A Field Guide to building with

Omni Block

AN INSULATED CONCRETE BLOCK

DISCLAIMER

The information presented in this manual is to assist professional builders, architects, designers, and engineers in the understanding of the Omni Block Insulated Concrete Block System. While the material is presented in good faith and believed to be reliable, it does not constitute a part of, or terms and conditions of sale. No engineering data, design information or other material contained herein shall be deemed to constitute a warranty, expressed or implied, that said information is correct or that the products described are fit for a particular purpose or design application.

PREVAILING CODE

The information presented in this manual is not intended to supercede any local, regional, national, or international building codes. All information should be examined individually and wholly to determine whether the procedural suggestions contained herein comply with the prevailing building code.

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This Field Guide manual has been created to provide the professional builder procedural recommendations for constructing buildings utilizing Omni Block.

This manual assumes:

1) that you are familiar with masonry construction techniques and terminology,
2) that you are a professional general contractor or supervisor,
3) that you are utilizing a qualified mason,
4) that you are interested in an efficient construction process.

The recommendations that follow should be adhered to whenever possible. Omni Block is a system made up of individual components. A successful system requires that the components are implemented at the proper time.

Omni Block, when properly installed, saves future scheduling time because one subcontractor (the mason) accomplishes the work of several other subcontractors. When proper planning is performed by the general contractor the system makes sense, saves you construction cost, goes smoothly, and assures you a quality product.

Please be advised that it is to your advantage to read this entire Field Guide before beginning construction to save costs and time.

Footings

Typical concrete construction methods should be followed for footings when utilizing Omni Block. See building's approved engineered plan set for rebar and concrete psi requirements.

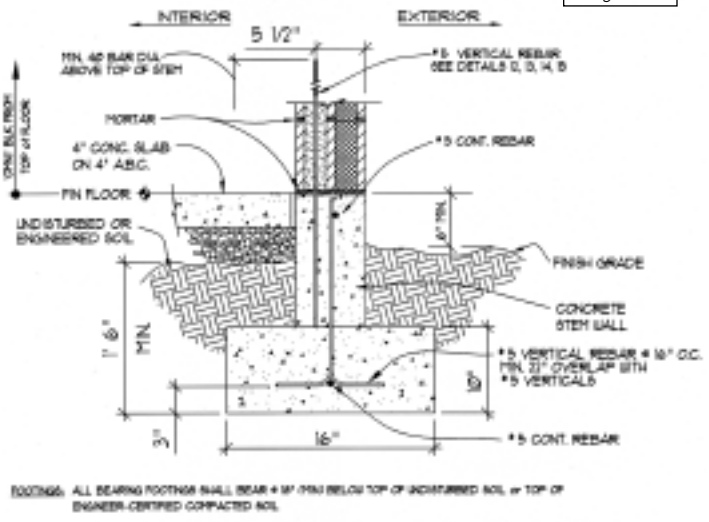
Omni Block recommends that a 'shop drawing' be provided to the concrete and/or masonry subcontractor by either the architect, designer, or structural engineer of record. A shop drawing specifies the exact location of all vertical rebar. Not only does a shop drawing greatly facilitate the accurate placement of rebar, it also provides the general contractor with a tool clearly putting the rebar location responsibility solely on the subcontractor placing the actual rebar.

Stem Walls

Requirements:

1) Rebar sizing, schedule and frequency per engineering (see plan set details or engineer supplied shop drawings).
2) In the event that a shop drawing is not available, place all vertical rebar per Figure 3.
3) Minimum overlap; 40 bar diameters.
4) 8" wide.

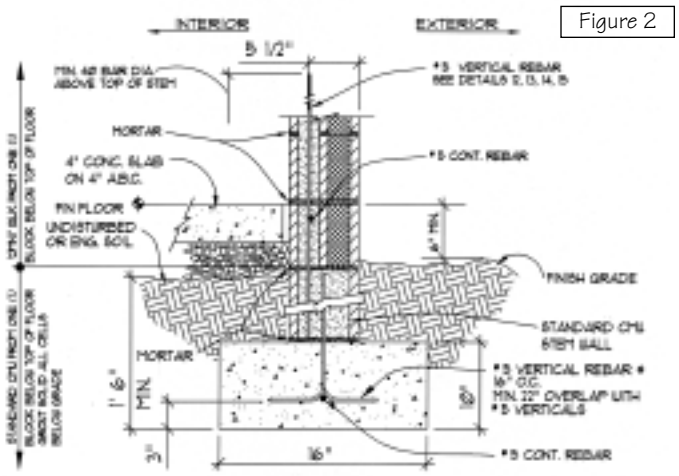
Figure 1



FOOTINGS: ALL BEARING FOOTINGS SHALL BEAR @ 18" (MIN) BELOW TOP OF UNDISTURBED SOIL or TOP OF ENGINEER-CERTIFIED COMPACTED SOIL

OPTION A - CONCRETE STEM

Figure 2



FOOTINGS: ALL BEARING FOOTINGS SHALL BEAR @ 18" (MIN) BELOW TOP OF UNDISTURBED SOIL or TOP OF ENGINEER-CERTIFIED COMPACTED SOIL

OPTION B - BLOCK STEM

Block Stem Wall Advantages

Omni Block recommends standard CMU block for the lower courses with the top course consisting of Omni Block.

1) Correct rebar placement is facilitated because grout cells are clearly defined.
2) Block stem is more level than a poured-in-place concrete stem.
3) No 'overhangs' or misalignment from block stem-to-block wall transition above finished floor.
4) Insulation is placed in exterior cell (R-7).
5) Areas where plumbing and electrical stub up into stem, the block can be left void of grout, which minimizes the need to cut or hammer into the stem (see Plumbing and Electrical sections).

Post-Tension or Monolithic Slabs

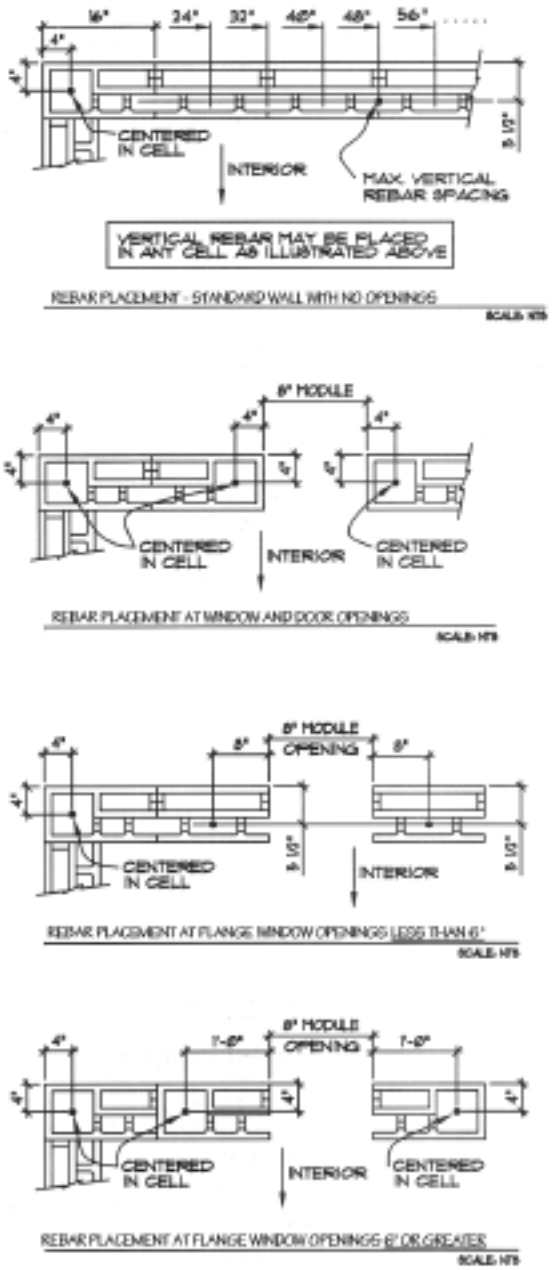
The structure's engineered details should be consulted when these types of construction techniques are to be utilized. The vertical rebar placement remains critical and a shop drawing should still be supplied to the concrete sub contractor and strictly adhered to (or follow Figure 3 guidelines).

Rebar Placement

The placement of rebar is **critical** for the smooth installation of Omni Block. If a poured concrete stem is utilized, the concrete subcontractor must adhere to the following rebar placement schedules or an engineered supplied shop drawing. There are only four (4) options:

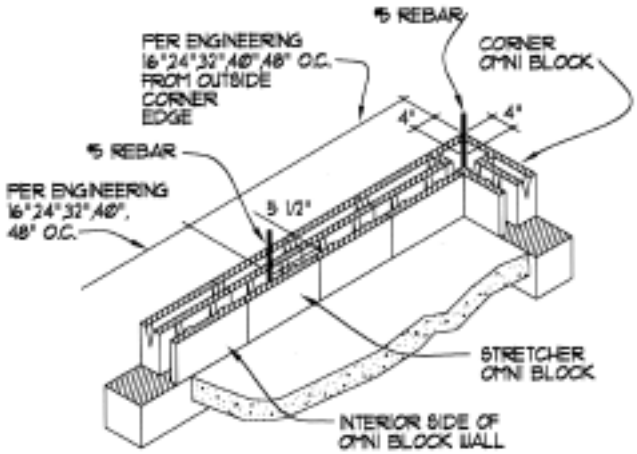
1) Standard.
2) Window openings less than 6 feet wide.
3) Window openings 6 feet or greater.
4) All door openings.

Figure 3



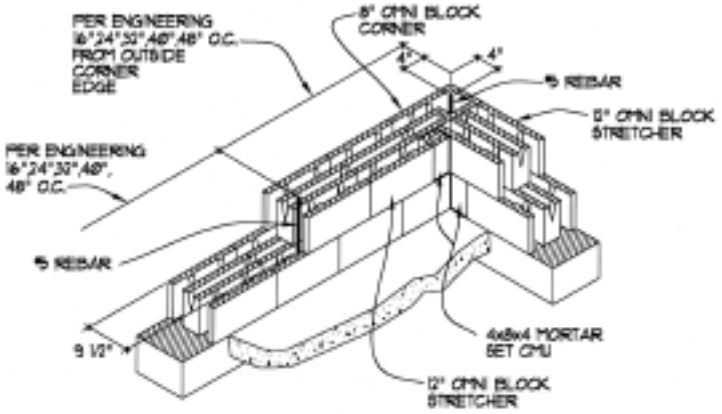
OMNI BLOCK REBAR PLACEMENT OPTIONS

Figure 4



ISOMETRIC OF 8" STEM

Figure 5



ISOMETRIC OF 12" STEM

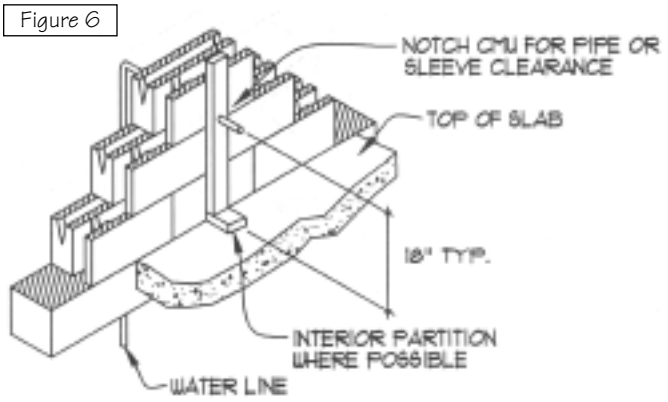
Builder's Checklist

- ☐ Rebar sizing communicated to concrete sub.
- ☐ Remind concrete sub that stem wall is 8".
- ☐ Review rebar placement and its importance.
- ☐ If block stem is utilized, indicate to mason where grout voids are to occur (see Plumbing and Electrical sections).

The Omni Block system construction requires that the plumbing that is going to be located within the block be determined prior to the masonry walls being erected. All plumbing can be accommodated within the block thus requiring no furring-out and drywalling of any kind. However, from a practical standpoint, it makes sense to furr-out walls where the kitchen sink, dishwasher, disposal, other electrical outlets and cabinetry are all located on an exterior wall. Although not mandatory, it is recommended to furr this wall out. To further ease construction, all plumbing walls should be furred-out.

Local code dictates where the water riser can be located. See Figure 6 for ideal main water riser entrance through the block. If this is not possible, see Figure 10 and alternate corner block to create a hollow cavity within the block wall. This method can easily accommodate up to a 4" outside diameter water riser.

Figure 6



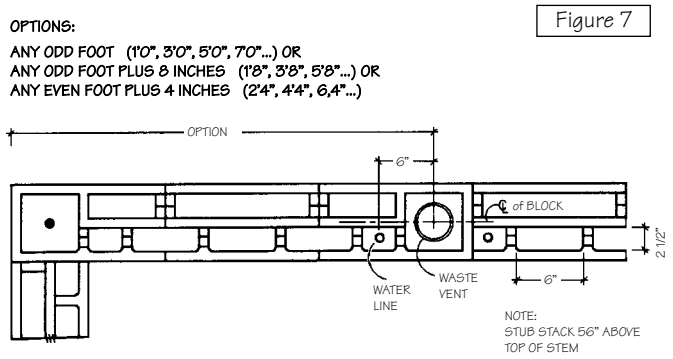
WATER RISER

Builder's Checklist

- ☐ Provide plumber with this manual prior to plumbing rough-in.
- ☐ Verify proper waste vent and water line locations after installation.
- ☐ Determine location of water riser.
- ☐ Supply any access panels and specify their location.

Normally, copper water lines are ran under the slab and are stubbed up above finished floor. Water lines on all exterior walls need to be stubbed up into the stem wall a minimum of $1^{1/2}$ inches and a maximum of $3^{1/2}$ inches (see Figure 7). Copper should always be protected with an alkali resistant material. These lines can be stubbed up anywhere in the exterior wall except in a vertical structural rebar and grout cell.

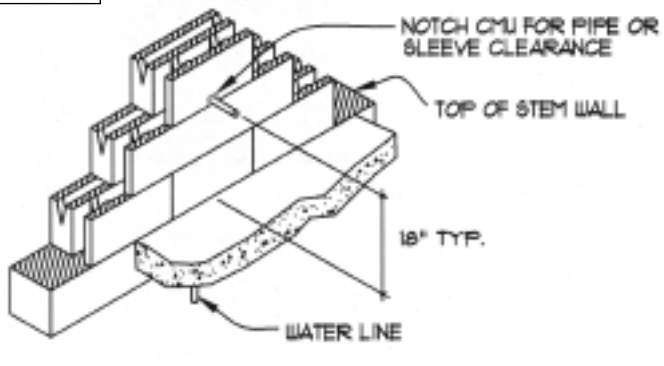
Figure 7



WATER LINE DETAIL

All water lines including hose bibbs should be roughed (90°) out of the wall at 18" (to the bottom of the pipe) if local code permits. See Figures 8 and 9 (Figure 6 may be used as well) for detailed rough-out options.

Figure 8



WATER LINE ROUGH-OUT

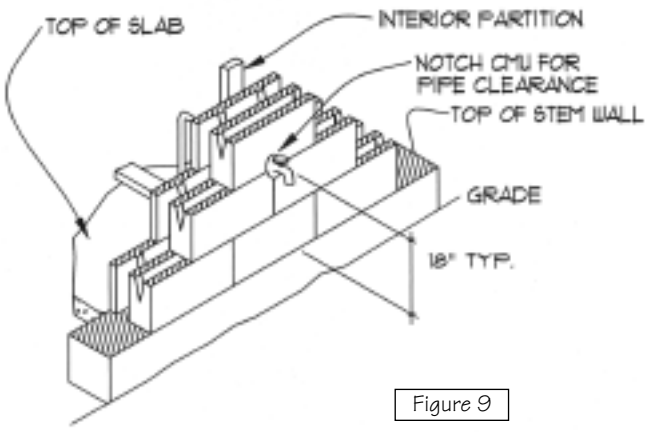
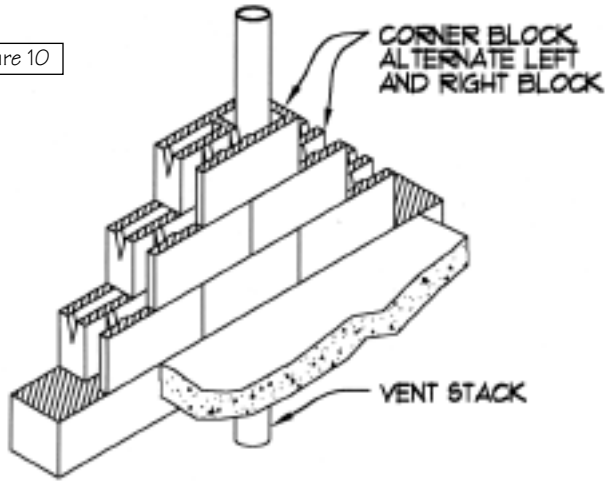


Figure 9

HOSE BIBB ROUGH-OUT

Omni Block's open celled corner block easily accommodates waste vents (see Figure 10). Proper location of the waste vent (see Figure 7) on an exterior wall is critical in order to avoid the requirement of the plumber coming back to elbow the vent pipe into an open cell. Waste vents also need to be stubbed into the stem wall a minimum of $1^{1/2}$ inches to clear the block face. The plumber should stub the waste vent up 56 inches above the top of the stem.

Figure 10



WASTE VENTS

Note

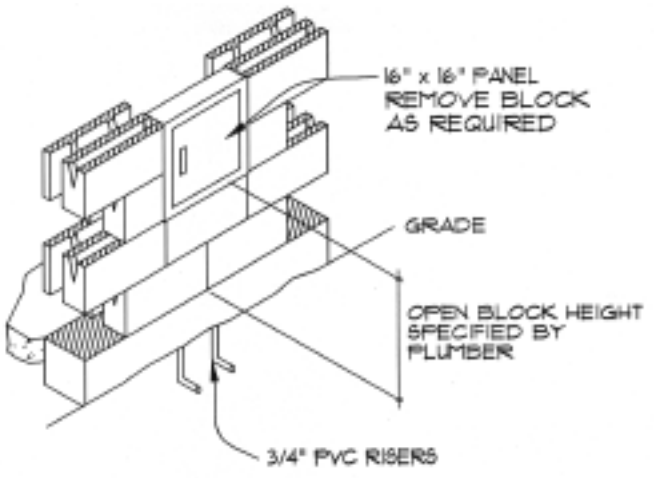
When utilizing an Omni Block stem, the waste vent locations should be determined during stem installation. This allows for the mason to leave waste vent locations void of grout and block face scored. The plumber can then readily knock away block face and stub up the water lines and the waste vents.

Dirty Arms

Local code will dictate placement and fall but all 'dirty arms' need to be roughed (90°) out of the masonry wall with a short unglued pipe extension and a temporary cap.

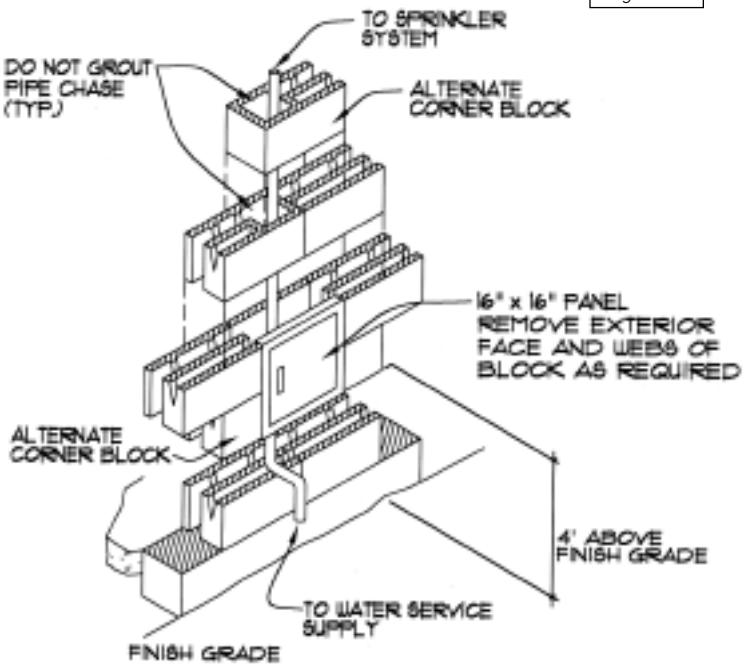
Spa tubs usually require access to the electrical and motoring mechanism. In the event that access needs to be obtained through the block, a steel access panel is recommended. Access panels come in various sizes and are available through most plumbing supply sources. Consult the spa manufacturer's minimum access requirement for panel sizing. A 16" x 16" access panel is usually large enough and ideal blockwise. All panels should be on the job site so that block can be tightly installed around the access panel (see Figure 11).

Figure 11



ACCESS PANELS

Figure 12



FIRE SPRINKLER SYSTEM ROUGH-OUT

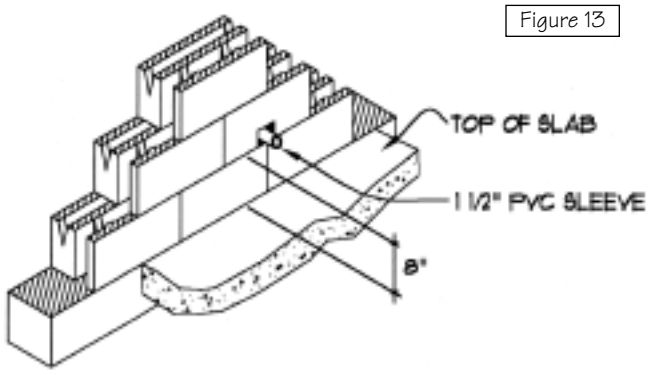
Most local code ordinances are requiring fire sprinkler protection. If required, it is strongly recommended that the fire sprinkler subcontractor is consulted for his particular requirements. Typically, the plumber needs to stub up in the wall copper pipe from the water riser (see Figure 12). This distance of 'unsupervised pipe' in the wall can be no more than 3'0" from the point it enters into the wall to the fire sprinkler check valve. An interior access panel is recommended (see Figure 11; modified). The mason needs to know where the fire sprinkler main piping is to be ran in order to leave that block cell void of foam insulation.

If the square footage under roof is 4000 feet or greater, a Fire Department Connection (FDC) is required under most local codes. The FDC needs to be determined and communicated to the mason in order for a hollow cell to be provided. The FDC also must be directly under the fire bell which must be visible from the street and no more than 3'0" from front of house. A four square electrical box is to be installed (see Parts List, page 13) where the fire bell is to be positioned.

The above suggestions should be followed only after consulting the local code. Any local code variations should be followed.

Hot water pressure relief is achieved by the mason providing a 1½" sleeve through the block at a builder determined location (see Figure 13).

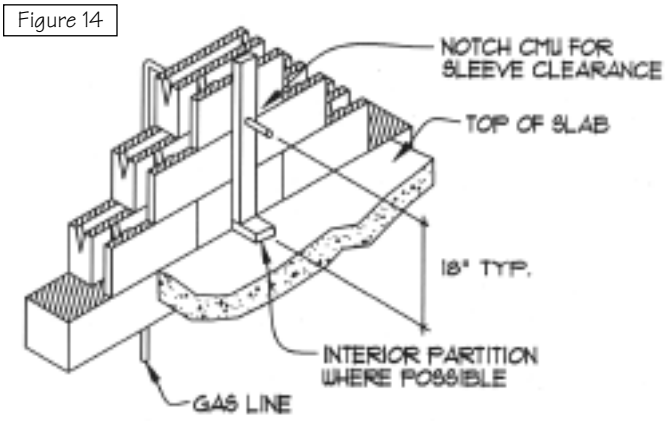
Figure 13



HOT WATER PRESSURE RELIEF

Because of piping connection techniques and limitations, it is recommended to locate an interior partition wall where the gas piping can be run vertically (see Figure 14). Another option is to find an inconspicuous area to furr-out that is large enough to house the gas piping. In either case, a sleeve (overall diameter to be determined by the plumber) through the masonry wall at the pre-determined location should be provided by the mason.

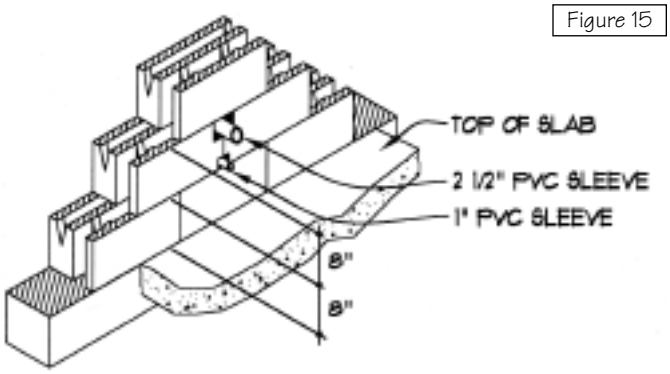
Figure 14



GAS PIPING

Typical Freon and condensate line installation includes two sleeves (sizing specified by the HVAC contractor) protruding through the block wall (see Figure 15). Ideally, an applicable modification to Figure 14 allows for the lines to later run within interior partition walls. The least favorable option is to create a vertically open cell (see Figure 10). With this option, however, horizontal rebar may ultimately obstruct or impede the 'fishing' of the lines in an otherwise open cell.

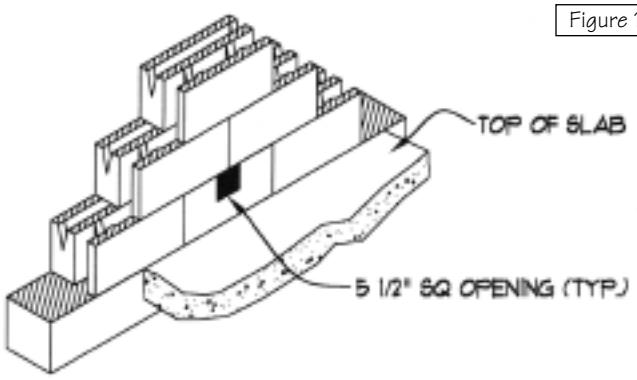
Figure 15



HVAC PIPING SLEEVES

Venting the dryer to the exterior through the block wall is accomplished by the mason providing an open penetration, usually $5^{1/2}$ inches wide by 8 inches high (see Figure 16). This penetration location is determined by the builder

Figure 16



DRYER VENT

Notes

Builder's Checklist

- ☐ Verify that plumber roughs-out all water lines, waste vents and dirty arms.
- ☐ Require fire sprinkler subcontractor to meet with mason for fire sprinkler installation coordination.
- ☐ Determine location of gas piping.
- ☐ Determine location of dryer vent.
- ☐ Determine location of hot water pressure relief valve.
- ☐ Determine location of HVAC piping sleeves.

Electrical

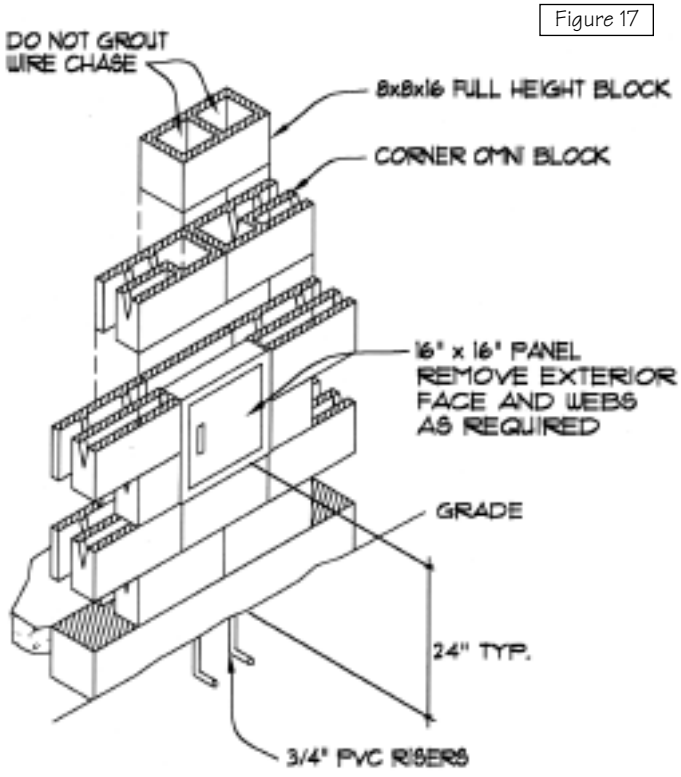
Omni Block system installation interfaces a great deal with electrical requirements of a structure. Typically, the mason installs all the electrical and low voltage boxes and conduit within the block. This section is intended to outline the many options and, if adhered to, advantages of utilizing the Omni Block insulated concrete block system. The electrical placement requires some timely planning but will facilitate a quality finished product.

Ufer Wire

The electrician installs the Ufer wire per local building code. The Ufer will run within the block to the electrical main. The electrical main is usually about 40" from finished floor and the electrician needs to allow enough (about 6') to accomplish this.

Cable television, telephone, and landscape wiring can all be run from below grade, through stem, and up through the block to an access panel utilizing 3/4" PVC (see Figure 17). 3/4" 90° PVC sweeps are recommended. The cable and telephone main boxes are then located within the wall and all 'home-runs' are dropped or 'fished' down from the top of the block wall.

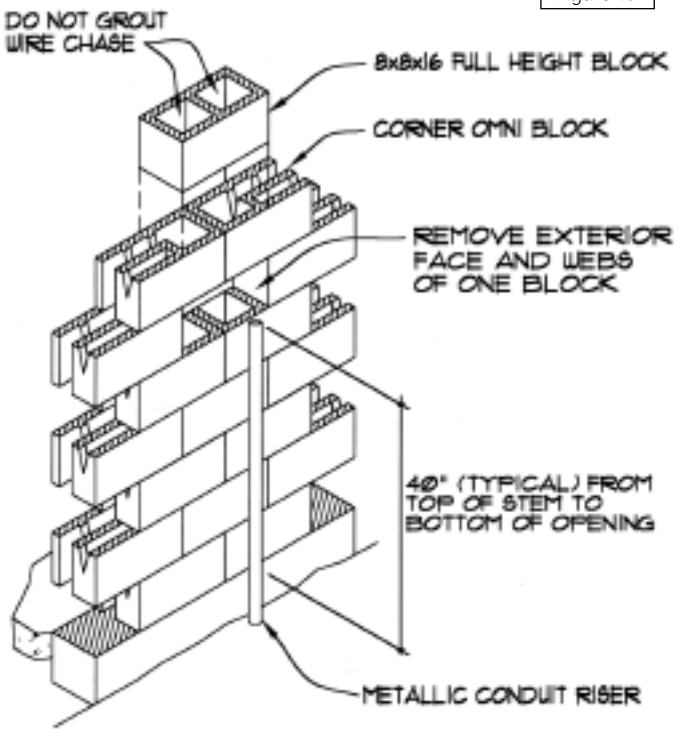
Figure 17



LOW VOLTAGE

Local code will dictate the height and location of the meter main panel or box. Figure 18 provides the typical electrical service riser block arrangement. Corner block are alternatively stacked with standard 8x8x16 CMU and left void of foam. A double chase is formed to accommodate electrical wiring running from above the top plate down the wall to the exterior opening created by removing the face and center web of a block.

Figure 18



ELECTRICAL SERVICE RISER

Notes

Figure 19 aids in determining the actual height of the opening in the block and ultimately the height of the meter. The local building code should be consulted to verify proper height location.

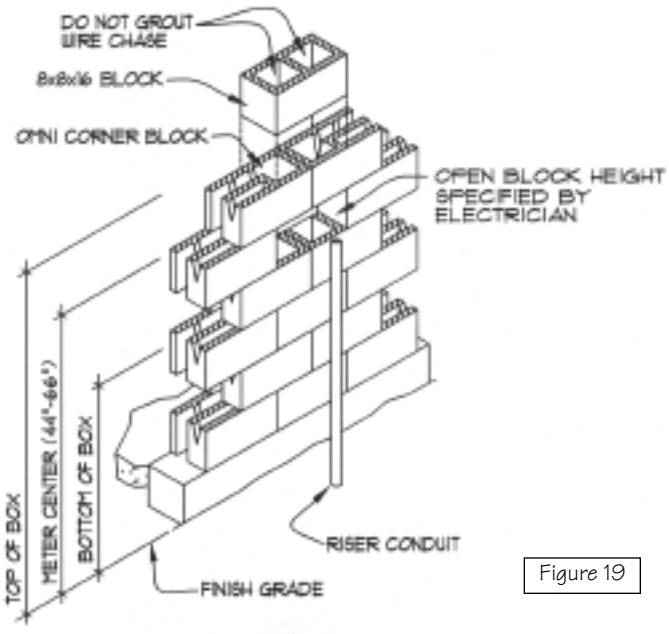


Figure 19

ELECTRICAL CHASE SCHEMATIC

The illustrations and details included in this manual detail a surface mounted service panel. A recessed panel is certainly feasible by adapting Figure 10 and allowing for the service riser to be housed within the block and stem wall. This option is more attractive from a security standpoint because the circuit breakers are normally on the interior of the structure rather than the exterior.

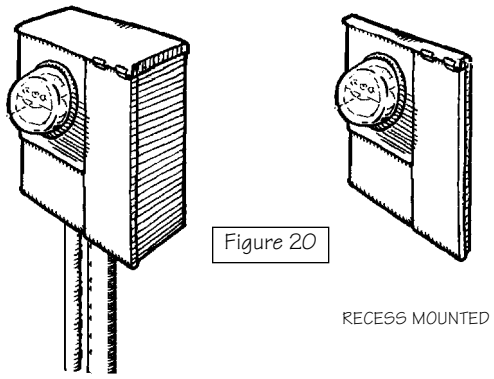


Figure 20

SURFACE MOUNTED

RECESS MOUNTED

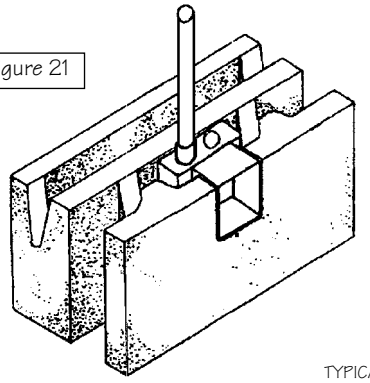
MAIN METER OPTIONS

The illustration shown in Figure 21 is a single gang box with a single vertical 3/4" PVC conduit. This is the typical installation for single gang electrical and low voltage boxes that are required on the interior side of the masonry wall. Numerous options are available but include:

a) Double conduit for 'in and out' switched wiring.
b) Double, triple or four-gang boxes.
c) Horizontal conduit running from box-to-box; minimizing 'home-run' requirements.
   The electrician should 'circuit' the electrical that occurs on the exterior walls.

Note that the interior box placement must occur in the center of the block, or when two block are butted together, centered on the joint. This is because if the box is placed at a cross web, the above subsequent cross webs interfere with the vertical conduit.

Figure 21



TYPICAL INTERIOR ELECTRICAL OR LOW VOLTAGE BOX PLACEMENT

INTERIOR ELECTRICAL BOX

The illustration shown in Figure 22 is a single gang box with a single vertical 3/4" PVC conduit. This is the typical installation for single gang electrical and low voltage boxes that are required on the exterior side of the masonry wall. Note that the exterior box placement must occur at either end of the block in order to avoid the conduit from hitting the webs in the block above.

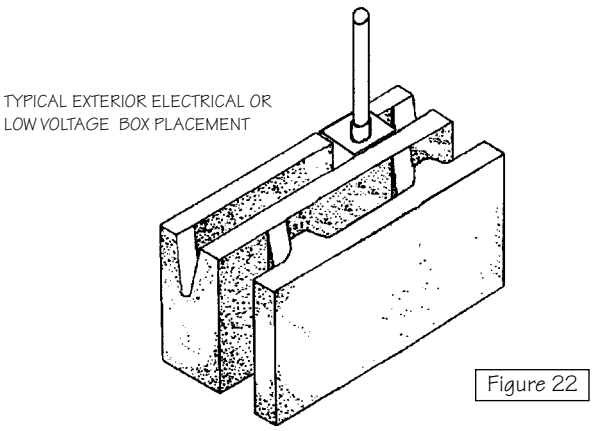
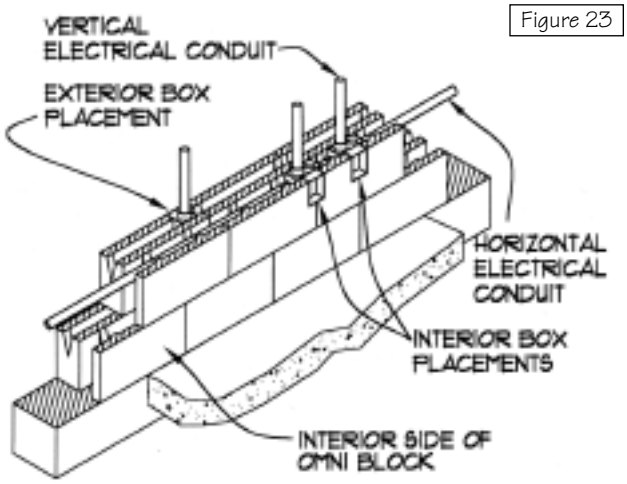


Figure 22

EXTERIOR ELECTRICAL BOX

The illustration shown in Figure 23 depicts a typical 110 voltage box along side a low voltage box and an exterior GFI box. Note the horizontal 3/4" PVC pipe as well as the vertical. The ideal situation is for the horizontal pipe to be 'swept' out of the block at interior partition wall locations utilizing 90° PVC sweeps thus eliminating the need for vertical PVC.

Figure 23



INTERIOR AND EXTERIOR ELECTRICAL ISOMETRIC

Thermostat Wire

The thermostat wire is usually ran with the AC Freon line and does not need special consideration. Check with the HVAC contractor to verify this requirement. A separate electrical box and conduit can be installed, if requested.

Air Conditioner 220 Volt Line

A 1" PVC conduit with a 90° sweep is provided for the quick disconnect box. The HVAC or electrical contractor determines (per local code) height and location of this conduit. Most local codes also require a GFI 110 volt outlet within a specified distance of the air conditioner. The ideal situation is to locate exterior boxes where interior partition walls are to be erected. This allows for the horizontal conduits to be run into these walls which provides for easy electrician access and also eliminates the need for the mason to run vertical conduit.

Garage Electric Eye

Most codes require an electric eye for automatic garage door openers. A 90° sweep is attached to 3/4" PVC conduit and stubbed out both interior sides of the garage door at 6 inches above finished garage floor. Low voltage wiring is 'fished' through the conduit by the electrician.

Surround Sound

All low voltage box requirements are placed into the block wall as depicted in Figures 21, 22, and 23.

Security

The pre-wire for the alarm system is best accomplished prior to any interior surface application. The mason 'scores' the block for the alarm/security subcontractor to run the security wire which is either caulked or glued into place. Magnets are then installed to windows and the other end is left coiled above the top of the wall for future connection.

Door Bell

A 3/4" PVC conduit is run vertically and swept out of the wall utilizing a 90° sweep. An electrical box is not necessary for a surface mount door bell.

Parts List

The mason usually supplies all the electrical parts (not including panel or wiring) that are to be installed into the masonry wall. Experience indicates that jobs run smoother and more efficiently when the mason does not have to wait for the electrician to provide the electrical parts at the job site. The mason also can pre-assemble box configurations prior to the start of block installation. However, in the event that someone other than the mason supplies the electrical parts, the following parts must be used for satisfactory installation.

	Description	Part Number
	Boxes – Interior	
1.	4" square box 2 1/8" deep	STC 52171-3/4
2.	Single gang masonry tile ring 1 1/2"	STC 52C50-1 1/2
3.	Double gang masonry ring 1 1/2" deep	STC 52C53-1 1/2
4.	3 gang box 3 1/2" deep	STC GW335-G
5.	Single gang masonry box 3 1/2" deep	STC GW135G
	Boxes – Exterior	
6.	Single gang masonry box 2 1/2" deep	STC GW125G
7.	4" octagon 2 1/8" deep	STC 54171-3/4
8.	4" octagon tile ring 5/8"	STC 54C3
	PVC – Conduit	
9.	3/4" heavy rigid	CAR 49007-010
10.	1" heavy rigid	CAR 49008-010
11.	3/4" 90° elbow	CAR UA9AEB 3/4
12.	1" 90° elbow	CAR UA9AFB 1
13.	3/4" 45° elbow	CAR UA7AEB 3/4
	Connectors	
14.	Grounding clip with #12 green	DOTT GC
15.	3/4" termination adapter	CAR E943E 3/4
16.	3/4" steel locknut	STC L100 3/4
17.	3/4" coupling	CAR E940E 3/4
18.	1" coupling	CAR E940F 1
	Accessories	
19.	Solvent cement (pint)	CAR VC9923

Notes

Builder's Checklist

- ☐ Schedule a brief 'prior to the start of masonry' meeting at the job site with the electrical and low voltage subcontractors and the mason.
- ☐ Make sure all electrical switch and outlet requirements are indicated on the plan.
- ☐ Determine main incoming telephone feed location.
- ☐ Determine main incoming cable/TV feed location.
- ☐ Determine meter /main location.
- ☐ Determine all telephone, cable, sound, security, pool pump, pool light and door bell locations that occur on masonry walls.
- ☐ Determine all air conditioner locations and HVAC lines.
- ☐ Check into how the thermostat wiring is to be handled.
- ☐ Make sure electrician installs Ufer with enough footage to reach electrical main.

Dimensions

Window and door width and height dimensions should be on an 8" design module (see chart below). Windows and door openings that are not listed below will require some cutting of block. The amount of cutting is determined by these variables; how large of an opening, and whether it is the width, or the height that is not in 8" block dimension. The width dimension is more critical than the height.

WIDTH OPTIONS

HEIGHT OPTIONS	1⁴	2⁰	2⁸	3⁴	4⁰	4⁸	5⁴	6⁰	6⁸	7⁴	8⁰
1⁴											
2⁰											
2⁸											
3⁴											
4⁰											
4⁸											
5⁴											
6⁰											
6⁸											
7⁴											
8⁰											

The opening can be any one of these combinations without requiring any cuts in the block.

Helpful Design Hint

Only three combinations of numbers work for 8" block module design:

- any even number: 2⁰, 4⁰, 6⁰, 8⁰...
- any even number plus 8": 2⁸, 4⁸, 6⁸, 8⁸...
- any odd number plus 4": 1⁴, 3⁴, 5⁴, 7⁴...

Aluminum / Vinyl Windows

Flanged windows (the same that would be used for wood frame) with **8" masonry dimensions** are recommended. **Very important:** actual frame-to-frame window dimensions should be 1/2" to 3/4" under rough opening size which is standard for most aluminum and vinyl window manufacturers.

Aluminum and vinyl windows are installed while the block is being erected (see Figure 24). The top and bottom flanges are removed. The window is then installed from the top and slid into place between both jambs. No screws or clips are required because the surface bond or stucco when applied will cement them into place. The windows should be ready for job site delivery when the block construction begins. The windows are usually installed just before the lintels are set and grouted. Therefore, actual delivery will depend upon the size of job. The mason should communicate to the builder the timing of the window delivery in order to avoid delays.

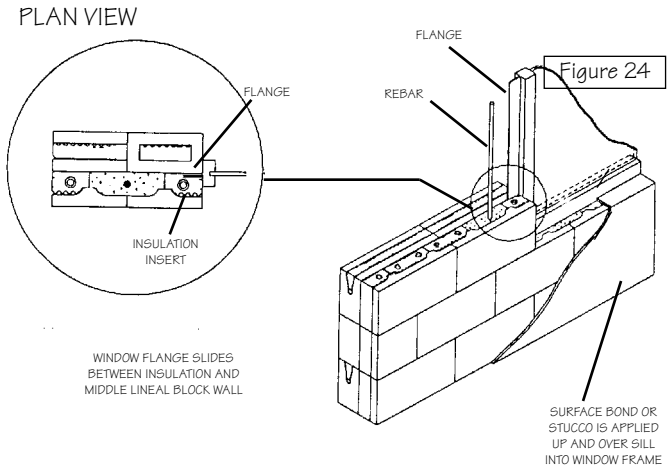
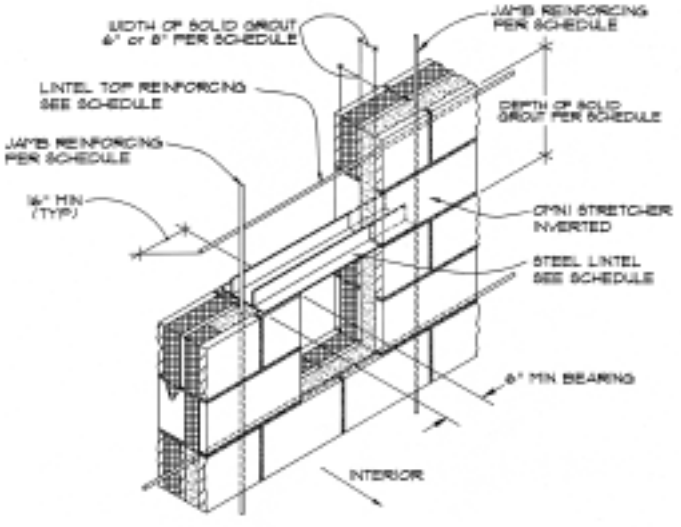


Figure 24

ALUMINUM / VINYL FLANGED WINDOWS

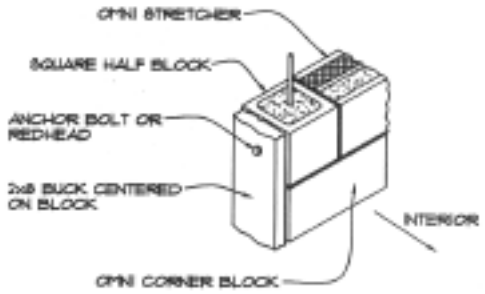
Figure 25 illustrates the window opening detail when utilizing windows with flanges and stucco (interior and exterior).

Figure 25



FLANGE WINDOW / DOOR LINTEL DETAIL

Figure 26



WINDOW / DOOR BUCK AT JAMBS

Wood Frame Windows

The mason does not install wood frame windows. When utilizing woodframe windows, utilization of a flange is not permitted because the windows are installed much later in the building process. Wood frame window standard sizing is usually not block friendly (8" module). Therefore, they usually require wood fillers or wood bucking material around the block opening. Figure 26 shows a typical wood buck option. When the window size and buck sizing are properly dimensioned to fit into standard 8" block module, the window installation is no more difficult than standard installation practices.

Wood Frame Window Installation

The 2 x 8 wood bucking should be centered (see Figure 26) and should have the same set-back around the opening. Depending upon window manufacturer dimensions, a plywood filler may be added to the buck. The filler width should match the buck width. When properly bucked, there should be an even reveal around window casing and/or on both sides of door jamb which will enable the drywaller to evenly finish the interior and the stucco subcontractor to finish the exterior. The windows are set and installed per manufacturer's instructions.

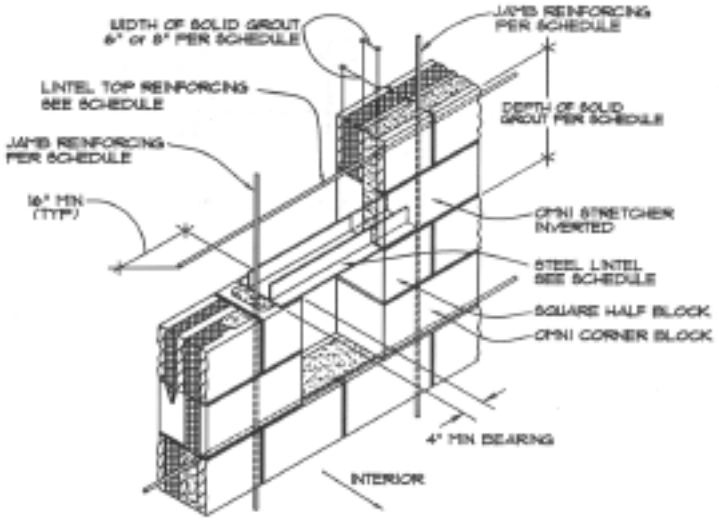
Exterior Doors and Sizing

The mason does not install doors. Exterior doors are installed later in the construction process. The rough opening for most doors is two inches greater than the actual door size. Therefore, a 2'6" door plus 2" is a standard width block opening of 2'8" (see Chart for options) and is ideal. In the case of a 3'0" door, a 3'4" block opening is provided and a 2 x 8 wood buck is all that is required to properly finish. Any door height can be accommodated in the same fashion.

Exterior Slider Doors and Installation

The mason does not install slider doors. Consult the door manufacturer for rough opening requirements. Most metal frame slider openings are standard masonry dimensions. The installer should use Tapcon (or equal) masonry screws to anchor door frame to block jamb (see Figure 27).

Figure 27



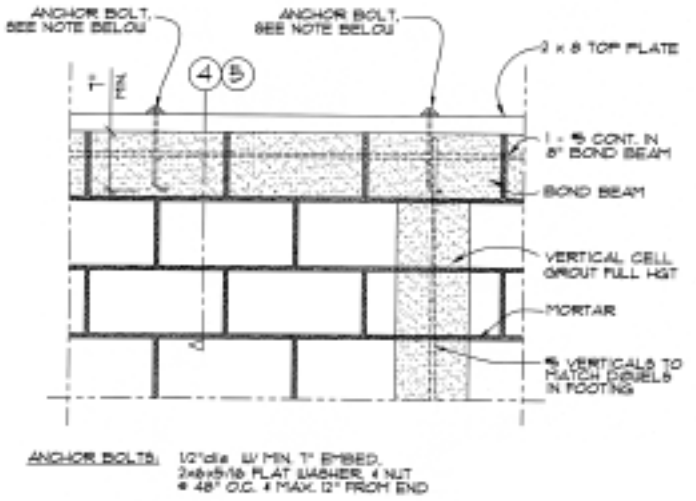
WINDOW / DOOR LINTEL DETAIL

Builder's Checklist

- ☐ During design, make sure all window openings are block module, if possible. Use the handy sizing Chart, if necessary.
- ☐ Prior to ordering windows, send a copy of planned window schedule to the mason to assure proper window dimensioning.
- ☐ Order aluminum or vinyl windows sometime during pre-slab, allowing enough lead time so that when slab is done the windows are ready to be delivered.
- ☐ Order aluminum or vinyl windows 1/2" to 3/4" under rough opening when utilizing flange installation technique.
- ☐ Communicate with mason for actual delivery date.
- ☐ Communicate to mason door and/or slider widths and heights so proper rough opening can be provided.
- ☐ If using wood frame windows, determine window sizing and bucking options and communicate them to the mason and the window installer.

The mason provides and installs 'J' bolts per engineering. These act as the anchor bolts for the top plate (see Figure 28). The framer installs and bolts the top plate (usually 2 x 8) to the block the same as if it were regular block. The framer also must drill top plate for the electrical conduit and any waste vents that are stubbed above the block. The top plate should be flush with the outside edge of the block which allows for 1/2" drywall to be applied on the inside of the top plate to be taped and textured by the drywaller.

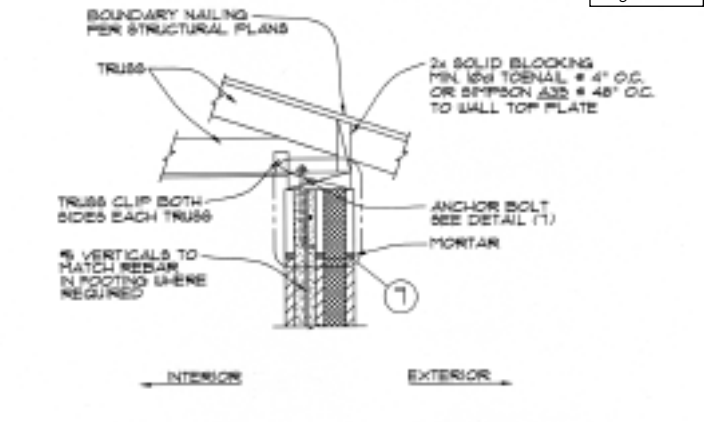
Figure 28



TOP PLATE

The trusses are erected the same as with standard masonry. A variety of truss configurations are commonly used. Figure 29 illustrates a typical truss application but local code may require some deviation from this detail.

Figure 29

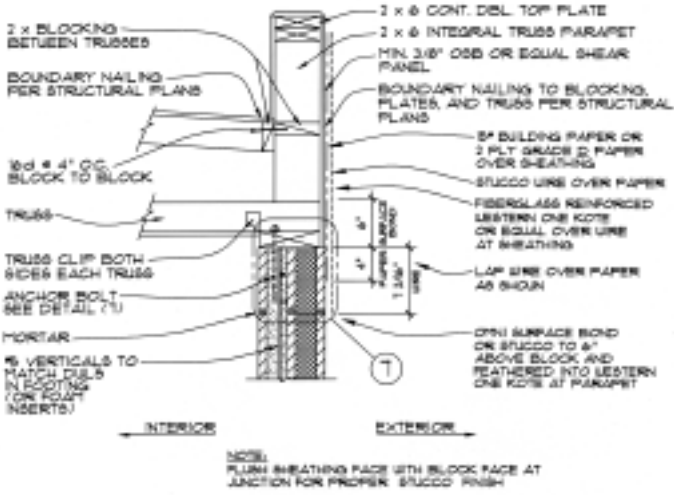


BOND BEAM – W/ROOF TRUSS & EAVE

SCALE: NTS

The builder should consult with the stucco contractor regarding the set-back distance from the outside edge of the block. This distance can vary according to what the builder and/or stucco contractor decide to use as a substrate and what the desired finish is to be. Figure 30 details a typical stucco application. Add all substrate thicknesses to the truss to arrive at the set-back distance.

Figure 30



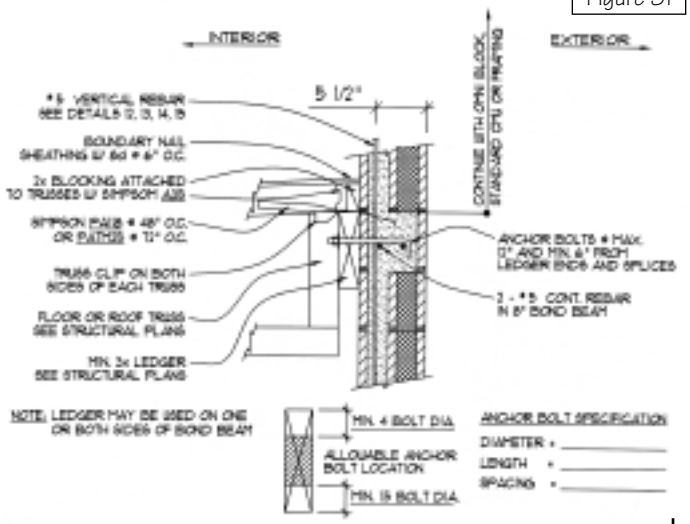
BOND BEAM – W/ROOF TRUSS PARAPET

SCALE: NTS

Notes

Multi-story buildings, masonry parapet conditions, or exterior decks mandate a ledger to be bolted to the block wall. Figure 31 provides typical ledger construction methodology. The area use (attic or second story) above the ledger will determine whether Omni Block, regular uninsulated CMU or possibly wood frame is to be utilized. The size of the ledger bolts and ledger itself is normally determined by a structural engineer.

Figure 31



LOAD BEARING LEDGER WITH TRUSS TOP CHORD SUPPORT

SCALE: NTS

The mason installs the beam seats per engineering. The builder should require the framer to specify all actual beam seat heights (during block construction). Typical beam seat installation is found in Figure 32. Some plans are vague when it comes to beam seat heights and location so **extra precaution** should be exercised in this area. This is an interfacing item between the mason and the framer. Make sure only one of them has the beam seats in their bid.

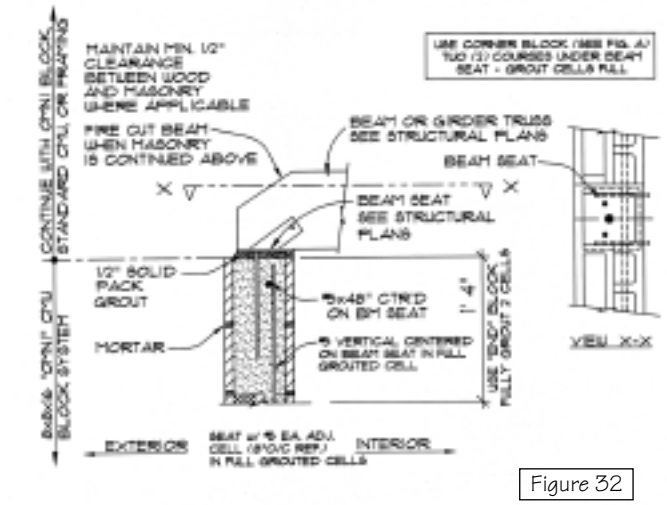


Figure 32

BEAM OR TRUSS & CMU

SCALE: NTS

Attaching interior partition walls to Omni Block can be accomplished in a number of ways. The most popular and effective method is to 'red head' or shoot into the block. This firmly attaches the stud to the block. It is strongly recommended to abundantly glue (construction grade) the stud to the wall before this type of attachment. This practically eliminates any movement of the stud wall away from the block wall which aids in preventing any future drywall cracking at this wood-to-block joint.

Other methods include 'J' bolts being provided for by the mason during block construction. This method greatly reduces the flexibility of moving an interior partition wall during the framing stage of construction. Another method utilizes masonry 'cut nails'. In either case, construction adhesive is strongly recommended.

The framer needs to allow for the thickness of drywall when attaching the wood (or metal) to the block because the block is not furred out (see Figure 33). This seam, after drywall, tape and texture should be flush and unnoticeable.

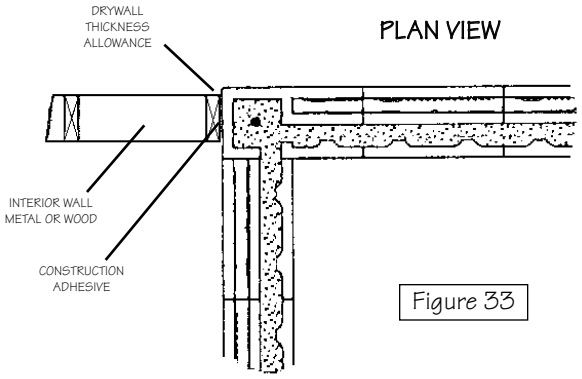


Figure 33

WOOD TO BLOCK CONNECTION

Builder's Checklist

- ☐ Make sure framer understands that the block is not furred out and that he must allow for the specified drywall thickness at all joints (see Figure 33).
- ☐ Make sure that the framer glues all partition stud material to the block with construction adhesive before attaching.
- ☐ Communicate to the framer and to the mason that they must agree on beam seat heights and locations.
- ☐ If parapets tails are to be used, discuss set-back distance with stucco contractor and then communicate that result to the truss supplier and the framer.
- ☐ Review ledger sizing with framer.

Exposed Block

Omni Block can be manufactured in a variety of intregral colors, architectural finishes (split-face, scored, scored split, or burnished) as well as the standard gray. Any of these appearances may be the actual finish.

Sealers

The application of a concrete sealer over the exposed block will yield more of a sheen or glaze appearance. Sealers penetrate the block which makes it more stain resistant while locking-in the calcium (white residue sometimes seen on exposed block) that can cause efflorescence.

Stains

Penetrating colored stains are another finish option over exposed block. Penetrating stains applied on the exposed block after the block walls have been constructed will yield a uniform colorization on the block as well as the mortar. The combination of a sealer and stain can be applied during the same application.

Paints

The exposed block can be painted. A masonry primer should be used before the finish paint is applied.

Drywall Appearance

The common finish over the block is a drywall appearance that matches interior partition drywall after it has been 'taped and textured'. In order to accomplish this look and attain a seamless transition between interior partition walls and Omni Block, two options are available.

Option 1: Surface Bond
The interior block surface is coated with a cementaceous bonding material that is applied (eighth inch to quarter inch thick) in a semi-smooth texture over the block before any interior framing is started. Surface bond has the appearance of stucco but is much stronger. It not only bonds well with the block but bonds exceptionally well with regular construction drywall compound. It also hides the mortar joints very well. At the drywall stage of construction, the drywall contractor tapes block-to-drywall joints the same as he would if it were drywall-to-drywall.

Option 2: Drywall
The interior block surface is laminated with drywall. Standard construction adhesive is applied to the back of the drywall and set onto the block wall face. A few screws may be utilized to fasten the drywall to the block wall until construction adhesive has dried. The drywall contractor tapes all joints.

Top Plate Coverage

The interior exposed top plate (above the block) can be covered several ways. The recommended method is to attach 1 1/2" wide by 1/2" thick drywall strips to the top plate. The wall seam and ceiling seam can then be taped with whatever the drywaller prefers (paper or fiberglass). Some drywallers have found that 'hot mud' in this area works well.

Corner Bead

All window and door openings require the use of square or bull nose corner bead. It is recommended to coat the inside bead with drywall compound and set around the opening. The corner bead edging is then feathered onto the surface bonded or laminated drywall wall and opening return with drywall compound. **The surface bond coat is not intended to be the finish around openings. For proper interior finish, corner bead must be used.**

Skim Coat

The surface bond application (which should be relatively smooth) or laminated drywall is then skim-coated with drywall compound. For most semi smooth and all smooth finishes, a skim coat is required.

Texture Coat

The same texture coat that is applied to the interior partition drywall should be applied to the surface bonded or laminated drywall walls as well. An exact match between the two is easily accomplished by any competent drywall contractor.

Paint

All interior surfaces are primed and painted to match.

Repairs

Small holes created by Tapcon screws (or equal), plastic or lead inserts with tapping screws are patched with regular drywall compound. Since the block face is a little over one inch thick, patching is accomplished easier than repairing typical drywall that is only half of an inch thick.

Builder's Checklist

- ☐ Make sure that drywall contractor includes:
  1) top plate coverage,
  2) corner bead for all openings,
  3) texture coat and/or skim coat is in his bid.
- ☐ Inspect job site as drywall contractor is applying corner bead to make sure that it is being installed evenly and squarely.

Exposed Block

Omni Block can be manufactured in a variety of intregral colors, architectural finishes (split-face, scored, scored split, or burnished) as well as the standard gray. Any of these appearances may be the actual exterior finish.

Sealers

The application of a concrete sealer over the exposed block will yield more of a sheen or glaze appearance. Sealers penetrate the block which makes it more stain resistant while locking-in the calcium (white residue sometimes seen on exposed block) that can cause efflorescence.

Stains

Penetrating colored stains are another finish option over exposed block. Penetrating stains applied on the exposed block after the block walls have been constructed will yield a uniform colorization on the block as well as the mortar. The combination of a sealer and stain can be applied during the same application.

Paints

The exposed block can be painted. A masonry primer should be used before the finish paint is applied.

Stucco

Omni Block can be stuccoed in the same manner that standard CMU is stuccoed. Consult local stucco contractors for the regionally preferred procedure.

Intregral Synthetic Stucco

There are numerous integrally colored synthetic stucco products on the market. Most, if not all, work very well over a base coat or scratch coat of stucco. Usually, these products are ultra violet (UV) stable and therefore provide longlasting beauty.

Notes

Builder's Checklist

Optional Interior Surface Bond –

- ☐ Determine whether interior wall is to be surface bonded or laminated with drywall.
- ☐ If interior is to be surface bonded, plan to do it immediately following the block construction before any framing is done.
- ☐ Make sure that windows are square and plumb.
- ☐ Make sure the applicator understands the surface bond preparation and application directions.
- ☐ Communicate to the applicator the desired trim detail around windows; most notably the return (sill) angle and corner edging.
- ☐ Mist surface bonded wall for 24 hours after application to assure proper curing.

Optional Exterior Surface Bond -

- ☐ Determine what finish is desired. Several options exist.
- ☐ Advise the applicator of all wood frame areas that need prepared for a regular brown coat before surface bond, regular stucco or synthetic stucco application.
- ☐ Mist surface bonded wall for 24 to 48 hours after application to assure proper curing.

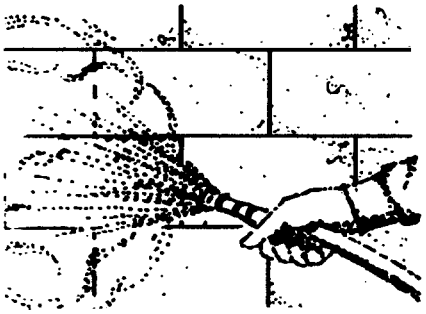
Surface Bond Material

The surface bond is a Portland cement based, fiber reinforced pre-mixed compound. It also contains epoxies, waterproofing agents, dehydrators and sand. It is applied via trowel. Its consistency should be almost that of peanut butter. Too much water in the mix facilitates shrinkage cracking during the curing process. It is listed as a water resistant material and is much stronger than regular stucco but it can still crack . Depending upon the outside temperature, its workability is approximately 45 minutes. The surface bond is optional with mortar set block. Coverage is approximately 25 to 30 square feet to a 50 lb. bag.

Surface Bond Preparation

Prior to applying the surface bond cement, the walls should be wetted thoroughly but not soaked. This wetting of the block and keeping the block damp while applying the surface bonding cement is very important (see Figure 34). Dry block will suck the moisture out of the surface bonding cement causing a loss in bonding strength. In very dry climates or where warm winds are prevalent during application, this wetting process may have to be repeated during application to assure proper adhesion and strength.

Figure 34



Surface Bond Application

Apply the surface bonding cement only when the weather is above 40°F and insure that the surface is maintained above this temperature for at least 24 hours after application. The surface bonding cement is applied and easily worked with an ordinary plasterer's trowel. The surface bond should be applied to a minimum thickness of 1/8" using upwardly sweeping diagonal strokes (see Figure 35).

All block and joints should be covered evenly forcing material into the joints between the blocks. Excessive troweling should be avoided. This causes the fiber to come to the surface which affects the curing process and ultimate strength of the surface bond. If for any reason the application is interrupted, stop at a natural break point such as a corner, door, or window opening.

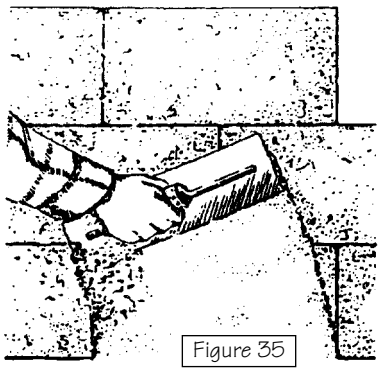


Figure 35

Surface Bond Curing

The surface bonding cement takes its initial set within one to two hours and will gain much of its ultimate strength within 24 hours of application. To insure maximum performance and proper dehydration, the surface of the bonded wall should be misted regularly within the first 24 hours after application and within 48 hours in dry or windy climactic conditions. Keep the surface bond from freezing for the first 48 hours after application.

Interior Surface Bonded Walls

The interior surface bond is to be applied in a semi-smooth to smooth finish immediately after the block is erected and just prior to the framing stage of construction.
Window openings that have windows in them are to be surface bonded around the entire perimeter (which includes the top) and return to the window itself. A rounded 'bull nose' edge is to be applied which allows for the drywaller to utilize a bull nose corner bead (see Drywall section). The mason squarely sets the windows and checks for plumbness but the surface bond applicator needs to double check the window installation prior to surface bonding.

Exterior Surface Bonded Walls

The exterior surface bond can be applied as a first coat or 'brown coat' prior to an unlimited array of finishes using steel, rubber, wooden or sponge trowels that can create different textures over the surface bond. These finishes can be regular stucco then painted or synthetic integral colored stucco.

PLUMBING

- ☐ Hose bibbs
- ☐ Gas line cell or sleeve
- ☐ Hot water heater relief valve sleeve
- ☐ Fire place lines/stack vent sleeve

ELECTRICAL

- ☐ Phone/cable outlets
- ☐ Electrical outlets
- ☐ Switches
- ☐ Exterior outlets
- ☐ Exterior switches
- ☐ Exterior light outlets
- ☐ Garage door safety eyes
- ☐ Door bell
- ☐ Garbage disposal switch/outlet
- ☐ HVAC power and 110 GFI
- ☐ Electrical panel / ufer wire / cell or sleeve
- ☐ Low voltage panels (irrigation, cable, phone)
- ☐ Sound system outlets (3/4" or 1")

HVAC

- ☐ Freon line cell or sleeve
- ☐ Dryer vent cell or sleeve
- ☐ Return vents

FIRE SPRINKLER

- ☐ Fire sprinkler panel
- ☐ Fire sprinkler bell

ENGINEERING

- ☐ Beam pocket locations and heights
- ☐ Ledger bolt heights and frequency
- ☐ Ledger bolts for nailer
- ☐ Top of wall anchor bolts
- ☐ Expansion joint

SECURITY

- ☐ Score operational windows and doors
- ☐ Conduit

OTHER

- ☐ Window and door locations

This start-up sheet is an invaluable tool intended to assist the various trades that interface with Omni Block. Typically, at a pre-construction meeting, the mason requests from the other sub-contractors their needs and communicates to them how he plans to address them. This meeting 'of the minds' is critical and greatly improves the overall continuity of construction.

FLOWCHART

	Design	Footings/Stem	Pre-Slab
Concrete	☐ Have engineer, architect, or designer create 'shop drawing' detailing rebar placement.	☐ Rebar sizing communicated to concrete sub. ☐ Remind concrete sub that stem wall is 8". ☐ Review rebar placement and emphasize its importance. ☐ Indicate to concrete sub where block outs are to occur (see Plumbing and Electrical sections).	
Plumbing	☐ Determine location of gas meter. Try and locate main feeder so that it enters building where an interior partition wall is located so that it may be ran vertically in the interior partition wall above the plate. ☐ Determine location of water riser (same as above).	☐ Determine location of waste vents in block walls and provide 'block outs' in stem.	☐ Remind plumber that waste vents must hit corner block cells in order to avoid coming back and elbowing vertical risers (see Omni Block Detail Sheet). ☐ Verify proper waste vent locations after installation.
Electrical	☐ Note all electrical switch and outlet requirements are indicated on the plan. ☐ Note all low voltage (telephone, cable, sound, security, and door bell boxes are indicated on the plan.	☐ Determine and position where conduit needs to be placed for cable/TV, telephone, landscape and pool (ran within stem). ☐ Have electrician supply steel conduit and specify its location and height requirement. ☐ Verify that electrician installs Ufer long enough to reach electrical main. Mason may have to run it laterally in the block before going vertical with it.	
HVAC			
Windows Doors	☐ Make sure all window openings are block module, if possible (chart on page 14).		☐ Order aluminum or vinyl windows sometime during pre-slab, allowing enough lead time so that when slab is done windows are ready to be delivered.
Framing	☐ Note all beam seat locations and heights on plan. ☐ Note all masonry wall heights on plan.		
Drywall	☐ Make sure that top plate coverage, corner bead for all openings, texture coat and/or skim coat is in drywaller's bid.		
Optional Surface Bond or Stucco			

FLOWCHART

	Start of Masonry	During Masonry	Post Masonry
Concrete	☐ Schedule brief 'prior to the start of masonry' meetings at the job site with the electrical, HVAC, fire sprinkler, plumber, sound, security subcontractors and the mason.		
Plumbing	☐ Have plumber rough-out (90°) all water lines and waste vents . ☐ Supply any access panels and specify their location. ☐ Require fire sprinkler subcontractor to meet with mason for fire sprinkler installation coordination.	☐ Verify fire sprinkler installation. ☐ Verify access panel installation. ☐ Verify all required sleeving has been installed.	
Electrical	☐ Determine main incoming telephone feed and cable/TV location and provide box or panel. ☐ Determine meter /main location.	☐ Prior to 4 ft. grout, make sure all electrical and low voltage boxes are installed. ☐ Schedule security contractor to pre-wire exterior walls prior to interior surface bonding. ☐ Verify main meter location. ☐ Verify garage electric eye installation.	
HVAC	☐ Determine all air conditioner locations, HVAC line locations and how the thermostat wiring is to be handled.	☐ Verify dryer vent opening has been installed. ☐ Verify HVAC line sleeve installation.	
Windows **Doors**	☐ Communicate with mason for actual delivery date. ☐ Communicate to mason door and/or slider widths and heights so proper rough opening can be provided.		☐ **Wood Windows Only:** During installation (much later than the block construction) make sure window will be centered in opening or a satisfactory plan is reached with the interior and exterior finishes in mind (see also Drywall, Framing and Stucco sections).
Framing		☐ Communicate to the framer and the mason that they need to agree on beam seat heights and locations.	☐ Make sure framer understands that the block is not furred out and that he needs to allow for the specified drywall thickness. ☐ Make sure that the framer glues all partition stud material to the block. ☐ If parapet truss tails are to be used, discuss set-back distance with stucco contractor and then communicate that result to the truss supplier and the framer.
Drywall			☐ Inspect job site as drywall contractor is applying corner bead to make sure that it is being installed evenly and squarely.
Optional Surface Bond **Stucco**		☐ Plan for interior surface bonding (optional) immediately following the block construction before any framing is done. ☐ Have mason score block for security wire prior to interior surface bonding.	**Interior Surface Bond (optional):** ☐ Make sure that windows are square and plumb. ☐ Make sure applicator understands the surface bond preparation and application directions. ☐ Communicate to the applicator the desired trim detail around windows; most notably the return (sill) and corner edging. **Exterior Surface Bond (optional):** ☐ Exterior surface bond occurs when normal stucco is usually performed. ☐ Advise the applicator of all wood frame areas that need prepared for a regular brown coat before surface bond, regular stucco or synthetic stucco application.

Omni Block

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