bautex®

Innovation In Wall Construction

Bautex Block Wall System

Installation Guide

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2018 rev. 1

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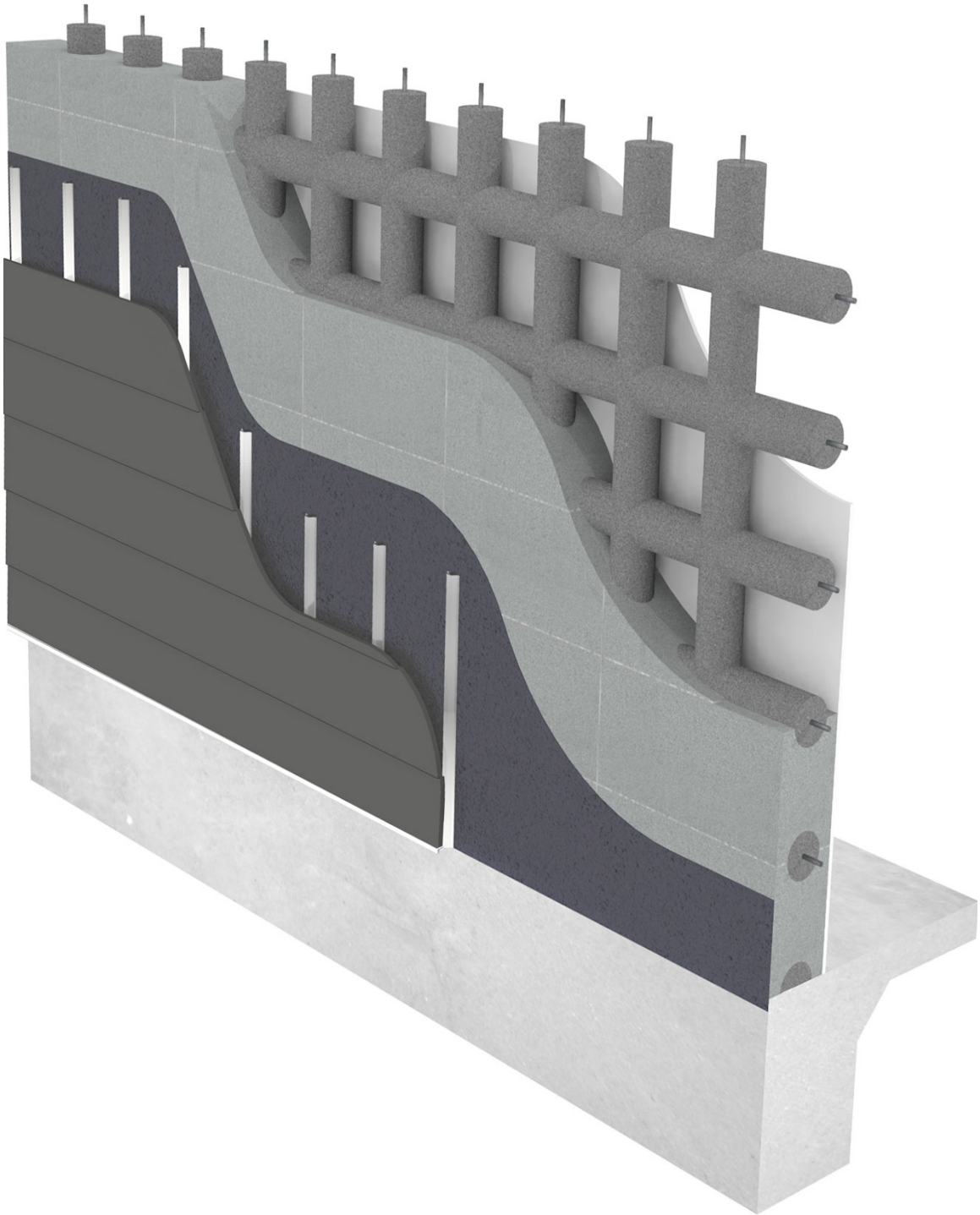


The Bautex Block Wall System

The Bautex Block Wall System is comprised of the Bautex Block, reinforced concrete, Bautex Air and Moisture Barrier and accessory products. The Bautex Block is the centerpiece of the wall system and is used to construct structurally reinforced concrete walls with integrated insulation at competitive first costs versus traditional building methods.

The Bautex Block Wall System is designed with the contractor and installer in mind. All parts of the Bautex Block Wall System are integrated to allow for easy estimating and construction.

The Bautex Block Wall System Features:

Faster Construction Time

- Walls go up faster than traditional building methods with less manpower.
- Utilizes time-tested, industry standard installation methods for both interior and exterior finishes.

Expert Technical and Field Support

- The Bautex Construction Support Team is available during all phases of the project to support everything from estimating project cost to job site technical support.
- Full design library available online including AutoCAD® files, Revit® Building Information Modeling (BIM) files, system detail drawings and engineering and connection details.

Integrated Accessories

- Bautex Air and Moisture Barrier (AMB 20) is a critical component of the Bautex Block Wall System. AMB 20 is a water-based rubberized polymer elastomeric spray-applied air and moisture barrier that meets the testing standards of the Air Barrier Association of America.
- The Bautex Construction Support Team can provide advice on best known construction practices and practical use and application of accessory products including construction adhesives, bracing, and masonry anchors.

Increased Fire Safety

- Provides 4-hour fire rated structural assembly per ASTM E119 test protocol with no additional layers
- Meets NFPA 101 Life Safety Code® as tested per NFPA 286 protocol, commonly known as the room corner burn test.
- No flame spread and extremely low smoke development of 20 for Bautex Block per ASTM E84 test results.

Superior Energy Efficiency

- Meet increasingly stringent international energy conservation codes.
- Lower HVAC system requirements due to insulation, air tightness and thermal mass of system.
- Tested R-14 continuous insulation
- Thermal mass wall

Storm Safety

- Meets ICC 500 standard for design and construction of storm shelters.
- Meets FEMA 320 requirements for design and construction of personal storm shelters.
- Meets FEMA 361 requirements for design and construction of community storm shelters.

Sustainable Product

- 28% recycled content, by weight.
- Manufactured in San Marcos, Texas.

Indoor Environmental Quality

- Air tightness and concrete mass create sound-deadening walls.
- Airtight wall envelope of Bautex Block and Air and Moisture barrier blocks infiltration of airborne pollutants.

Introduction

Building With Bautex Block

The Bautex Block Wall System has many advantages over traditional building systems and integrates easily with traditional finishes.

Bautex vs. Metal Stud Construction:

- Bautex combines R-value and thermal mass to provide superior energy performance.
- Bautex has a much greater resistance to wind driven debris during events like tornadoes and hurricanes.
- Building with stud framing can be more difficult and costly to provide continuous insulation to meet building codes.

Bautex vs. Tilt Wall Construction:

- Bautex has greater insulation value than tilt wall, which must be insulated separately at additional cost and labor expense.
- Tilt wall construction typically has insulation on the inside of the “mass” where it is not as effective, while Bautex has continuous insulation and air barrier on the outside which creates a more energy efficient structure.

Bautex vs. Masonry Construction:

- Bautex requires no additional insulation, saving time and labor.
- Bautex requires no mortar, saving installation time and expense.

- Bautex can be installed at roughly twice the speed and at a lower composite labor rate of concrete masonry.
- A partially grouted 8 inch CMU wall weighs approximately 50% more than a Bautex wall.

Bautex vs. Foam Plastic ICF:

- On average, Bautex uses 50% less concrete than foam plastic ICF products, providing significant cost savings.
- Bautex Block has significant recycled content versus foam plastic ICF forms which has little to no recycled content.
- An ICF wall weighs approximately 100% more than a Bautex wall.

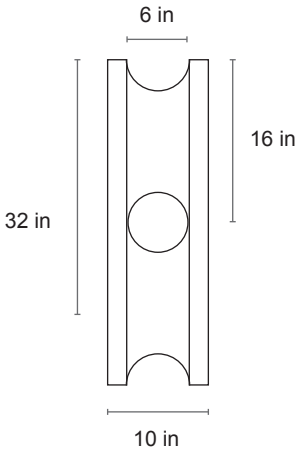
The Bautex Block

The Bautex Block is molded from Expanded Polystyrene (EPS) and a proprietary cement-based matrix.

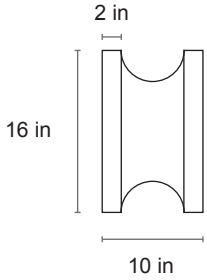
Block specifications are:

Width:	10”
Height:	16”
Length:	32”
Weight:	45 lbs
Surface:	3.55 ft^2
Cores:	6” diameter
Grid:	16” centers

Top View:



End View:



Estimating Quantities

The quantities required to install the Bautex Block Wall System can be quickly estimated using a few simple formulas (see Material Quantities table below). These formulas do not account for waste, which must be added separately. Your Bautex construction support team representative can assist you with pricing and estimating questions.

Tools & Equipment Required

There are a few tools that are needed to ensure a quick and efficient installation of the Bautex Block. The items listed are in addition to your standard tool box.

- 14-inch (minimum) electric chain saw, reciprocating saw with 18-inch masonry blade or 32-inch hand saw used to field modify blocks for corners, bond beams or architectural details such as arches.
- 4- to 20-foot levels and plumb bob used to ensure that wall, foundations and openings are level and true.
- Traditional concrete bracing system (2x4 lumber, snap ties, wedges, etc.) is used to brace for construction loads
- Commercially available ICF bracing systems with integrated scaffolding may also be used (see bracing section of this document for details).
- Scaffolding or mechanical lifts as required to lay block and pour concrete.
- Hole saw used to make smaller penetrations though Bautex Block as needed.
- Foam adhesive applicator.
- Commercial grade spray applicator for Air and Moisture Barrier (AMB 20).
- Concrete line pump or concrete boom pump for pouring concrete into walls.
- Flashlight and 8-inch long #2 Phillips screwdriver to inspect and confirm concrete consolidation in cores during pour.
- Forklift and pallet jack to unload shipped block and move around the job site.

Bautex Construction Support

Bautex Systems provides remote and field support to all trained installers. Contact the Bautex Construction Support Team to request construction support:

Email: construction@bautexsystems.com

Phone: (855) 922-8839

Material Quantities

Bautex Block (BB 616-10)	# blocks = SF wall / 3.55
Bautex Air and Moisture Barrier (AMB 20)	# gallons = SF wall / 30
Bautex Anchor (BWA 22-10)	One anchor per attachment point for finishes, furring channels and other cladding as specified by engineer and architect
Concrete (Typically 8-9” slump, min 3,000 psi 3/8” max aggregate)	CY concrete = # blocks * 0.037 Note: Refer to project engineer for job specific mix design requirements
Rebar (Standard layout #4 bars @ 16” o.c. both directions)	LF rebar = # blocks * 5.33 Note: Refer to project engineer for job specific reinforcement requirements
Rebar Chairs	Placed every 48” or as required per drawings
Foam Adhesive	# 24 oz Foam2Foam® cans = # blocks / 35
Door and Window Bucking	Price as required, per architectural drawings
Labor	Production rates will vary widely depending on building architecture. Please consult with the Bautex team for more details.

Foundations

Foundation Types

Bautex Blocks are extremely versatile and can be used with any foundation system. This guide touches on the most commonly used types for commercial construction. Please refer to the engineering documents for your particular project to confirm rebar size, spacing and placement. Figure 1 shows a basic wall layout with typical rebar dowel spacings, from corners and around wall penetration.

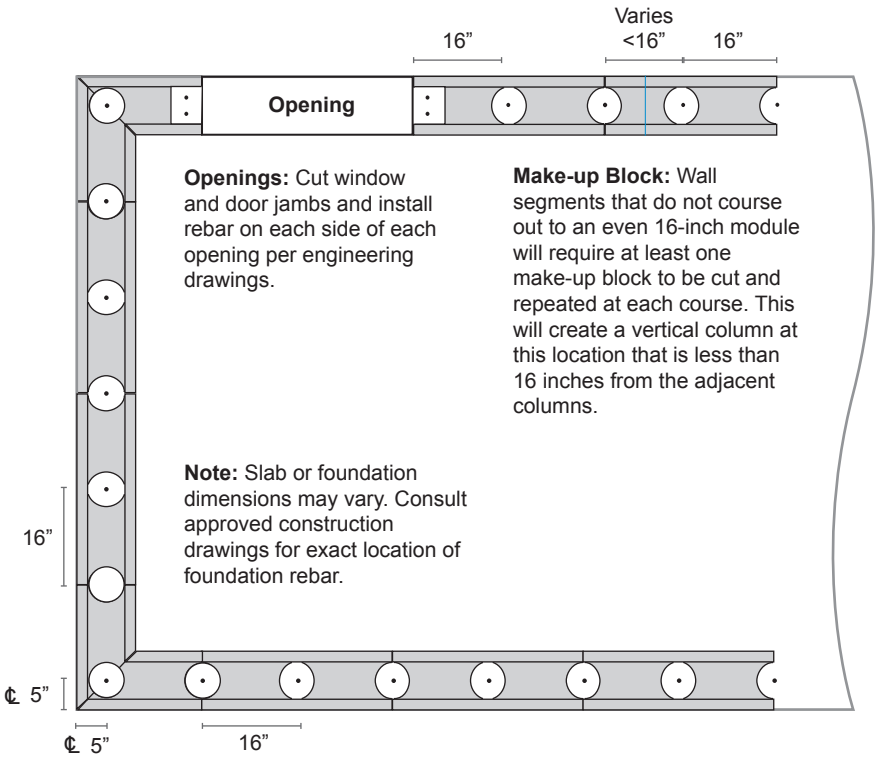
Pre-poured Footing

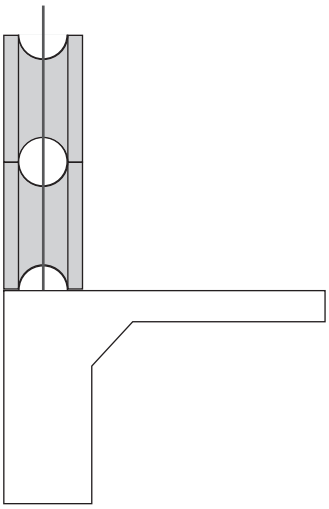
Bautex Blocks are installed after the foundation has been poured and cured a minimum of 7 days and as directed by the project engineer. Rebar dowels are laid out as shown in Figure 1 and left extended above the foundation a minimum of 24 inches, or meeting the project engineer's specifications. Rebar dowels may be installed prior to pouring the foundation or drilled and set with epoxy at the required locations after the foundation is poured.

Foundation Considerations

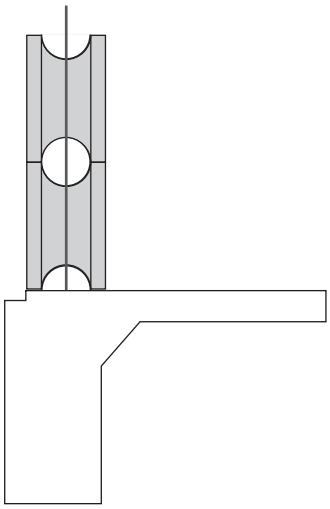
There are several things to remember with regard to the foundation requirements for Bautex Block.

- Rebar must be placed at a macium 16 inches on center to match the vertical cores in the Bautex Block.
- Door and window openings should be marked on the slab and rebar should be installed, per engineering drawings, on either side of door and window openings.
- Layout should be done by working from adjacent corners toward the middle of each wall section. Make up block rebar spacing should be marked on the slab and installed accordingly.
- Check slab after curing and mark any areas that are uneven or not level. The procedure for leveling the first row of Bautex Blocks in these areas is covered in the Wall Installation section of this guide.
- Check slab corners for correct angles. This will be important to note when laying out the first row of Bautex Block.
- Vertical and Horizontal rebar must be a minimum #4 bar and comply with IBC Section 1907. The rebar must be a minimum ASTM A615 Grade 60. Refer to project drawings for bar size and specifications.
- Rebar dowels must extend above the foundation a minimum of 24 inches or meeting the project engineer's specifications.





Bautex Block typically aligned to outside of foundation with centerline of vertical dowls 5 inches from foundation edge. Refer to engineering documents.



Bautex Block typically aligned inside of brick lug with the centerline of vertical dowels 5 inches from edge of brick lug.

Figure 1: Foundation dowel layout

Wall Construction

Wall Construction Basics

The Bautex Block Wall System is one of the easiest and fastest to install. The process begins by laying the first course level and plumb, installing rebar and repeating for each course as the wall grows vertically. Bautex Block are adhered to one another using a foam adhesive. Bautex Block may be laid in a running or stack bond, and may be oriented horizontally or vertically as long as the cores are in alignment.

As each course of Bautex Block is installed, the horizontal rebar will be installed before the next course is laid. Vertical reinforcing bars are installed once the walls have been built to pour height, floor or roof height, or top of wall. The wall openings should be formed up, along with any lintels, beams, jambs, or pilasters. as the wall builds vertically. **The walls should be braced no later than when the wall has reached six courses or eight feet in height** (see Wall Bracing section for more details). After building to the desired wall height and all openings, steel reinforcement, and attachment points have been inspected, the wall can be poured with concrete.

Removal of bracing and forming should be coordinated with and approved by the project structural engineer.

This “Wall Construction” section covers the following construction steps:

- Cutting and field modification of blocks
- Laying the first course
- Placement of reinforcing steel
- Laying intermediate courses
- Wall bracing
- Supplemental shoring
- Door and window openings
- Bond beams and lintels
- Jambs and pilasters
- Laying the top course
- Floor and roof connections

Cutting and Modifiying Block

One of the key features of the Bautex Block is the ability to modify the standard unit to fit any field application from corners, radius walls, lintels, bond beams and even pilasters. There is no need to order special shapes or sizes.

Bautex Block can be cut easily with a variety of tools. For most modifications a hand saw, recripocating saw, or electric chain saw is recommended. When using an electric saw, please make sure to follow manufacturer’s safety guidelines and job site safety rules. Always use proper personal protection equipment when operating cutting tools. Proper maintenance and care will ensure chain saws’ continued work through multiple projects.

Mechanical, electrical and plumbing may be routed through the wall taking care to avoid impacting the structural core. Plumbing and electrical chases can be cut directly into the surface of the Bautex Block using a circular saw or router or may be routed along the inside of the wall if Sheetrock furring channels are used. If concrete attachment points are required at the face of the block, holes may be formed using a hole saw or chain saw. Bautex Wall Anchors can also be inserted into the wall prior to the pour to provide an intermediate-duty attachment point.

Laying the First Course

Special care and attention must be taken to ensure that the first course of Bautex Blocks are installed properly. The first course must be checked for plumb and level prior to proceeding with additional courses. Please consult the “Foundation” section of this document prior to laying the first course.

The first block should begin at an outside corner being sure that the core holes in the block are aligned with the rebar dowels in the foundation. A good way to ensure alignment of the cores is to dry lay the first course of block on the foundation and mark the rebar dowel locations. Holes can then be drilled and the rebar can be set with epoxy at these locations.

For corner block modification, please see the “Constructing Corners” section. Place the next block in contact with the first block ensuring that the rebar dowels from the foundation are aligned with the cores in the Bautex Block (see Figure 2). Apply a small bead of foam adhesive in the vertical joint before pressing the blocks together. This adhesive acts to keep the blocks in alignment until the wall is poured. Continue placing the blocks along the wall ensuring that each block is square, plumb and straight as demonstrated in Figure 2.

The best practice in laying the first course is to start at adjacent corners and work toward the middle of the wall section. It is likely that the wall length will not course out evenly, leaving space less than 16 inches to make up in the middle of each wall section.

The easiest way to create a make up block is to remove a block next to the make up block section. Measure the total width of the open section and use a half block and a shortened block to match the measurement. To shorten the blocks, cut out out the desired width of reduction from the full section of block and use foam adhesive to glue the sections back together.

Figure 2: Laying first course of Bautex Block

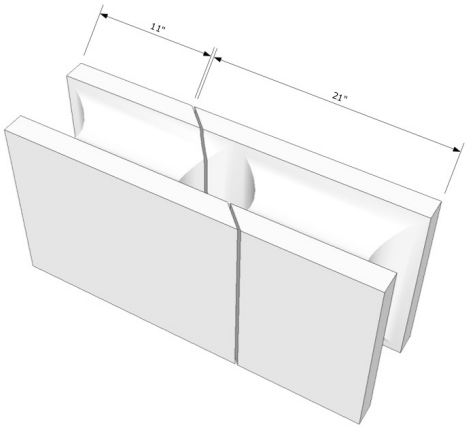


Figure 3: Measuring cuts for corner blocks

Figure 4: Simple and inexpensive 90˚ corner saw guide.

Wall Construction

Once the two modified blocks are fabricated, install rebar dowels in the foundation and place blocks. The make up blocks will then be repeated all the way up the wall, ensuring the core stay in alignment. As a reminder, the vertical cores can be less than 16 inches apart but never greater than 16 inches.

Other vertical elements like jambs and pilasters will also need to be laid out in first course and rebar dowels installed accordingly. The cuts made for these elements will also be repeated up the wall.

In order to plumb and level Bautex Block, wood shims may be used. The shims must be placed under the block and not driven in with a hammer, as this will cut into the block rather than raise it. Once the glue has cured, shims can be removed. Take care to ensure that shims do not protrude into cores before pouring the wall.

Constructing Corners

The Bautex Block are easily field modified to construct corner elements. A standard 32 inch Bautex Block is measured then cut at a 45 degree angle through the central core (measuring 11 inches and 21 inches from the end to create the diagonal cut) as shown in Figure 3. An inexpensive corner saw guide, as shown in Figure 4, can be fabricated quickly to speed up construction.

All corners of the structure must have a poured vertical reinforced concrete core with vertical bars per the engineer's guidelines. Each corner must have minimum vertical rebar as shown in Figure 1. The resulting cut joints should then be bonded with foam adhesive. The corner block and rebar placement should resemble the finished assembly shown in Figure 5. Horizontal reinforcing will then be placed as described in the "Reinforcing Steel" section with the bar wrapping continuously around the corner for at least 24 inches (or minimum 40 times bar diameter) on either side of the corner, per engineer's design.

Figure 5: Placing horizontal reinforcing steel

Figure 6: Typical rebar chair

Reinforcing Steel

The Bautex Block Wall System requires steel reinforcement to be placed both horizontally and vertically in the center of the cores of the block to gain resistance to tension loads in the wall. All reinforcing steel should be placed per the project engineer's recommendations. Prior to pouring the concrete, check to make sure that the rebar placement is per the engineer's specification and has been reviewed by the building inspector.

The Bautex Block Wall System is a structural concrete wall and requires reinforcing bars to be installed. All requirements should be verified with the engineer and the engineering documents will control location, size and type of reinforcement.

Horizontal Steel

The horizontal reinforcing will be placed on rebar chairs in the 3-inch deep half core on top of each block as required to keep rebar from sagging and remain central in the core, as shown in Figure 5. The rebar chairs should be similar to the chair shown in Figure 6 (GTI COMPOSITE PC CHAIRS™, SERIES 216, Item No. 216300). The four pointed legs should be driven into the Bautex Block to minimize movement of the rebar chair during the concrete pour. The rebar should be tied to the chairs as demonstrated in Figure 7. Horizontal reinforcing must be spliced together, following ACI or project engineer's specification.

Additional reinforcing is required at the window and door, lintel and jambs, bond beams, and pilaster locations. The construction of these items is covered in the "Lintels and Bond Beam" section and "Jambs and Pilasters" section.

Vertical Steel

The steel reinforcement should be placed in every vertical core once the walls have been built to pour height, floor or roof height, or top of wall. Typically these bars will be tied together at the top of the first course and top of the wall or as specified by the engineer. A typical overlap of at least 24 inches must be maintained as a minimum at the bottom of the wall section. In the case of multi-story construction, the vertical bars must project at least 24 inches above the height of the forms for the floor below. This will allow for a construction joint between the floor heights and tie the walls together for subsequent pours.

The technique for tying the vertical splices together is very simple as demonstrated in Figure 8 below. Simply create a wire tie loop as shown and allow the two loose ends to hang out of the interior or exterior surface of the wall. This procedure is repeated at every location where a vertical splice is required. When the wall section has reached its intended height,

Figure 7: Tying reinforcement to rebar chair

Figure 8: Wire loops for vertical reinforcement ties

feed the vertical bar down until it reaches the foundation or construction joint if between floors. The two loose wire ends may then be tightened, bringing the horizontal and vertical bars together. Repeat until all tie loops are tightened. Additional tie wire loops may be added mid-height of taller walls if needed. If there will be additional pours proceeding up from this point, make sure to leave a minimum of 24 inches of the vertical rebar projecting above the top of the wall.

Laying Subsequent Courses

Subsequent courses are laid in a similar way to the first course in either a running or stack bond. All joints, both vertical and horizontal should be joined with foam adhesive. Copy the same block cuts and modifications made on the fist course. The horizontal rebar must be placed as each course is laid. Where vertical rebar splices occur, wire tie loops must be installed before laying additional courses.

The wall must also be braced as installation proceeds vertically. This is detailed in the “Wall Bracing” section. Door and window openings, archways, and other full wall penetrations must also be installed at this time and are covered in the “Door and Window Openings” section.

Wall Bracing

Bautex walls need to be braced to withstand construction loads. A Bautex wall struture relies upon connections to the roof and floor diaphragms to transfer lateral loads to a lateral force-resisting system, such as sheer walls or bracing. During construction, however, temporary wall bracing is needed to resist lateral forces. The most significant lateral force that most walls will experience is wind loading. Bracing is also essential in keeping the wall level, plumb and true during and immediately after the pour. All bracing is the responsibility of the installing contractor,but, at minimum, there should be no further than 12 feet between bracing points if the bracing is independent of the scaffolding system. If the bracing is integrated with the scaffolding system then bracing spacing is to follow OSHA and project requirements.

Bracing of the Bautex Block Wall System may be done in two different ways. The first method utilizes readily available bracing systems for traditional concrete form work, and is generally the most economical option. The second option is to use a commercially available ICF bracing and scaffold system.

Option 1
A standard 10-inch concrete bracing snap-tie (Meadow Burke 312015, Dayton Superior 15412, or equal) should be inserted on top of the first course of block, as it is installed, at every location where a brace is required (see Figure 9). A second snap tie should then be inserted on top of the fifth course of block at the same locations. After the sixth course is installed, a strongback of 2x4 or metal stud should be installed over the snap ties with standard snap tie wedges and made plumb. These strongbacks are then tied back to a bracing leg (kicker) with another 2x4. The bracing leg may be secured to the building slab or outside the building. Additional snap ties may be needed at the top of wall for taller walls.

Option 2
There are several commercially available metal bracing systems that may be used with Bautex Block. Most of these systems also incorporate an optional working platform at the top of the wall. Please consult the Bautex Construction Support Team and the bracing manufacturer’s guidelines for further information on their bracing systems.

Supplemental Shoring

When blocks are modified for lintels, bond beams jambs, or pilasters, shoring needs to be added to prevent blowouts during concrete pour. Shoring should sandwich the interior and exterior faces of the block where modifications

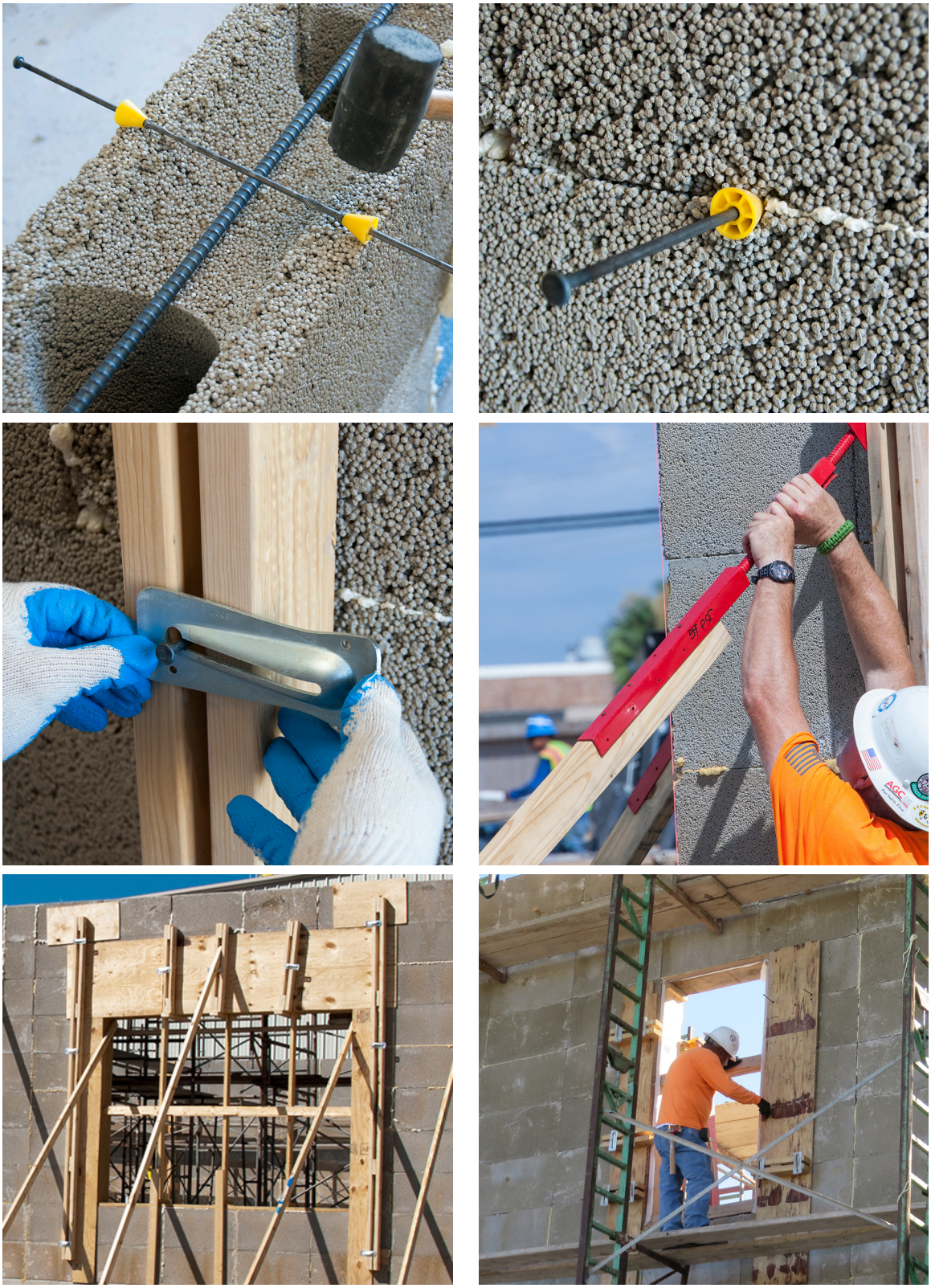


Figure 9: Installation of snap-ties, wedges, bracing, and shoring

have been made, and should extend beyond any area of the block that has been cut.

Shoring can be built from 1/2”-3/4” plywood using snap ties to secure the inside and outside panels. Shoring for pilasters should use a form release or bond break on the inside face for easy removal and clean concrete finish after the pour.

Bautex Wall Anchors

In areas where light- medium-weight materials need to be fastened to the exterior or interior face of the Bautex Block Wall System, Bautex Wall Anchors are installed prior to the wall pour (see Figure 10). The anchors are installed so that the attachment plate on the end of the anchor is hammered flush with the face of the wall, and the tip of the anchor protrudes into the hollow core area of the block, allowing the anchor to be captured by the concrete fill once poured. The stem of the Bautex Wall Anchor should be installed in a vertical orientation. Consult the construction documents for anchor spacing requirements and fastener specifications. Typical attachments using Bautex Anchors include furring channels for interior and exterior finishes, ledger boards, and attachment of interior demising walls.

Door and Window Openings

Bautex Block provide the ability to easily form and pour almost any size and shape of window and door opening. Simply cut and shape the block surrounding the opening as the wall is constructed. It is important to ensure that the core holes are lined up vertically around openings. Additional reinforcement is needed for door and window jambs and lintels.

Window bucking or forming may be stay-in-place wood, removable wood, or hollow metal frame. When the wall reaches the height of the window sill, the bucking is set in place. Windows with block underneath should have openings in the sil of the forming materials in order to pour the wall section under the window. Wall construction continues up with the block cut to fit around the bucking system. Door frames are also set first, allowing blocks to be cut and stacked around the door opening.

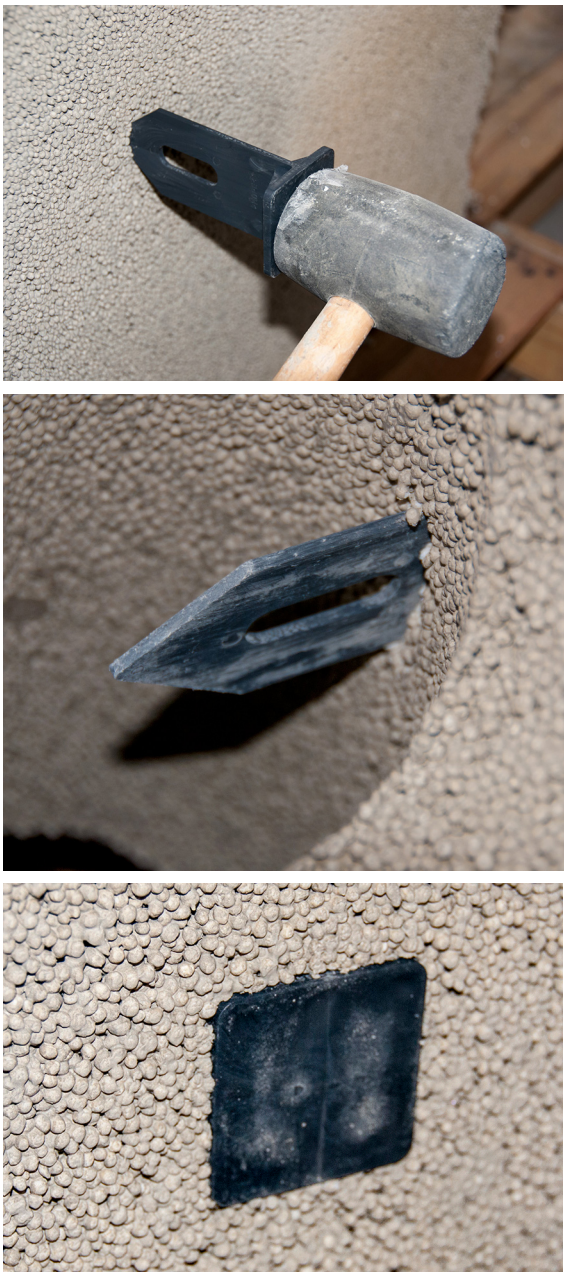


Figure 10: Bautex Wall Anchor installation

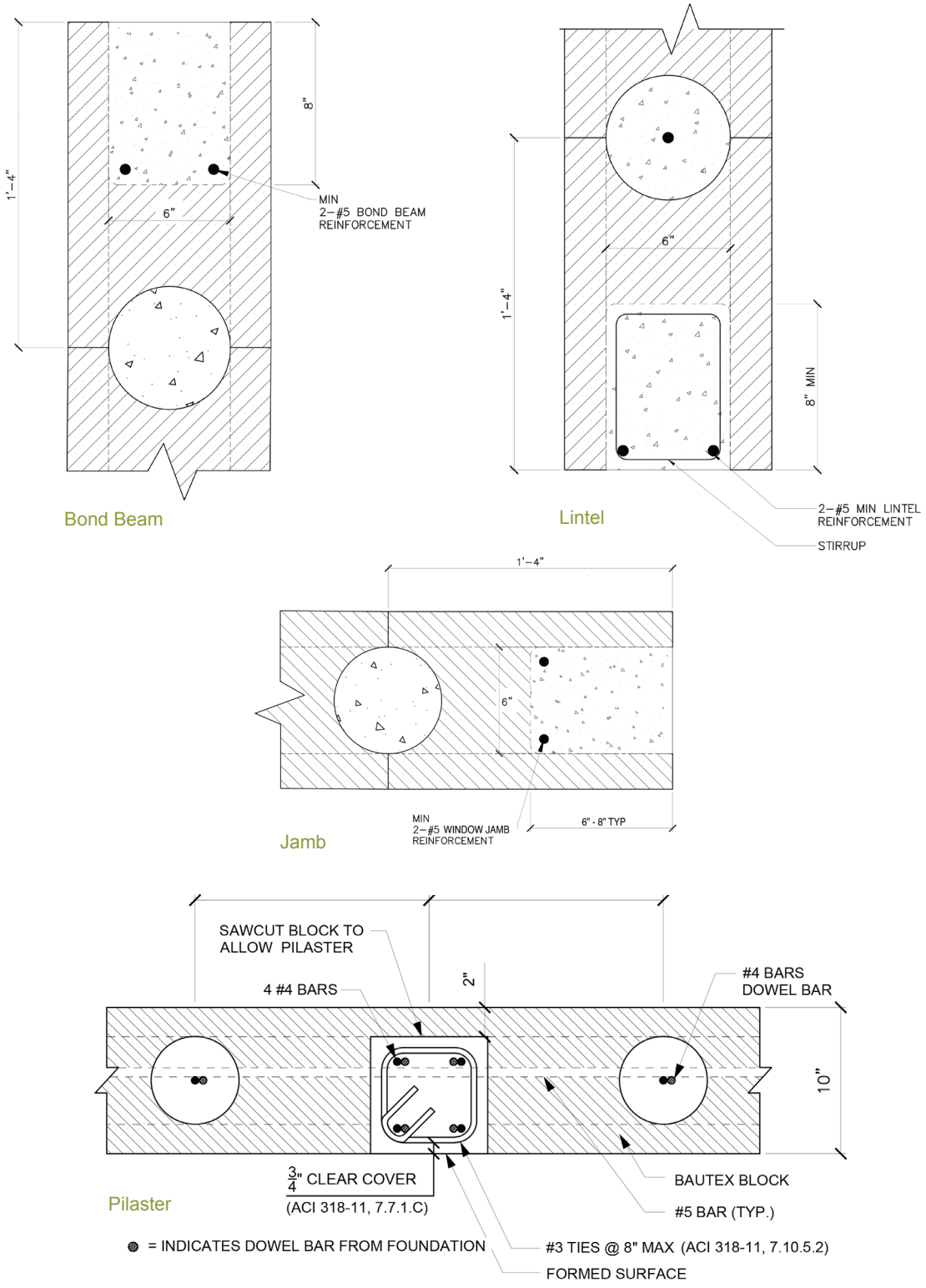


Figure 11: Typical bond beam, lintel, jamb and pilaster construction details (consult project engineering drawings)

Figure 12: Stay-in-place wooden window buck

Lintels and Bond Beams

Lintels or bond beams may be created by removing the internal 6 inches of the block to the desired depth and adding any additional reinforcement required by the engineer.

To reinforce the bottom of the blocks forming the lintel over an opening, build a boxed support. This will provide support for the blocks when the concrete is poured, and provide a solid bottom for the concrete channel. A sectional view of a typical lintel is shown in Figure 11.

Jambs and Pilasters

Similar to lintels and beams, jambs or pilasters may be created by removing the internal 6 inches of the block to the desired depth and adding any addition reinforcement required by the engineer. For a pilaster, the interior face of the block and the internal 6 inches of the block are completely removed to allow a concrete column to be formed of desired width and length. Typical pilasters are 8-inch square as shown in Figure 11, but can be built up to 12 inches or even 16 inches.

Laying the Top Course

Single Story Construction

In single-story applications, the top course of Bautex Block will need to be poured flush with the top of the block. Ensure that vertical reinforcing bars stop at least 3 inches below the top of the wall as specified by the project engineer. While the concrete is still workable, J-bolts or anchor plates with nelson studs may be inserted into the concrete at the locations as specified in the construction documents. Shoring will be needed for top of wall bond beams. See shoring section for details.

Multi-Story Construction

Like single-story construction the top course, at the floor heights, should be poured and finished with the top of the block. Typically, a bond beam will be formed at the top of the wall to serve as a construction joint and as the base of the next floor Rebar should be extended a minimum of 24 inches above the top of the form, or as specified per the engineering drawings.

Figure 13: Bond beam cut out of Bautex Block

Figure 14: Wet-set J-bolts for wall top plate

The next floor above and the wall may also be poured together. In that case, rebar dowels will need to extend into the slab and the wall above and below the floor.

Typical Floor Connections

The Bautex Block Wall System is suited for use with most commercially available floor systems.

If the floor system is to be open web joists then attachment plates or support angles will need to be cast in the wall as shown on the engineering drawings, prior to the concrete pour. After the wall has been poured and cured, floor joists can then be bolted or welded to the connection plates.

In the case of a poured concrete floor, the pan should be in place before the next floor of walls is poured. The floor section nearest the wall and the next wall height can then be poured monolithically or independently. If the floor section and wall section are poured independently, care must be taken to properly place reinforcement between the floor slab and the wall sections.

Typical Roof Connections

The Bautex Block Wall System is suited for use with any commercially available roofing system. The roof joist connections should be planned in advance of the concrete pour and attachments should be embedded in the concrete core immediately after the wall is poured.

Typically, roof systems are connected with top plates, weld plates, or pocket connections as shown in Figures 14 and 15. Please consult the Bautex Construction Support Team and roofing manufacturer for recommendations.

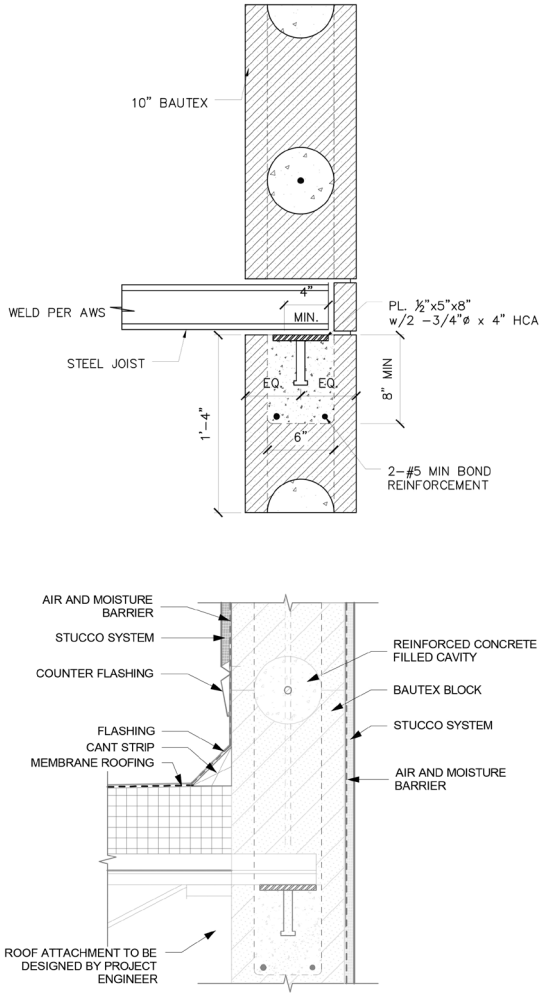


Figure 15: Typical floor and roof connection 2D details

Concrete Placement

Concrete Placement

The concrete pour is the most important step in the proper installation of the Bautex Block Wall System. The pre-pour inspection is the final opportunity to verify that all components have been assembled correctly, and to correct any potential mistakes. There is a concrete pour checklist at the end of this document. For assistance with a pre-pour inspection, contact the Bautex Construction Support Team. The following steps can help ensure a successful project:

Before The Pour

- Verify that all walls are plumb, level and straight.
- Verify that corners and straight runs of the wall are adequately braced.
- Verify that all wall penetrations, doors and windows are properly placed, framed and formed. Make sure to provide access through the sill plate to allow concrete to be poured directly in from the window sill.
- Verify that the Bautex Wall Anchors are installed as specified by engineer and architect.
- Verify that all rebar is placed properly, per engineering drawings, and has been tied as required.
- Verify that any anchor bolts or connection plates have been formed and placed properly.
- Complete any required building inspections and remember to be ready to cut inspection holes as required so that the code official can inspect the rebar. These holes can easily be patched later with foam adhesive.
- After the inspection is completed, schedule the concrete delivery, pump truck and hold coordination meeting with concrete pour team. Part of this meeting should involve communication planning during the pour. On large job sites the operator of the pump may be quite a distance away from the nozzle and needs to have a radio or other communication method in place so that they can correctly control the flow of concrete.
- Order concrete mix per project engineer's specification. Typical mix design for most applications is minimum 3,000 psi mix with max 3/8" gravel aggregate (washed pea gravel or river rock preferred) and minimum 8 inch slump.
- Wet down the entire inside and outside of the wall one hour prior to the pour. This will ensure the concrete will flow throughout the cores.
- Do a final walk around and look for any obstructions on the slab that may hinder the crew during the pour

- Clean out the wall by cutting inspection holes at the bottom of the wall and using a shop-vac to suck debris out of the bottom of the wall. This ensures concrete flow and bonding to the foundation.

During the Pour

- When the pre-pour meeting has been completed, and the concrete and pump truck are in place you may begin to pour the wall.
- Pour the walls in 4'-6' lifts as you proceed around the building. Monitor concrete flow from the top using a flashlight.
- During the pour, probe the horizontal cores throughout the wall using an 8-in long #2 Phillips screwdriver to ensure full concrete consolidation.
- The first area to be poured should be under each window sill. The concrete should be poured through the window sill area to ensure full concrete consolidation below the window.
- Then proceed to pour the main walls. Start at the first full vertical core from a corner and work away from the corner around the building.
- Avoid pouring directly into jambs or pilasters. When possible, pour into an adjacent vertical core and let the concrete flow in from the side.
- Do not pour concrete over openings until the current lift is at lintel height.
- If access holes are needed to inspect concrete flow or rebar during the pour, holes may be patched by replacing the plug, and tacking it back in place with foam adhesive.
- For typical concrete mix designs used with Bautex walls, concrete flows easily through the cores and can be visually and mechanically checked for consolidation. Vibration may be needed if the concrete is not at design slump or has lost slump during pour. If vibration is needed, each vertical core should be vibrated using a small pencil vibrator (max 1-1/2 inches diameter) that is dropped down for one pass through each vertical core. Care must be taken not to over-vibrate the concrete and cause seperation of the aggregate.
- Subsequent 4' to 6' lifts may then be poured in the same way. Be sure to pour the subsequent lifts while the previous lift is still workable so that a cold joint is not created inside the wall, unless a construction joint has been planned by the project engineer.
- A pencil vibrator should be used to ensure consolidation of concrete between lifts. The vibrator should stay ahead of the pour and be inserted through the current lift being poured into the lift below. Care must be taken not to over-vibrate the concrete and cause seperation of aggregate.
- Immedietly after the pour is completed, walls should be washed down to clean any spilled concrete off the walls so that it does not interfere with finishes.
- After the pour, the foundation and job site should be checked and cleaned for any spilled concrete prior to leaving the site.
- When nearing the top of each floor height, make sure to stop the pour at least three inches below the top of the form if there will be additional floors above and pour to the top of the form if this will complete the concrete pour on the project.
- All bracing and shoring must be left in place until removal of bracing and forming is directed by the structural engineer.

Concrete Placement

Figure 16a: Pre-wetting of forms prior to pour.

Figure 16b: Wall pour using kevlar sleeve and pour box.

Figure 16c: Wall pour under existing structure.

Figure 16d: Pencil vibrator on whip during wall pour.

Routing of Electrical, Plumbing and HVAC Systems

Electrical and plumbing chases may be run in two different ways with the Bautex Block Wall System.

One option is to run the conduit or pipe up through the slab and into the face of the Bautex Block. These chases are simply cut into the the first two inches of the Bautex Block. After the conduit and boxes are run, care should be taken to seal the edges of the cuts with foam adhesive.

Another option is to install furring channels on the inside of The Bautex Block and run plumbing and electrical conduit between the sheetrock and The Bautex Block Wall.

All electrical, plumbing and HVAC penetrations from the outside to the inside of the structure should be made after the concrete pour unless penetration will pass through a core area. If penetration needs to occur through a core(s), the area should be treated as an opening and formed according to plans. These penetrations can be accomplished with a simple hole saw of the desired diameter, or by hammering a pipe of equal diameter through the block.

Care should be taken, when possible to avoid the concrete core areas with full wall penetrations. If the penetration does include the core, care must be taken that the perimeter of the penetration is sealed with foam adhesive prior to the concrete pour. Penetrations of more that 1-1/4” conduit or pipe must not be placed in any concrete core area. The placement of any mechanical systems in the concrete core area is not common, and must be approved by the project engineer.

Figure 17: Mechnanical items installed in Bautex Wall

Finishes

Air and Moisture Barriers

Bautex Air and Moisture Barrier (AMB 20) is applied after the wall has been poured and allowed to set up for 48 hours or more and the bracing and forming have been removed.

Next, any gaps larger than 1/8” or areas where dissimilar materials meet should be covered with TK Super Seal PE sealant, or an approved equal or TK Climate Flash tap, or an approved equal. Any window and door flashing should also be installed per manufacturers instructions.

The Bautex Air and Moisture Barrier (AMB 20) can then be spray applied to a wet thickness of 40-45 mils that will dry to a 22-28 mil thickness, typically 30-40 ft^2 per gallon (varies by product, see product data sheet for details). It is recommended that an experienced contractor be used for the installation of the Bautex Air and Moisture Barrier.

Mechanically attached house or commercial wraps are never recommended for use with the Bautex Block Wall System.

Exterior Finishes

Masonry

Masonry finishes consisting of full thickness brick or stone may be easily installed over the Bautex Block Wall System.

The first step for masonry construction is to select the appropriate masonry anchors for the wall system. There are several commercially available masonry ties and anchors that are suitable for use with the Bautex Block. Please consult with the Bautex Construction Support Team for masonry anchor and tie selection.

The masonry anchor should be installed prior to the concrete pour, per the manufacturer’s installation instructions and job specifications. The anchor is typically driven through the face of the Bautex Block centered on one of the horizontal or vertical cores. Space anchors as indicated in construction drawing or specifications.

After the concrete is poured and the AMB-20 is installed, the masonry ties may be placed into the slot on the anchor. The masonry may then be applied per normal construction practice, ensuring proper maintenance and drainage of the cavity between the masonry veneer and the Bautex Block Wall System.

Stucco

Stucco finishes on a Bautex Block wall should be approached the same way stucco finishes are designed on an EIFS wall system and be applied to the Bautex Block Wall System directly over the air and moisture barrier.

Like all masonry products, the Bautex Block will absorb water if left unprotected. For this reason, the stucco system used must have an integral moisture barrier as part of the system, or must be compatible with direct application over a primary air and moisture barrier system like Bautex AMB 20 fluid applied or fluid applied and memberane air and moisture barriers from other manufacturers.

Figure 18: Application of air and moisture barrier

A one-coat stucco like StuccoMax™ by GigaCrete, Inc. can be installed directly to the Bautex wall that is coated with the Bautex Air and Moisture Barrier without the need for metal lath or other mechanical connector. StuccoMax provides a very strong and durable finish for the exterior of the Bautex Block Wall System. Other synthetic and EIFS stucco products can also be used directly on the Bautex Block Wall System.

Panel Systems

Panel systems and siding can be attached to the Bautex Wall by use of Bautex Wall Anchors or concrete fasteners of appropriate length to attach to the concrete through the insulation of the Bautex Block.

The typical panel system will use furring strips or attachment channels screwed directly to the Bautex Wall Anchors. Refer to construction drawings for installation details.

Interior Finishes

Sheetrock

Sheetrock is installed by two different methods:

The first method is to install sheetrock using a standard metal furring channel system attached to the interior of the Bautex Block Wall System. The furring channels are attached to the wall using Bautex Wall Anchors or concrete fasteners.

The second method is to adhere the sheetrock directly to the Bautex Block Wall System using the same foam adhesive used to build the wall. A perimeter bead and “x” pattern of glue or zigzag pattern should be applied to the back of the sheetrock and then press the sheetrock to the wall. Sheetrock screws can be used to temporarily hold the sheetrock to the wall while the glue cures. This creates a strong bond and the Bautex Block Wall System provides a solid backing to the sheetrock furnishing a more durable interior finish.

Plaster

Plaster should be applied directly to the interior surface of the Bautex Block Wall System per the manufacturer’s instructions. PlasterMax™ by GigaCrete, Inc. works incredibly well and provides a high quality abuse resistant finish for the Bautex Block Wall System.

Interior Demising Walls

Interior demising walls may be attached after the concrete pour using commercially available concrete anchors (i.e. Tapcon®, Hilti®, etc.).

As an alternative, attachment points for demising walls can be installed prior to the concrete pour using the Bautex Wall Anchor or other commercially available embedded anchor designed for use with concrete masonry units.

Consult the architect, project engineer and design documents for locations and attachment specifications.

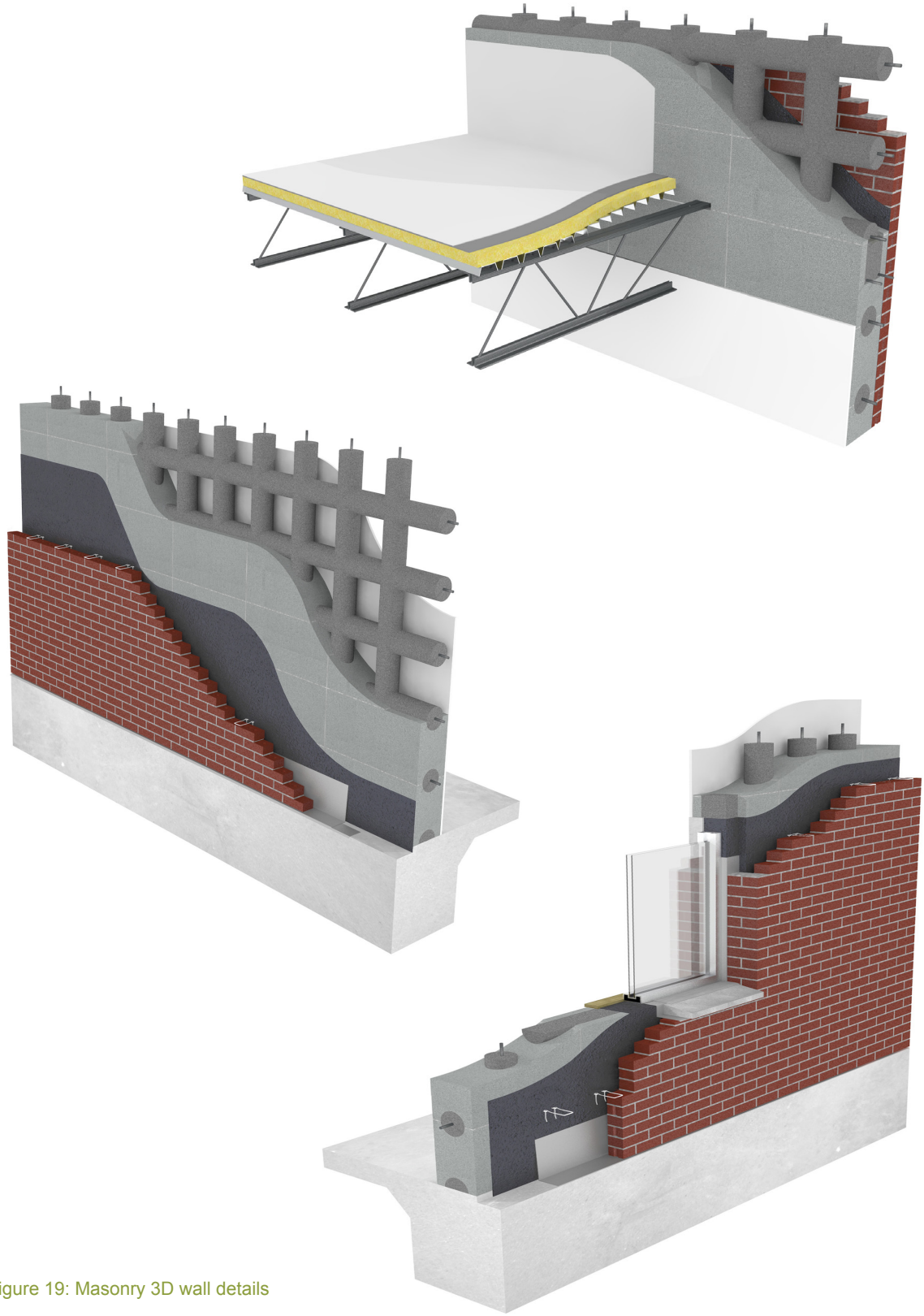


Figure 19: Masonry 3D wall details

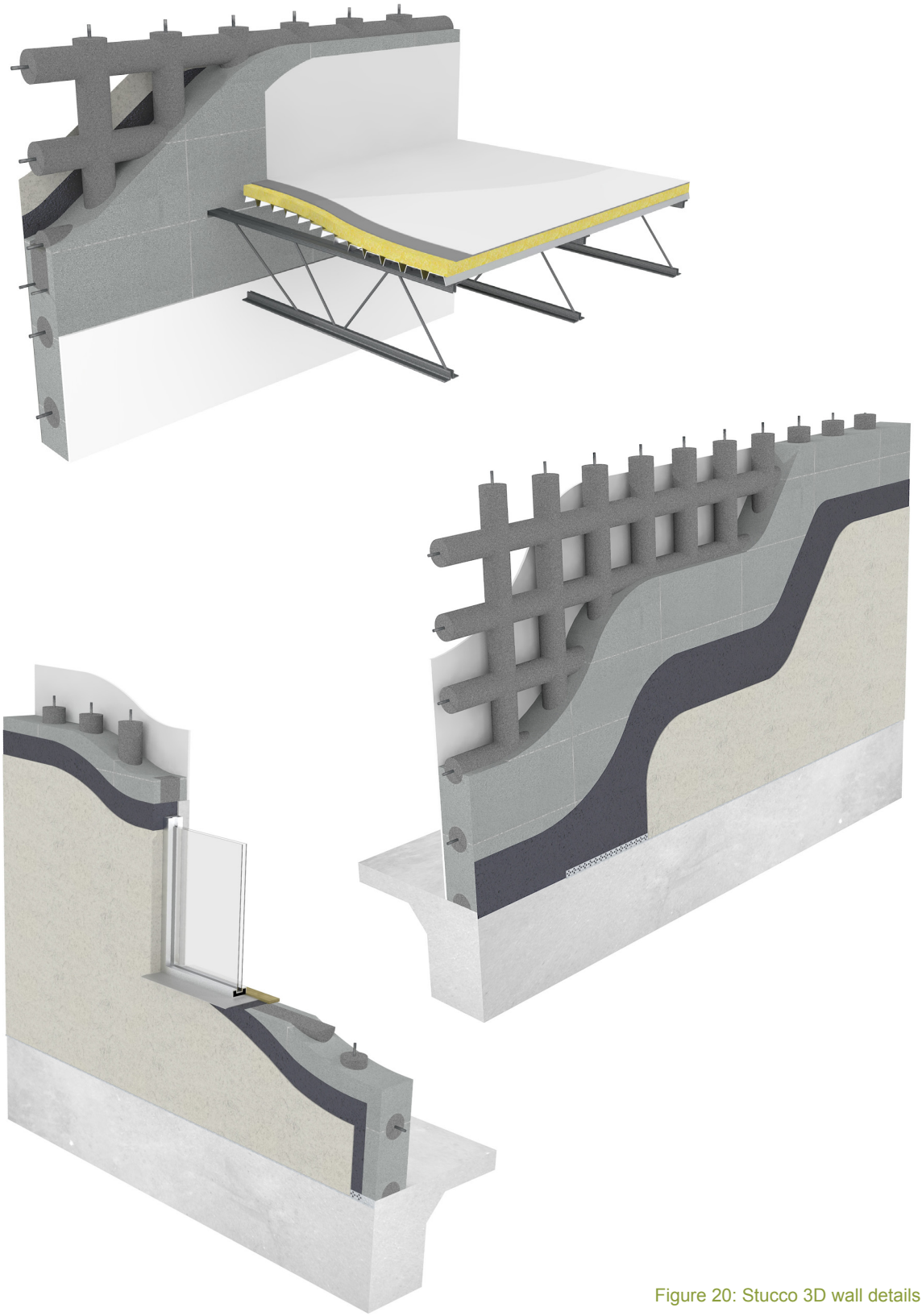


Figure 20: Stucco 3D wall details

Finishes

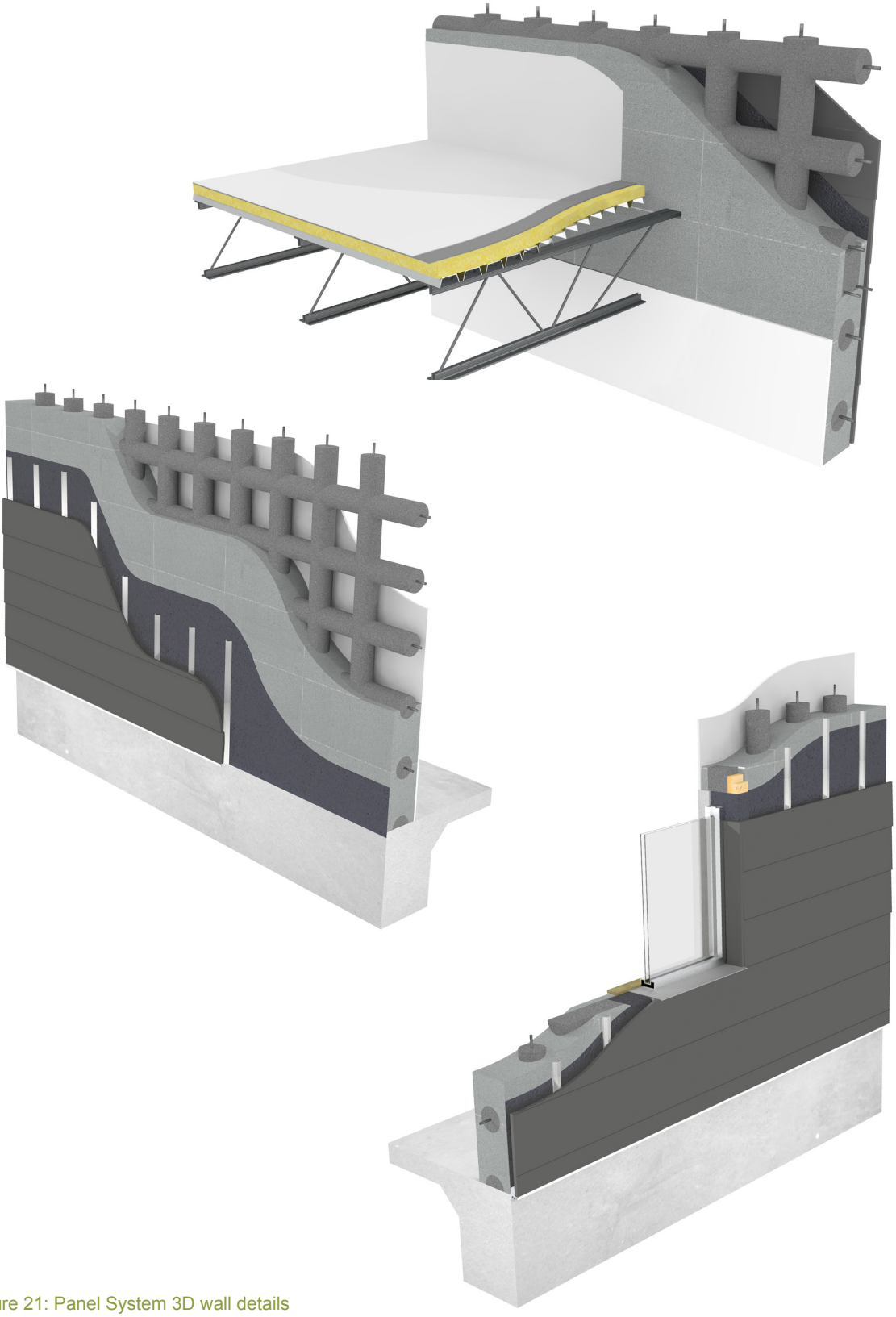


Figure 21: Panel System 3D wall details

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