8 X 8 LINTELS

For further technical information about shear strengths, deflections and other issues, please call our office at 302-934-9237

Design Data

\( f'_{c} = 3,000 \text{ psi (minimum)} \)

\( f'_{m} = 60,000 \text{ psi (per ASTM A615)} \)

Average weight per lineal foot of beam - 56 lbs.

Design formulas as per ACI 318-95

\( M_u = \text{Moment governed by ultimate strength} = 0.9 \times (A_s) (f'_{c}) (d/2) \)

\( V_u = \text{Shear governed by ultimate strength} \leq \frac{V_{r}}{2} \times (2.4)^{1/6} \times (b_w \times d) \)

\( M_u = \frac{1}{8} V_{u} \times (L_w)^{2} \)

\( V_u = \frac{1}{2} V_{u} \times (L_w) \)

\( L_{max} = \text{Maximum allowable deflection} = \frac{L_{e}}{360} \leq 0.3'' \)

UL Fire Ratings 1½ hour

Typical Section:

Width (W) = 7.625 inches
Height (H) = 7.625 inches
Efl. Depth (d) = H - 1½'' ½ bar dia.

As a minimum, the lintels carry the apex area above the span. An example of the uniform equivalent apex load calculation follows.

Hollow masonry block weights for determining uniform equivalent apex load on lintel:

- 8'' block weight - 35 psf (Hollow)
- 12'' block weight - 50 psf (Hollow)

Equivalent load of apex area - .33 WL
Effective span "L" of lintel (centerline of bearing to centerline of bearing).
Weight of masonry block, "W" PSF

Example

Equivalent apex load for 8'' X 8'' Lintel with effective span of 48''

Apex Load = \( (0.33) (W) (L) = \frac{33}{100} (35 \text{ psf}) \times (48'' / 12) = 46\# / \text{FT} \)

Capacity of 4 X 8 lintel with effective span of 48'' (from load tables for live loads) = 2744 \# / FT
Therefore, the lintel has significant excess capacity. If superimposed load is located within apex area, then refer to the load tables to ensure sufficient capacity.

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<td>2. Nominal Lintel length (inches)</td>
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<td>3. Masonry opening L_1 (inches)</td>
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<td>4. Effective span L_e (inches)</td>
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<td>5. Maximum allowable load</td>
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<td>6731</td>
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<tr>
<td>Balanced condition</td>
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<td>Dead Load</td>
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<tr>
<td>Live Load</td>
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<td>3959</td>
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<tr>
<td>6. Maximum bending moment capacity, M_u (lbs-ft)</td>
<td>2898</td>
<td>2898</td>
</tr>
</tbody>
</table>

** Maximum allowable superimposed \( W_u \) uniformly distributed load covered by bending (lbs.-ft) balanced condition

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