

RESIDENTIAL MASONRY
A BEST PRACTICES GUIDE



Build With Brick
Build With Boral®





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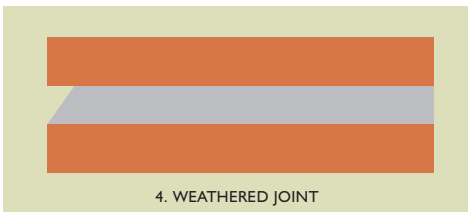
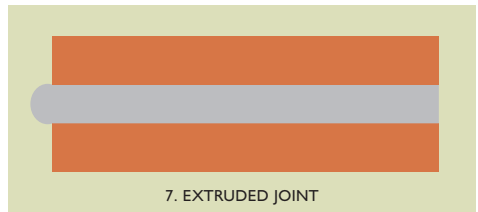
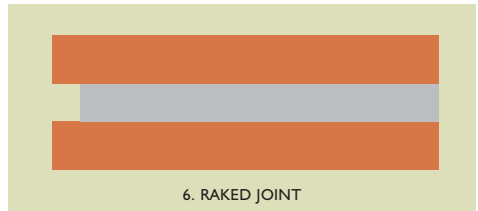
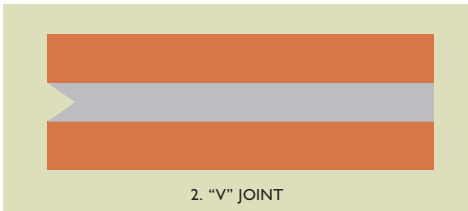
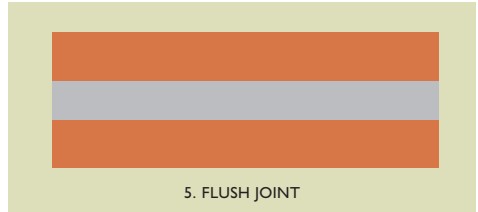
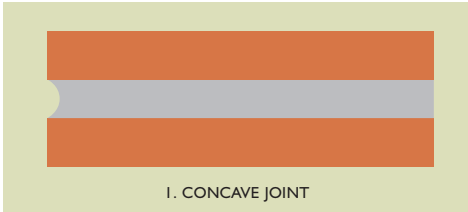
The information provided in this Best Practices Guide is intended to assist the installer in the proper installation of Boral Bricks, Inc. products. It is not intended to replace applicable local building codes or industry standards. Installation of the products in accordance with such codes and standards is the sole responsibility of the installer, and Boral Bricks, Inc. assumes no liability for products installed improperly or not in conformity with such codes and standards.

01: BRICK

BRICK SIZE	DIMENSIONS (L x H x D)	BRICK PER SF (installed)	SF PER 1000 (installed coverage)	WEIGHT PER SF (installed, non-solid)
Modular	7 5/8" x 2 1/4" x 3 5/8"	7.0	143	40 lbs.
Queen	7 5/8" x 2 3/4" x 3"	6.0	182	30 lbs.
Engineer	7 5/8" x 2 3/4" x 3 5/8"	6.0	182	40 lbs.
Princess	8 3/4" x 2 3/4" x 2 3/4"	6.0	182	30 lbs.
King	9 3/4" x 2 3/4" x 2 3/4"	5.0	200	30 lbs.



BRICK :02
TYPES OF MORTAR JOINTS



Types of mortar joints are listed in order from highly-recommended to not recommended based on mortar compaction and water penetration.

03: MASONRY CEMENT

TYPE	APPLICATION	CEMENT CONTENT	COMPRESSIVE STRENGTH (psi)	STRENGTH	WORKABILITY
M*	Below grade (block)	High	2500	High	Limited
S	Structural walls	↑	1800	↑	↓
N	General use, veneer		750		
O*	Partitions, interiors	↓	350	↓	↓
K*	Low-strength interior		Low		

* non-stock items

Masonry cement adds almost no volume to a prepared mortar, it simply coats the sand particles. [.33 cubic feet (CF) of cementitious materials and .99 CF of sand will make 1 CF of mortar]

Mix Mortar Using 1:3 Ratio

1 part masonry cement + 3 parts sand + appropriate water = mortar

1 bag masonry cement (1 CF) + 4 five-gallon pails of sand (3 CF) + appropriate water = 3 CF mortar

The required shovel count varies by operator technique and shovel type, so a five-gallon pail or 1 CF box should be used initially to determine an accurate count for 3CF of sand. The amount of water required depends on conditions and brick absorption.

Estimate 7-9 bags of masonry cement per 1000 bricks of any size.

Estimate 3 bags of masonry cement per 100 (8" x 8" x 16") concrete block.

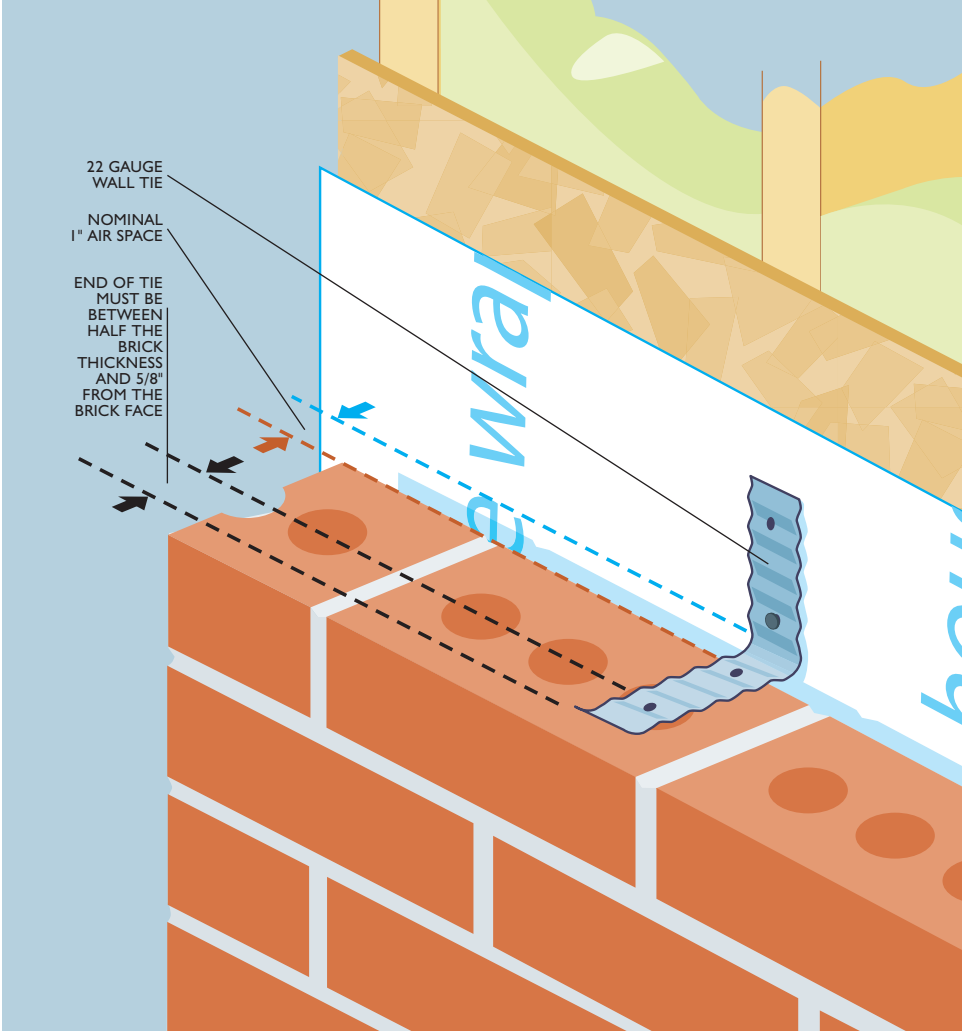
MASONRY SAND :04

- Cubic yard (CY) of sand = 1.2 tons of sands *
- 1 ton of sand will lay approximately 250 concrete block.*
- 1 ton of sand will lay approximately 1000 brick.*
- Normal jobsite delivery of bulk sand is approximately 18 tons or 15 CY*

* these are rough estimates



05: WALL TIES



WALL TIES :06

- 22 gauge corrugated wall ties are only used on wood stud construction.
- Nails should be sized 8d or larger, cement-coated or galvanized (8d nails are 2.5" long).
- Ties should be spaced every 16" vertically and every 16" or 24" horizontally depending on stud spacing. This supports most codes which require one wall tie for every 2.67 SF of wall area. Ties must be nailed into studs and are typically installed as the mason works up the wall with brickwork.
- 54 ties per 1000 modular brick, 68 ties per 1000 oversize brick.
- Nail as close to bend as possible for maximum lateral strength.



07: STEEL LINTELS

A lintel is a support member that spans a door or window opening in a masonry wall. Lintels can be made from pressed steel, angle iron, I-beams, concrete, stone, etc. The following best practices pertain to angle iron used for lintels in residential construction:

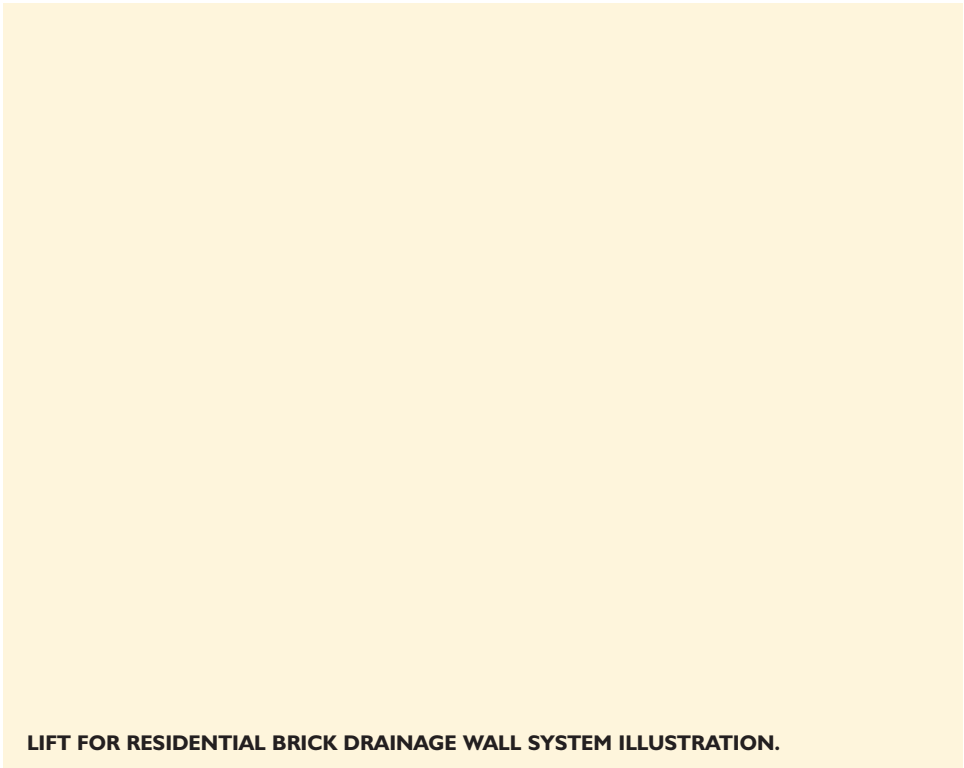
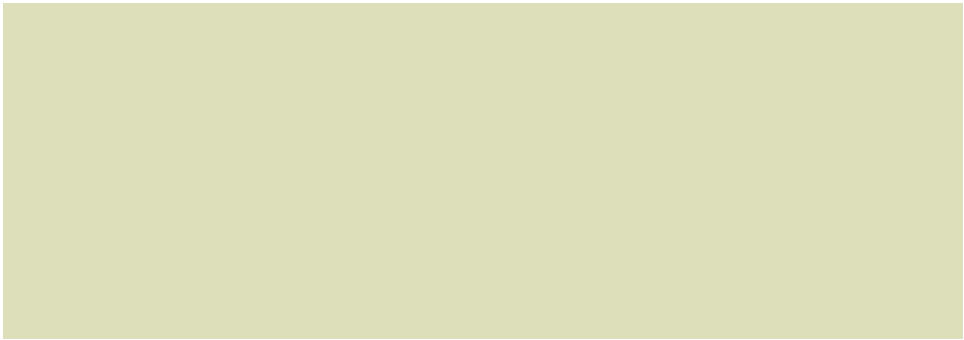
MASONRY OPENING	LINTEL DIMENSIONS	OVERHANG (EACH SIDE)
Up to 8'	3" x 3" x 1/4"	4"
8' to 12'	3" x 5" x 5/16"	4" to 8"
12' to 16'	3" x 5" x 5/16"	8" to 12"

- Code requires no less than 4" bearing on each end of lintel, regardless of length.
- Temporary bracing of lintels over large masonry openings, such as garage doors, prevents sagging and possible cracking while the mortar reaches maximum strength. Lintels are also available pre-punched for lag bolt attachment to wood framing when dictated by code.
- Lintels are available galvanized or primed to prevent or minimize rust.
- For foundation vents, steel flat bar may be required as a lintel when the vent is not self supporting.





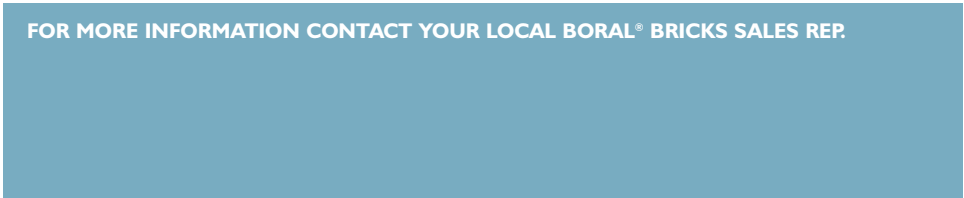




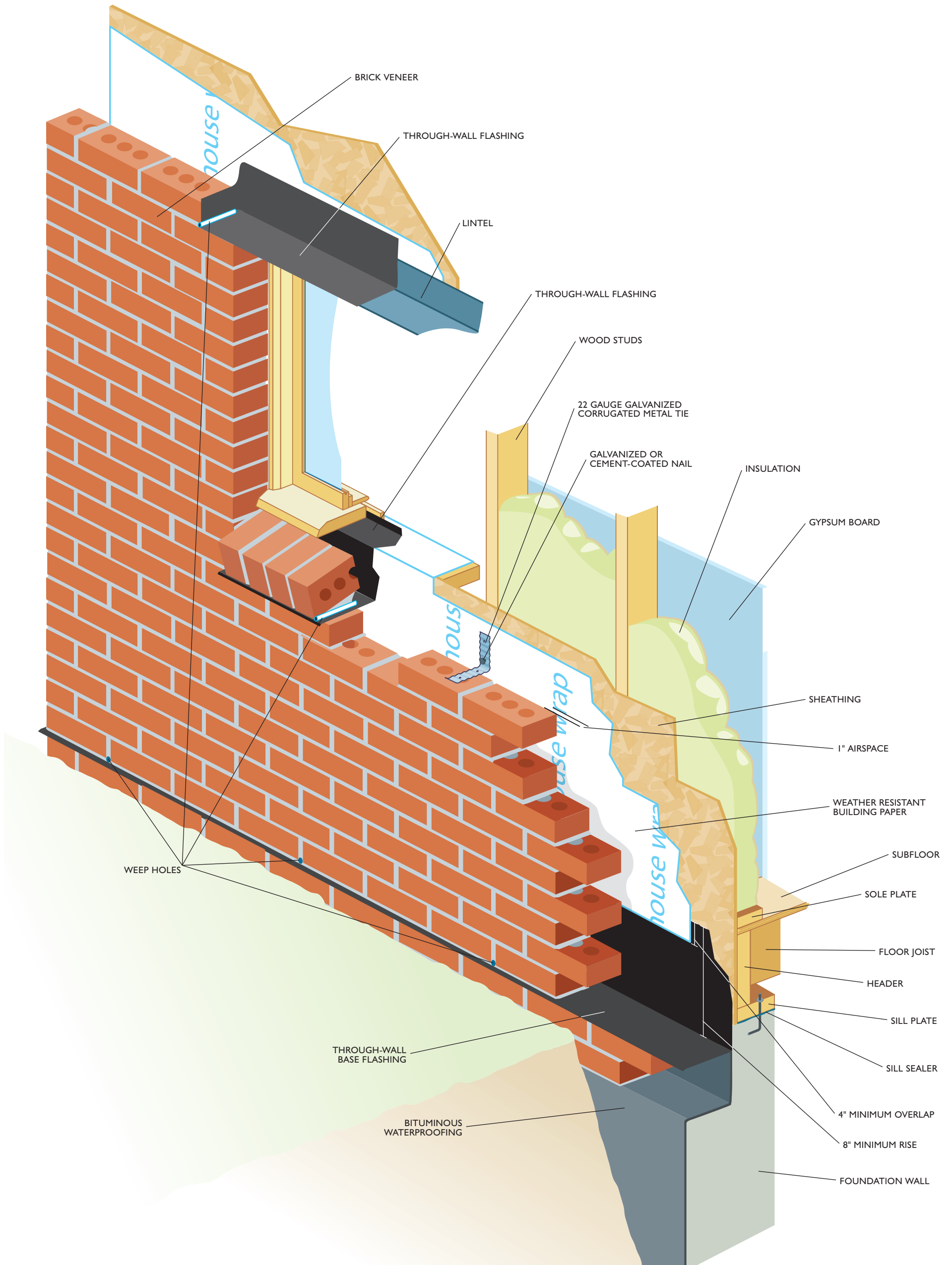
LIFT FOR RESIDENTIAL BRICK DRAINAGE WALL SYSTEM ILLUSTRATION.



FOR MORE INFORMATION CONTACT YOUR LOCAL BORAL® BRICKS SALES REP.



RESIDENTIAL BRICK DRAINAGE WALL SYSTEM



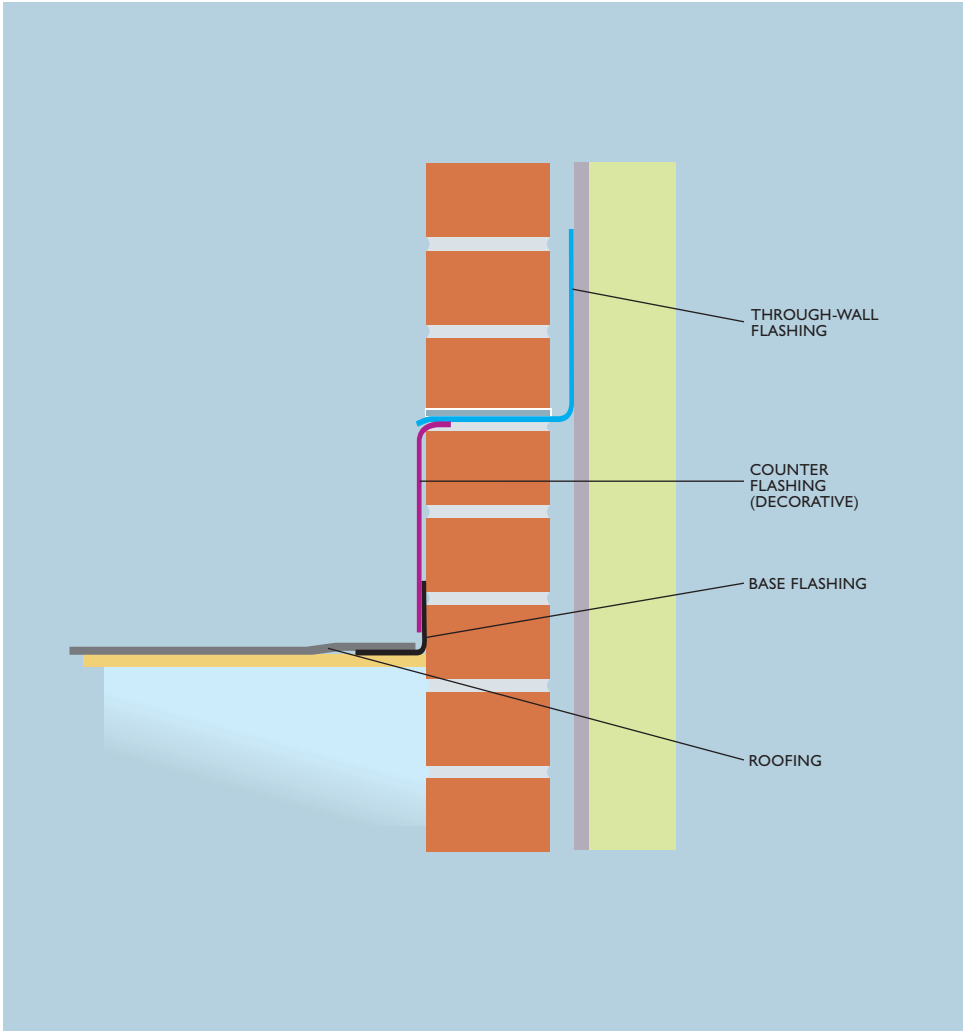
11: FLASHING

HOUSE WITH FLASHING LOCATIONS



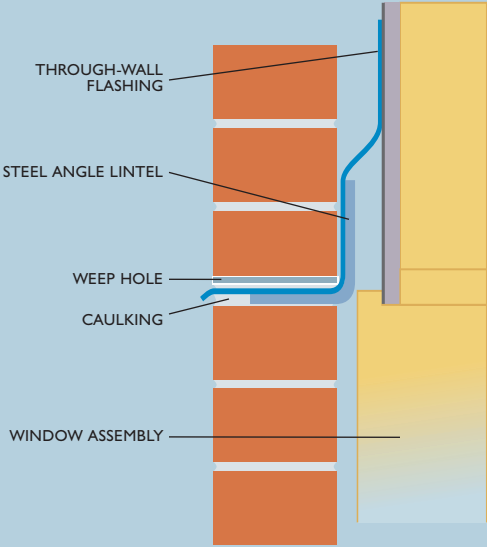
BLACK LINES INDICATE LOCATIONS WHERE THROUGH-WALL FLASHING AND WEEP HOLES ARE REQUIRED.

FLASHING :12
ROOF INTERSECTION DETAIL

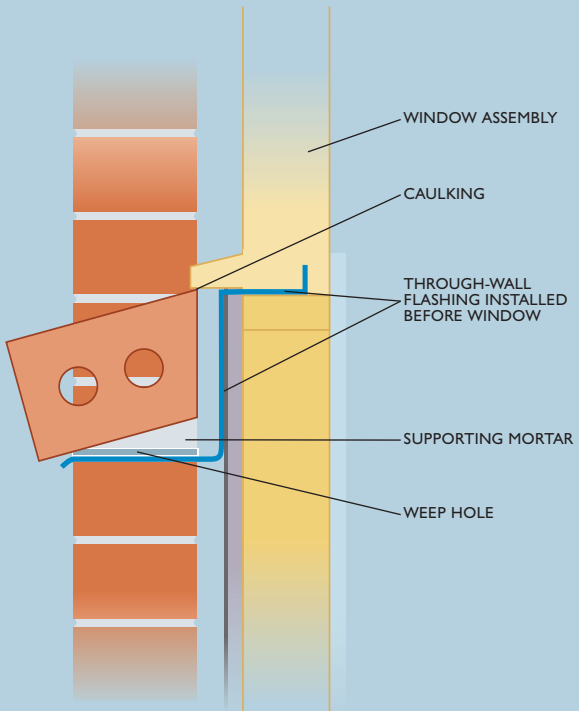


13: FLASHING

WINDOW HEAD DETAIL

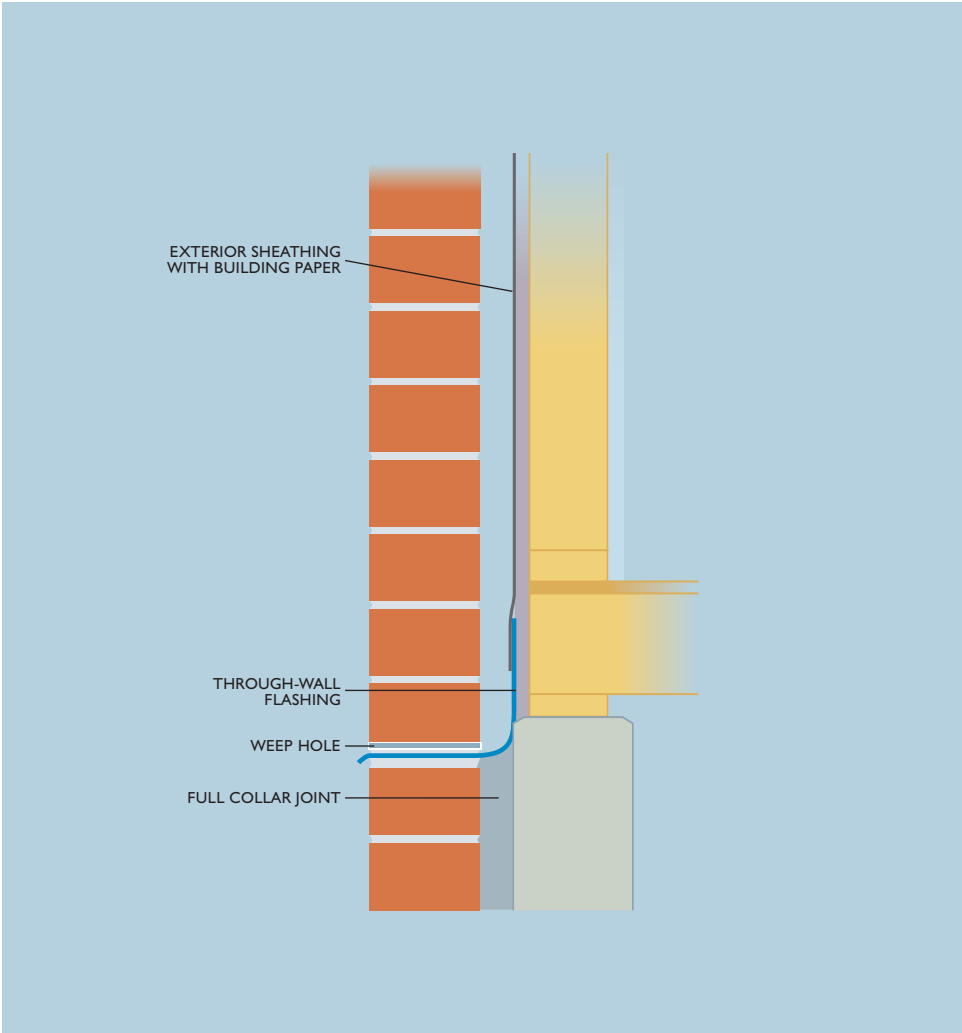


FLASHING :14
WINDOW SILL DETAIL

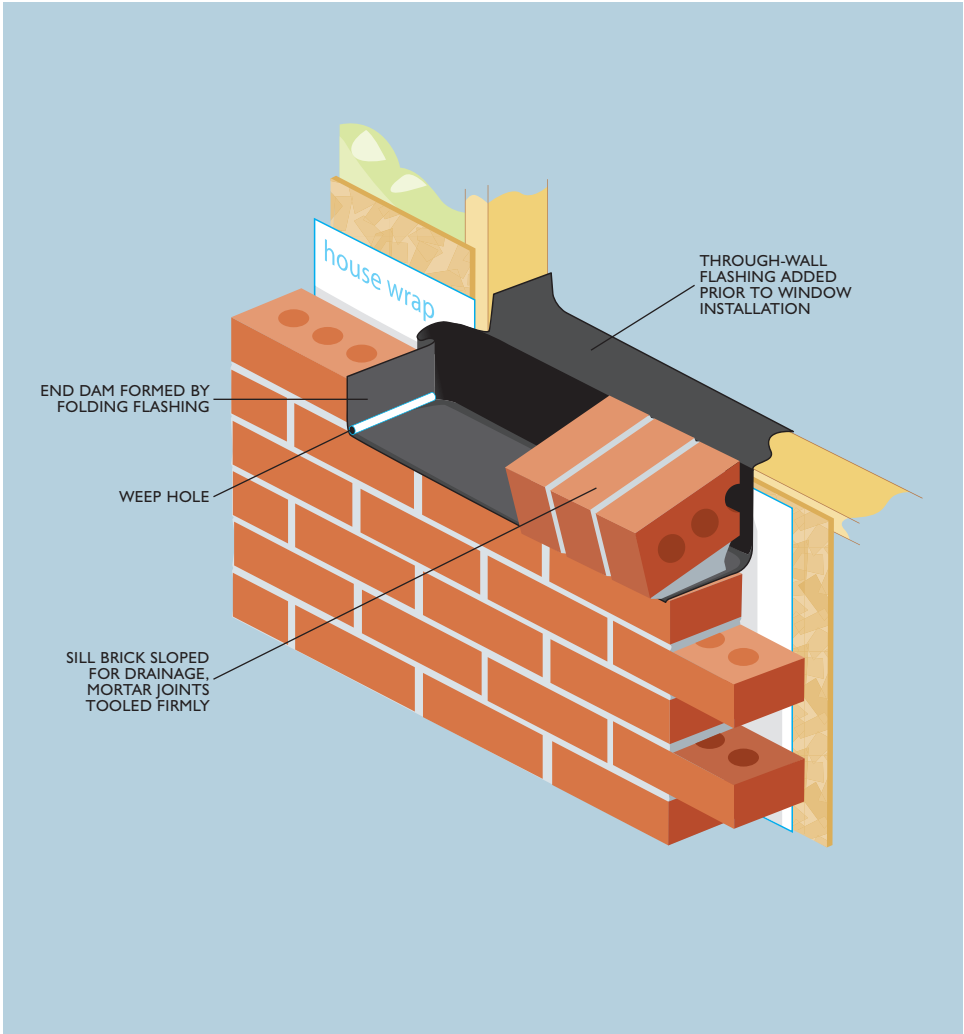


15: FLASHING

BASE OF WALL DETAIL



FLASHING :16
END DAM DETAIL

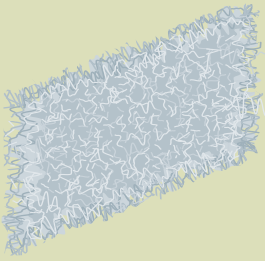


17: WEEP HOLES

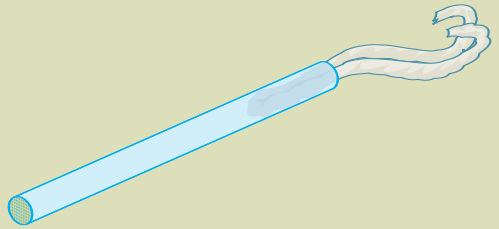
- Must be positioned in head joint directly on through-the-wall flashing.
- Space weep holes every 3-4 brick.
- Fiber, vents and cells are available in colors to match mortar.
- Other options available (not pictured): cotton rope wick, open head joint, plastic tubing.



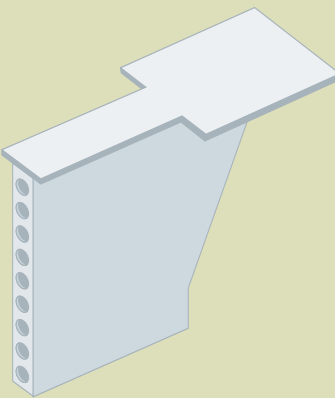
WEEP HOLES :18
EXAMPLES OF WEEP DEVICES



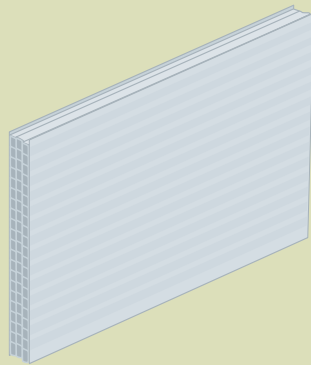
SYNTHETIC FIBER WEEP



WEEP TUBE WITH SCREEN AND ROPE WICK



PLASTIC WEEP VENT

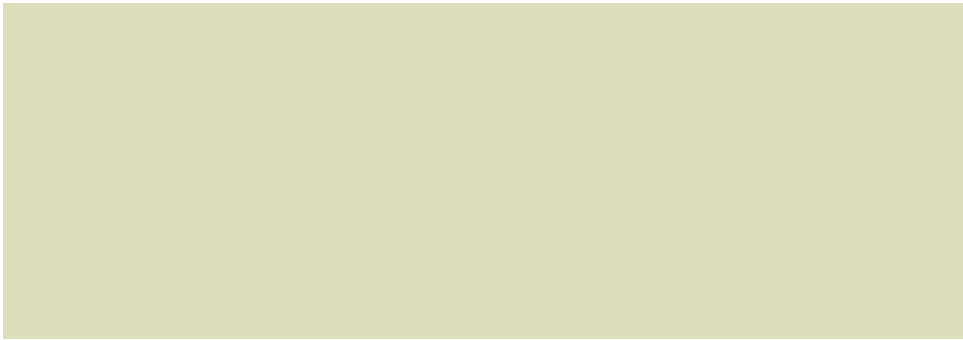


WEEP CELL



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