

Masonry Urbanus

Masonry Details for Low-Rise Urban Housing

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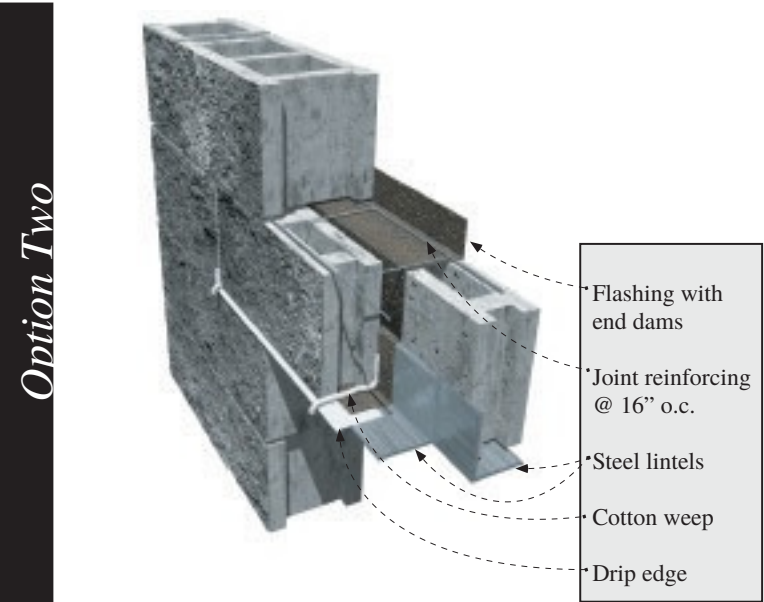
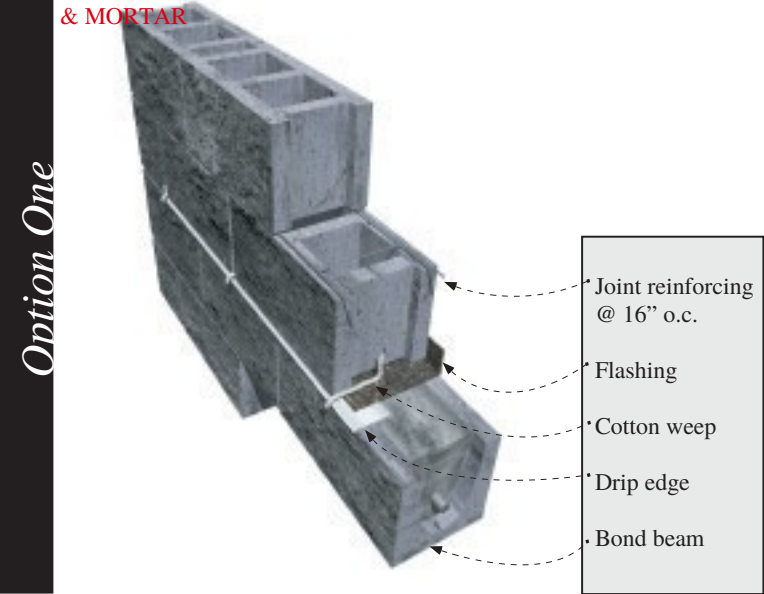
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Window Head Details

Comments

These two window head details show the relationship between the steel lintel, drip edge, flashing, end dams, and weep holes. The first option shows the use of a concrete masonry bond beam which is grouted solid and reinforced. The second detail shows two back to back steel lintels used for spanning the opening.

NOTE: ALL EXTERIOR CONCRETE MASONRY SHOULD INCORPORATE INTEGRAL WATER REPELLENT IN THE UNITS & MORTAR

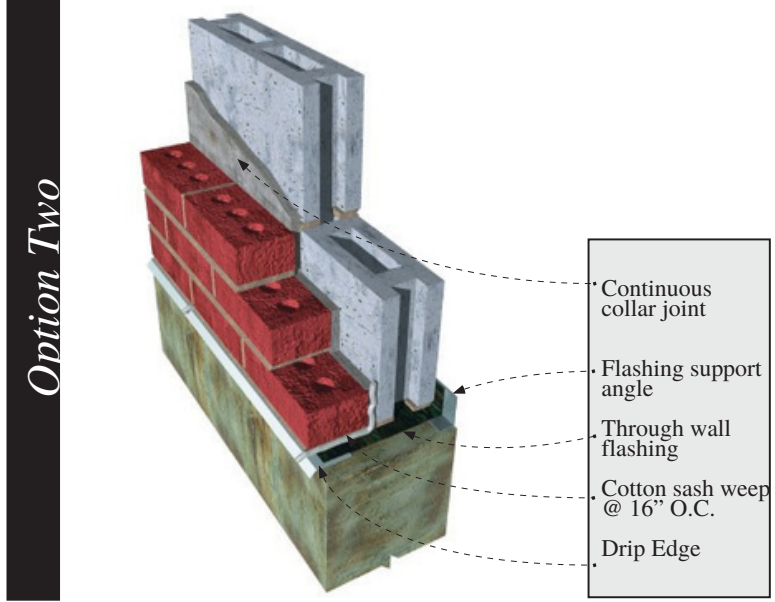
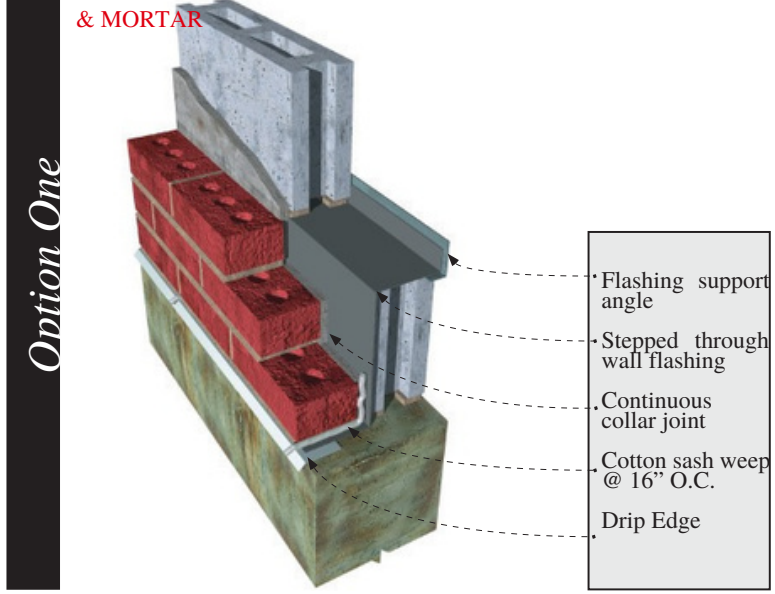


Composite Wall - Base Flashing

Comments

Option one shows a stair-stepped flashing detail with the exposed drip edge and weep holes. Option two shows a straight through wall flashing detail. The flashing must be set in mastic on top of the concrete foundation, or the flashing must be self adhesive. The flashing should be turned up on the inner side of the wall to direct water to the outside of the wall.

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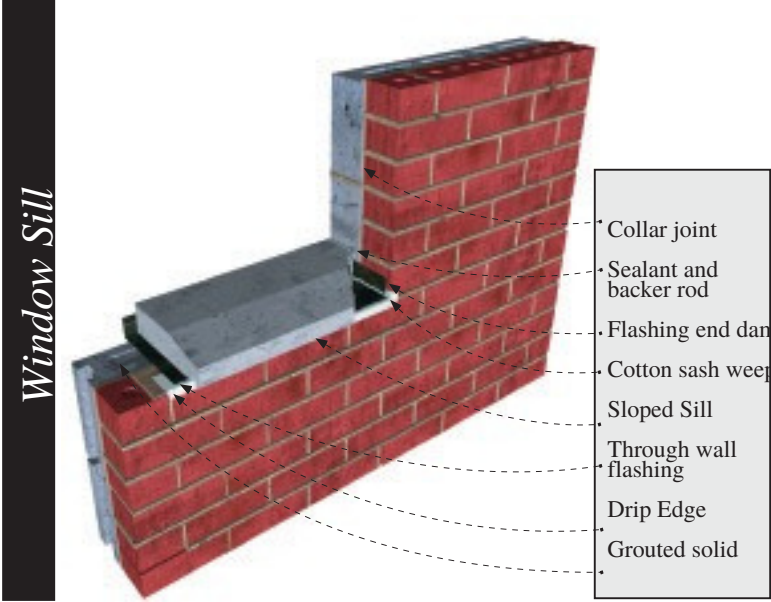
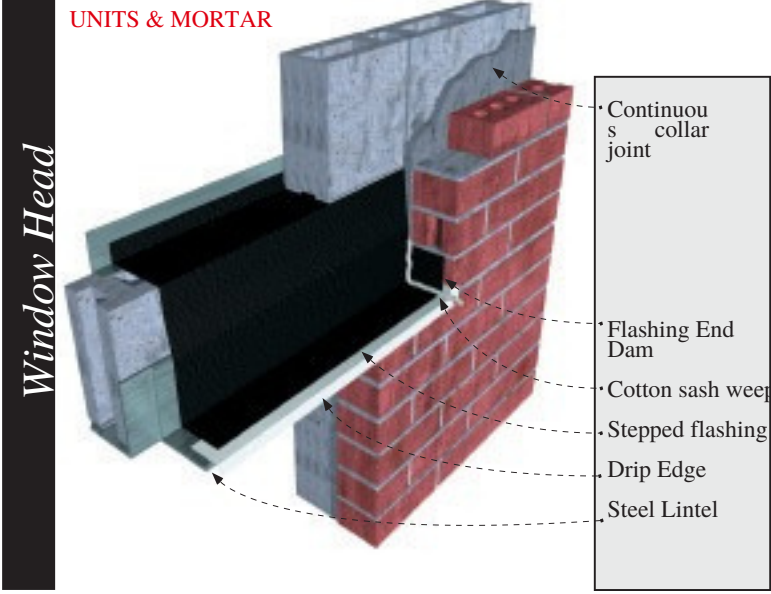


Composite Wall - Windows

Comments

Here, loose steel lintels back-to-back create the above window span. Stepped flashing turned up on the inside, and folded to form an end dam protects the head condition from moisture. The sill detail also uses flashing, end dams and weep holes to keep moisture out of the wall. The use of a precast concrete or stone sill is highly suggested over using brick rowlock sills.

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Introduction

Scope of this guide

The current trend of urban renewal and in-fill has sparked a high volume of new low rise masonry residences. These structures come in many forms, but quite often they employ the use of load bearing concrete masonry walls supporting a wood floor system. These new buildings are largely derivative of the old load bearing masonry "brownstone" or "three bay" structures of old. This guide is intended to assist contractors and architects to give this old building type a modern approach to detailing.

Floor System Connections

When designing low-rise load bearing structures, the connection detail between the floor system and the wall system is critical for achieving a watertight structure. There are several ways to connect a wood floor system to a masonry load-bearing wall. Much of this guide will deal with which strategy should be utilized. Connection methods covered are:

- Joist Hangers • Beam Pockets • Ledger Beam

Brick and block composite wall details

Quite often, the front facade of these structures is composed of brick to give the building a more residential, more human scale. The preferred way to construct a brick and block wall is to separate the two wythes with an airspace, creating a cavity wall. Due to economic constraints, we see most designs using the composite wall design. The composite wall consists of an exterior wythe of brick directly mortared or parged to an inner wythe of cmu. The collar joint between the two wythes should be 100% solid as it is the only defense against water penetration. Details covered for this system are:

- Base Flashing • Window Head • Window Sill

Commentary on exterior concrete masonry

All exterior concrete masonry should project beyond the face of the wall at least 1 inch and be treated with an integral water repellent inch and should have functional flashing and (both units and mortar additive), or a pen-weep holes. In addition, all sills, copings and eave water repellent should be applied to chimney caps should have a minimum slope the finished wall. Because 8 4" concrete of 1:4, be mechanically anchored to the wall, masonry veneer will shrink over time, a 4" and should have properly sized, sealed, and hot-dipped galvanized ladder type joint rein-located movement joints when necessary. forcement should always be placed in bed Flashing should be installed at local joints spaced 16 inches vertically. tions shown on plans and in strict accordance

Type N mortar should be used for with the details and industry standard flashing all veneer construction. Type S mortar may procedures. Functional, unpunctured flashing be required for some through wall/load bearing and weep holes are to be used at the ing applications. Type S mortar tends to be base of wall above grade, above openings, less workable in the field and should only be at shelf angles, lintels, wall-roofing intersec- specified when dictated by structural require-tions, chimneys, bay windows, and below ments. Sills, copings and chimney caps sills and copings. The flashing should be of solid masonry units, reinforced concrete, extended past the face of the wall. The flashing- stone, or corrosion resistant metal should be ing should have end dams at discontinuous used. Copings, sills and chimney caps should ends, and properly sealed splices at laps.

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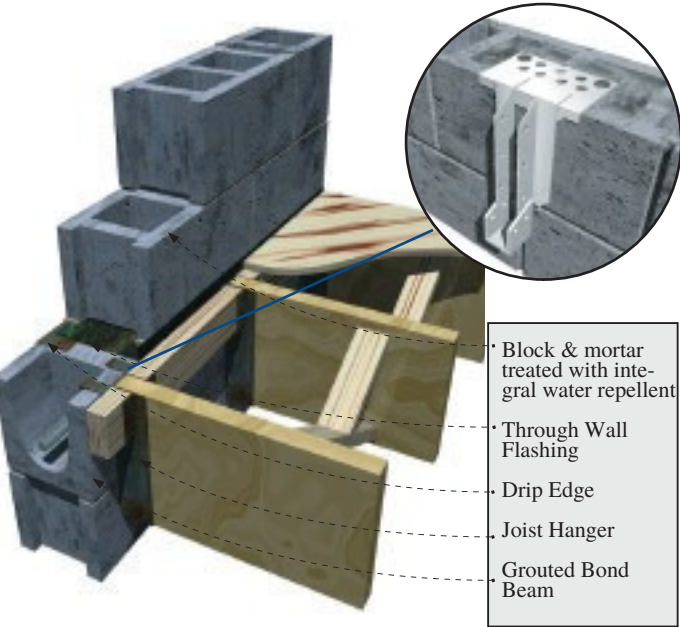
Joist Hanger Details

Comments

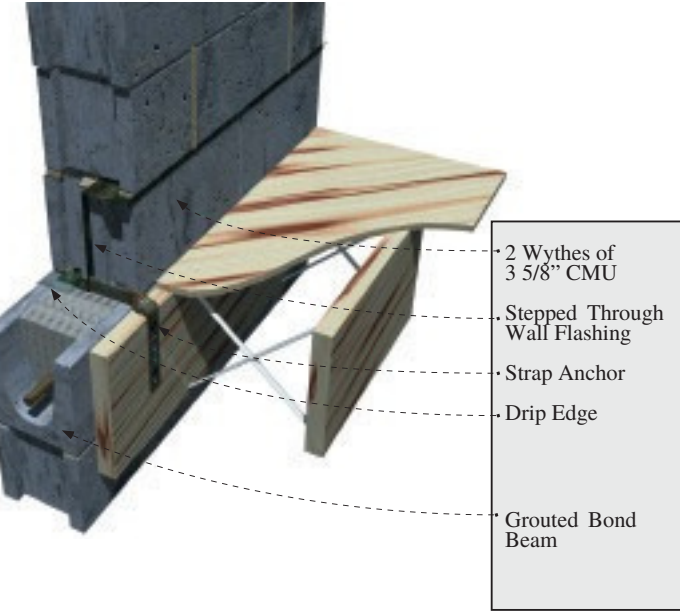
The use of a joist hanger system can greatly simplify the bearing detail. The floor system does not interrupt the continuity of the bearing wall. Installation is quicker and easier resulting in a more economical installation.

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Bearing Detail



Non-Bearing Detail



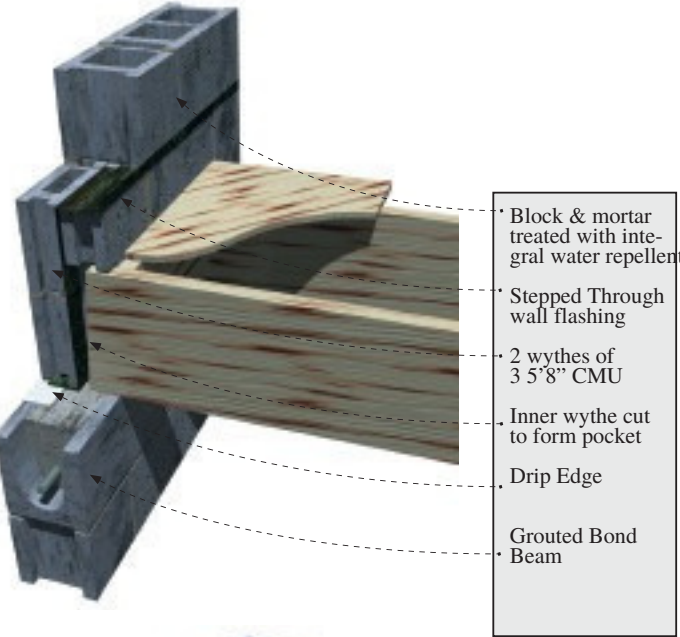
Beam Pocket Details

Comments

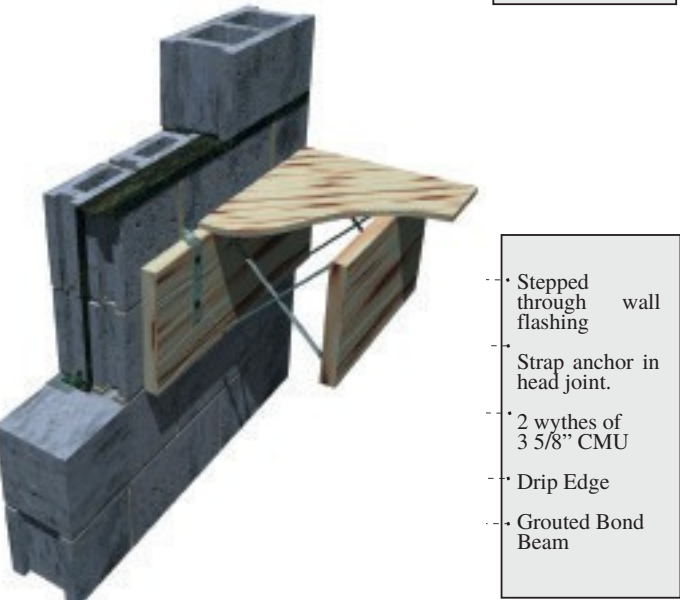
The traditional beam pocket detail still can be effective, stepped flashing above the bearing line is critical to the performance of this system. Without the flashing, any water present in the wall has a clear path inside the building and has the potential to deteriorate the floor structure.

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Bearing Detail



Non-Bearing Detail



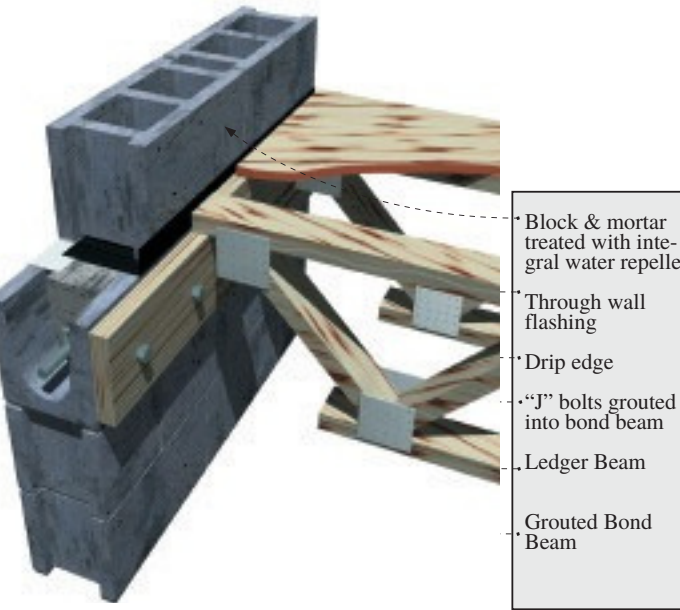
Ledger Beam Details

Comments

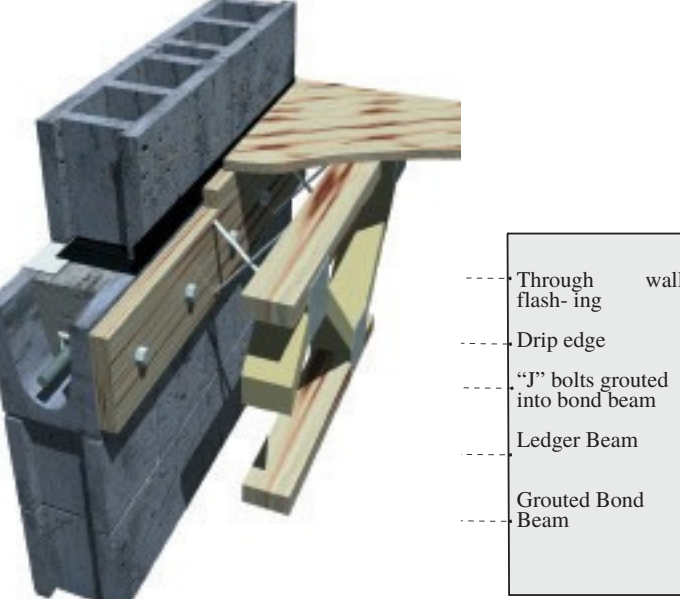
The use of a ledger beam which is bolted to a bond beam is also a good option for this bearing condition. Through wall flashing is still required to maintain a watertight wall. Any water that penetrates the block with run down the inner cores of the block until it hits the flashing. The flashing and weep holes will allow the water to exit without damaging the structure.

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Bearing Detail



Non-Bearing Detail



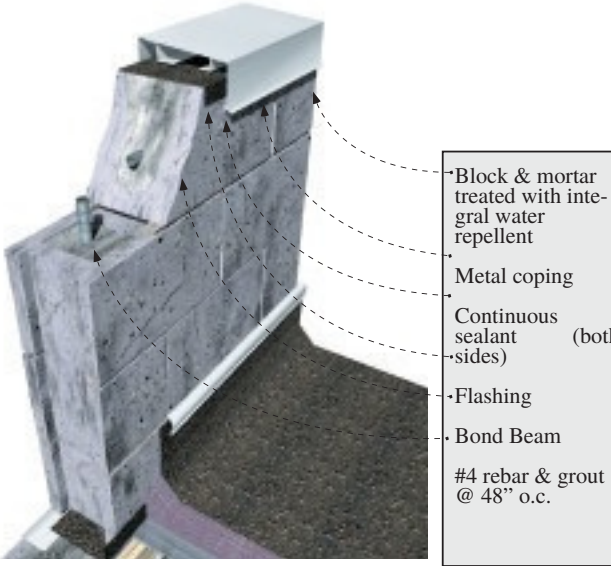
Parapet & Window Sill

Comments

Below are details for a parapet condition and a window sill condition. The parapet is reinforced with #4 bars at 40 inches on center for resistance to wind loads. If a metal cap is used, it should extend down the face of the wall at least 3 inches with continuous sealant at the joint on both sides of the wall. The sill detail shows the arrangement of flashing, end dam, weep holes and drip edge and how they all work together to form a watertight window sill.

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Parapet Detail



Sill Detail

