

National Concrete Masonry Association
an information series from the national authority on concrete masonry technology

CONCRETE MASONRY RESIDENTIAL DETAILS

TEK 5-4B
Details (2002)

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INTRODUCTION

Concrete masonry homes reflect the beauty and durability of concrete masonry materials. Masonry housing provides a high standard of structural strength, design versatility, energy efficiency, termite resistance, economy and aesthetic appeal.

A wide range of architectural styles can be created using both architectural concrete masonry units and conventional units. Architectural units are available with many finishes, ranging from the rough-hewn look of split-face to the polished appearance of ground-face units, and can be produced in many colors and a variety of sizes. Concrete masonry can also be finished with brick, stucco or any number of other finish systems if desired.

Concrete masonry's mass provides many consumer benefits. It has a high sound dampening ability, is energy efficient, fire and insect proof, durable and can easily be designed to resist hurricane-force winds and earthquakes.

WALL TYPES

Figures 1 through 3 illustrate a few of the construction options available for concrete masonry home construction, some of which are described in more detail below. Both top plate/anchor bolt and

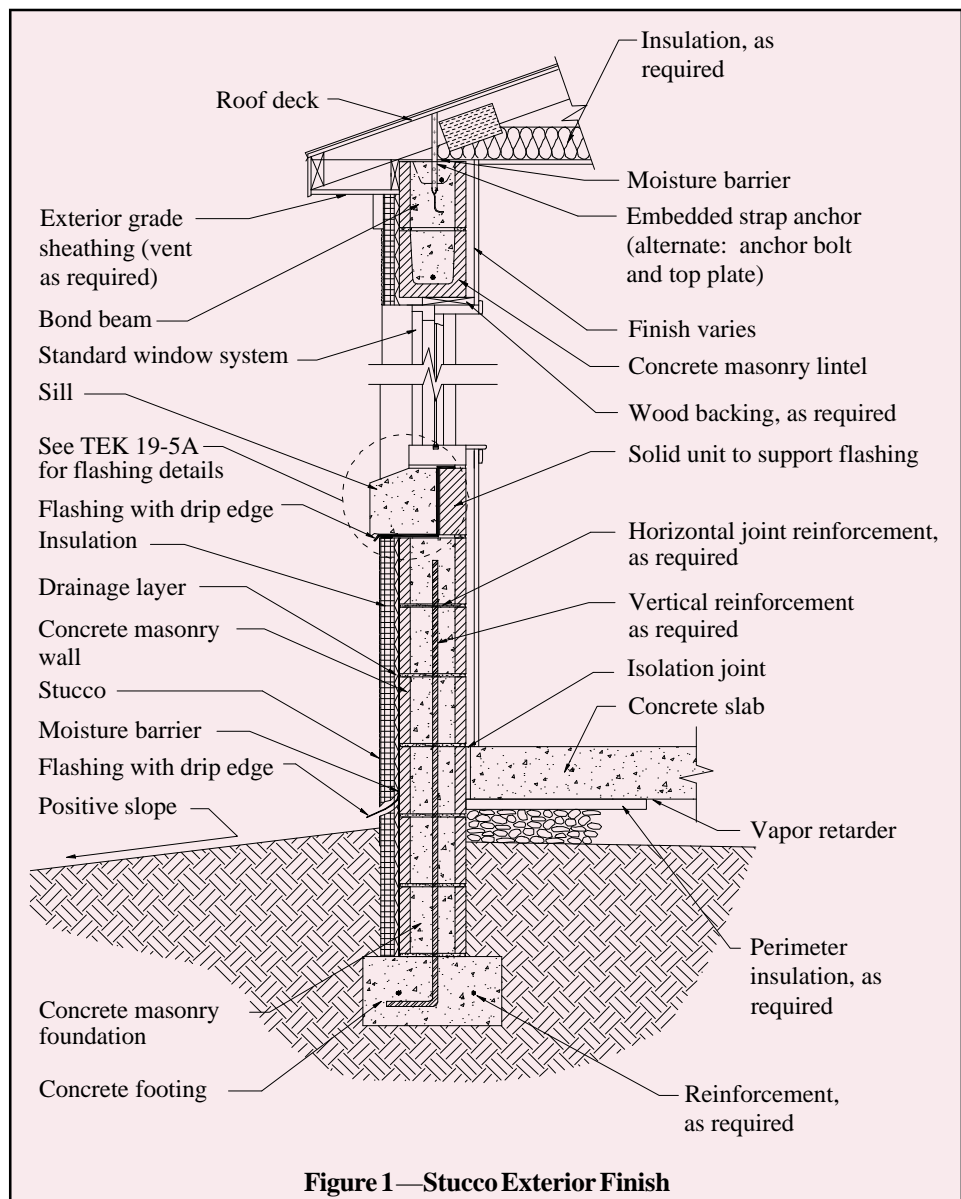


Figure 1 — Stucco Exterior Finish

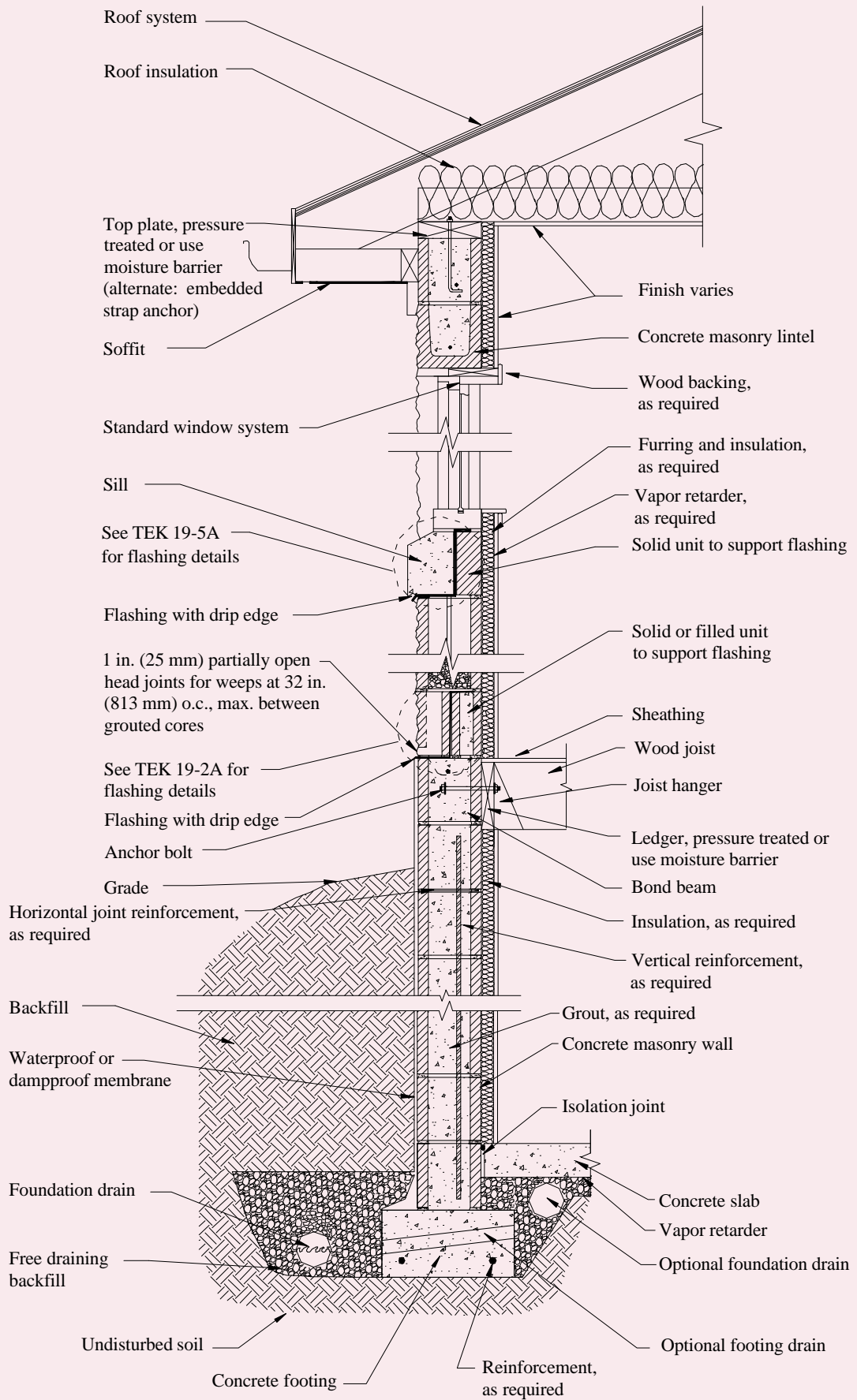


Figure 2 — Exposed Concrete Masonry Exterior

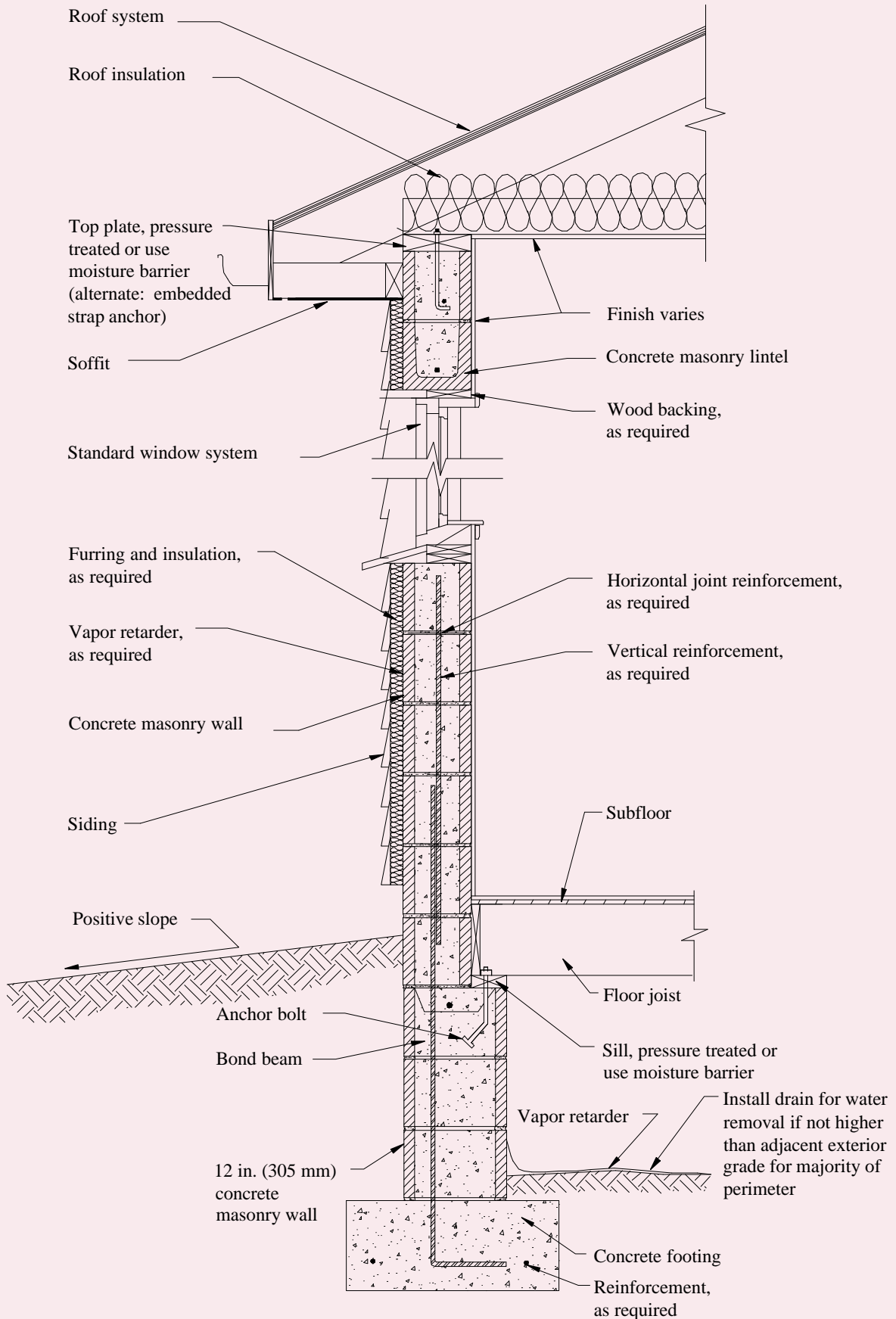


Figure 3—Wood or Vinyl Siding Exterior Finish

embedded strap anchor roof connections are shown and can be used interchangeably, along with several foundation types. See also TEK 5-7A *Floor and Roof Connections to Concrete Masonry Walls* and TEK 5-3A *Concrete Masonry Foundation Wall Details* (refs. 2, 3) for additional alternatives.

Single wythe walls offer the economy of providing structure and an architectural facade in a single building element. They supply all of the attributes of concrete masonry construction with the thinnest possible wall section. To enhance the performance of this wall system, two areas in particular need careful consideration during design and construction—water penetration resistance and energy efficiency. Design for water resistance is discussed in detail in References 4 through 6. A full discussion of options for energy efficient concrete masonry walls is contained in *Insulating Concrete Masonry Walls* (ref. 7).

The use of exterior finish systems lends itself to exterior insulation. Figure 1 shows an exterior insulation system, including a water drainage plane and stucco. Stucco can also be applied directly to the exterior block surface and used in conjunction with integral or interior insulation. Note that local codes may restrict the use of foam plastic insulation below grade in areas where the hazard of termite damage is high.

Figure 2 shows a residential wall section with exposed concrete masonry on the exterior and a furred-out and insulated interior. Concrete masonry can be exposed on the interior as

well. In this case, integral insulation (placed in the masonry cores) can be used as required.

Figure 3 shows exterior siding with insulation installed between furring. Wood or vinyl siding, as shown, is typically attached using exterior wood furring strips which have been nailed to the masonry.

Cavity wall details are shown in TEK 5-1A *Concrete Masonry Cavity Wall Details* (ref. 8).

REFERENCES

1. *Annotated Design and Construction Details for Concrete Masonry*, TR 90A. National Concrete Masonry Association, 2002.
2. *Floor and Roof Connections to Concrete Masonry Walls*, TEK 5-7A. National Concrete Masonry Association, 2001.
3. *Concrete Masonry Foundation Wall Details*, TEK 5-3A. National Concrete Masonry Association, 2003.
4. *Water Repellents for Concrete Masonry Walls*, TEK 19-1. National Concrete Masonry Association, 2002.
5. *Design for Dry Single-Wythe Concrete Masonry Walls*, TEK 19-2A. National Concrete Masonry Association, 2002.
6. *Flashing Details for Concrete Masonry Walls*, TEK 19-5A. National Concrete Masonry Association, 2000.
7. *Insulating Concrete Masonry Walls*, TEK 6-11. National Concrete Masonry Association, 2001.
8. *Concrete Masonry Cavity Wall Details*, TEK 5-1A. National Concrete Masonry Association, 1995.