-95

Equation 10-95l. In the definition of ACIRC replace A^2 with Bl and in the definition of ARECT replace the second B with l, the length of the duct.

Section 12-20

In the definition of terms for equation 12-20a add units of (kg/m^2) for the surface weight of the duct.

Section 12-20

After equation 12-20d add:

However if D_{eq} is less than 0.27m

$$A_t = 0.3 \times \frac{f}{4000} \text{ dB/m}$$

Table 12-20B

The values for 200 mm diameter at the frequencies 2000, 4000 and 8000 Hz should be 0.0, 0.0 and 0.6 respectively.

Section 12-40

The end of the first sentence in the second paragraph should read:

… where d is the diameter for circular ducts or the duct dimension in the plane of the bend for rectangular ducts.

Section 12-40

Delete Figures 12-40A to D and replace with the new figures attached and add the following after the paragraph on bends through other than 90°:

For radiused bends with turning vanes the values in Figure 12-40C for the lined bend and for the same bend unlined can be averaged.

Figures 12-40A, B and C are for lining material thickness equal to or greater than 50 mm. For lining materials less than 50 mm the attenuation can be calculated from

$$At - Au + \sin\left(\frac{t^{3.3}\lambda}{D}\right) \times (A_{50} - A_u) \qquad \text{eqn 12-40G}$$

Where:

A_t = attenuation of bend with lining thickness t mm

A_{50} = attenuation of equivalent bend with 50 mm lining thickness (from Fig 12-40A, B or C)

A_u = attenuation of equivalent bend unlined (from Fig 12-40A, B or C)

All of the above bend attenuation data is additive to the duct attenuation figures which are calculated separately in accordance with Section 12-30. The length of duct for this calculation when Figures 12-40 A, B or C are used is the length as shown in Fig 12-40D not the centre line to centre line length.

For radiused bends with an r/d ratio greater than 3.5 it can be assumed that the bend attenuation is zero. For radiused bends with an r/d less than 3.5 the attenuation is given by:

$$A = A_{.5} \sin\left(\frac{7}{6} - \frac{r}{3d}\right) \times \left(\frac{\pi}{2}\right) \qquad \text{eqn 10-40C}$$

Where:

A = attenuation for r/d = .5 from Table 12-40A

r = radius of bend as defined in Fig 6-30A

d = diameter of duct for round ducts or dimension in plane of turn for rectangular ducts

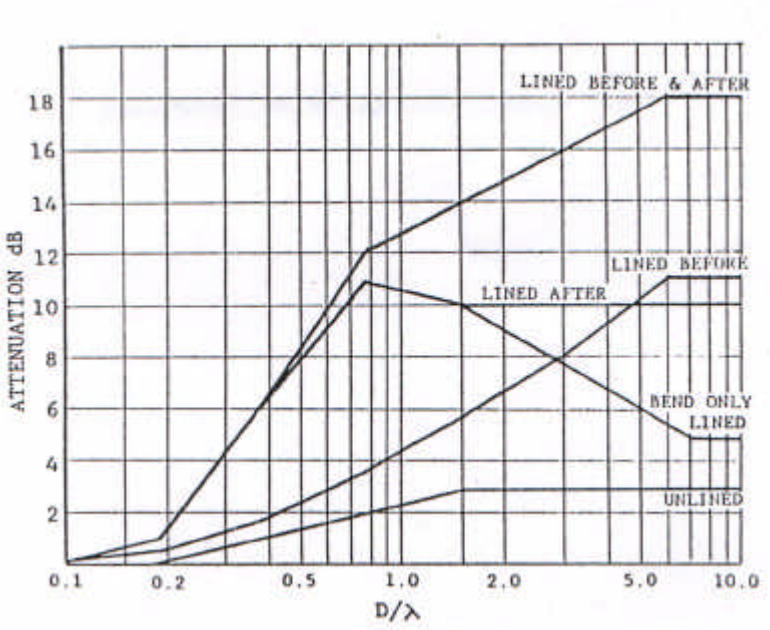

Fig 12-40A – Approximate Attenuation of Lined and Unlined Short Radiused Bends $\left(\frac{R}{D} < 0.5\right)$ without Turning Vanes.

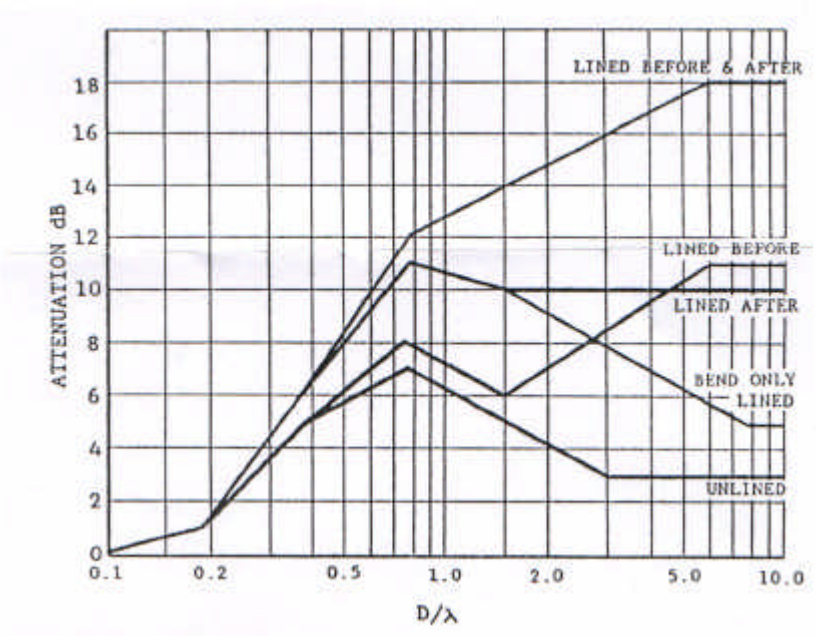

Fig 12-40B – Approximate Attenuation of Lined and Unlined Mitre Bends without Turning Vanes.

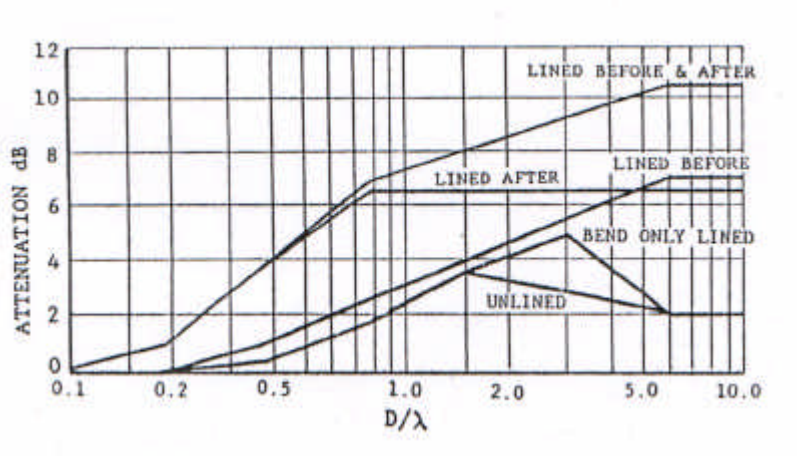

Fig 12-40C – Approximate Attenuation of Lined and Unlined Mitre Bends with Short Chord Turning Vanes

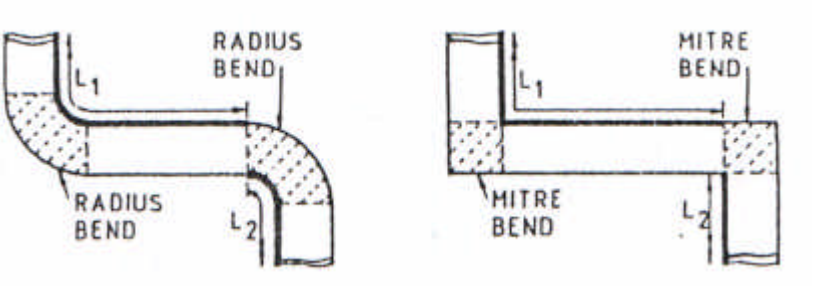

Fig 12-40D – Illustration of How to Measure Length of Lined Ducts for Duct Attenuation to be Added to Bend Attenuation