

SE INSIGHTS

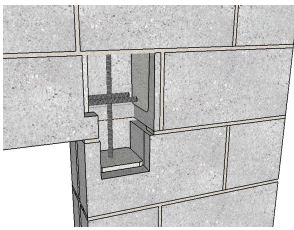
FOR MASONRY DESIGN

Steps to Efficient Masonry Lintels

First, start with getting more accurate material strengths defined for masonry.

- Typical masonry wall and lintel design should have $f'm = 2500\text{psi}$, or higher

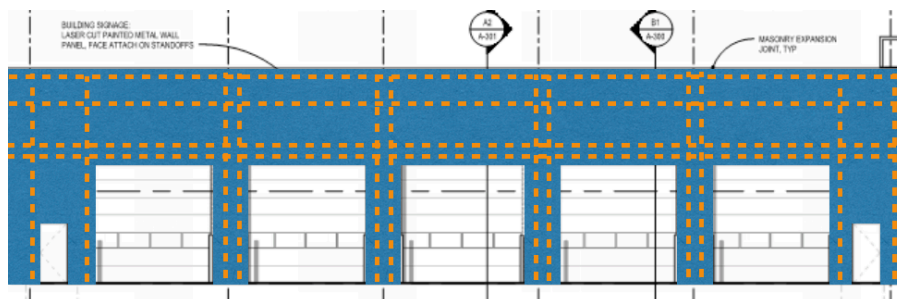
Second, recognize that masonry walls should have masonry lintels. Walls with masonry lintels perform better than steel lintels or precast lintels, have less maintenance issues, and cost less. To learn about lintel options, loads on lintels, analysis tools, and more, see my presentation: Masonry Lintel Youtube presentation (<https://youtu.be/9UozjfgCVM>)



Third, the masonry wall CJ's should be located away from openings. Masonry lintels create an integral joint with vertical jamb reinforcement. This leads to a more robust design that has many analysis and design benefits including arching action and fully developed lintel reinforcement. For more information of CJ placement, see NCMA TEK 10-2D at <https://ncma.org/resource/tek-index/>



Fourth, if there are a series of openings, consider designing that wall elevation without CJs. Masonry lintels should then be used to span all the openings as a continuous beam. This is based on increasing the horizontal reinforcement to allow CJs to be located further apart than standard placement. For more information of CJ placement, see NCMA TEK 10-3 at <https://ncma.org/resource/tek-index/>



Fifth, use finite element software for designing masonry walls with lintels, or at least consider arching action and fixed-end span for comparable analysis with spreadsheets or hand calculations.

Finally, also consider the NCMA document about how to design masonry lintels:

- Manual for Lintels: <http://ncma-br.org/pdfs/masterlibrary/TR91B%20Lintel%202004%202012.pdf>