

Logix effective R-values range from R-24 to R-28+



Insulated concrete forms (ICF) are becoming a main stream choice for the construction of mid-rise buildings. A prime example would be the city of Waterloo, Ontario, Canada, in which there have been over 100 ICF mid-rise buildings constructed in the last decade, with most located within a single square mile. And there are more and more being built throughout North America.

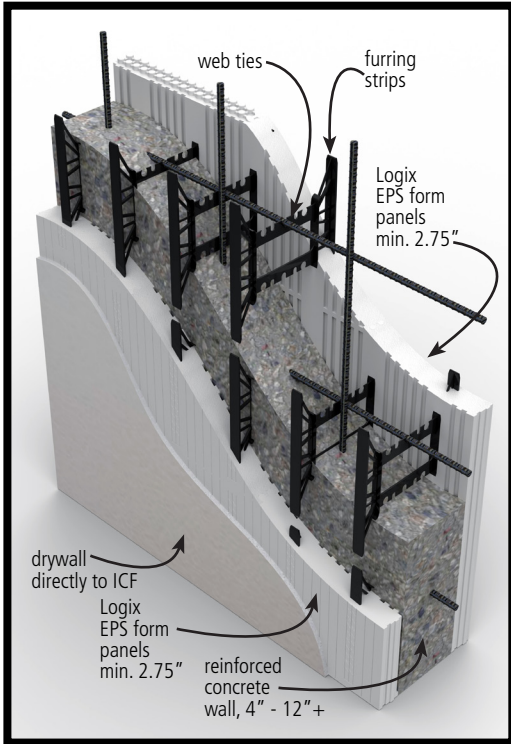
So what's driving the use of ICF construction for mid-rise buildings? The bottom line is that there are inherent benefits to ICFs not found in conventional construction (wood, CMUs, and conventional poured-in-place concrete) that add up to savings for designers, builders and developers.

DESIGN

The inherent benefits of building with Logix that cannot be found with conventional construction makes it attractive to developers who get a faster return on their investment while producing a quality building.

Simple, fast and efficient to build with Logix makes mid-rise construction more cost effective compared to conventional construction - even allowing construction to continue through cold winter months.

In addition, the high energy efficient and airtight buildings that Logix naturally creates can significantly reduce heating and cooling costs.



Logix provides additional products that makes the design process with ICFs easier for engineers. See "Specific Logix ICF Products That Enhance Speed & Efficiency for Mid-rise Construction" in this document.

Logix also maintains a CAD library of common, and not so common, drawing details use by architects and engineers. The CAD library contains a variety of details from foundation to roof that can apply to residential and commercial projects. To view the CAD library online visit the [Logix Technical Library](#).

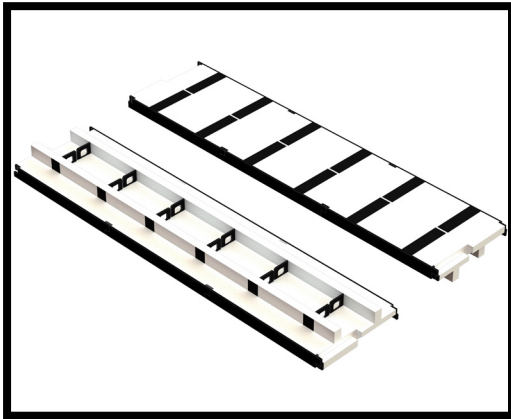
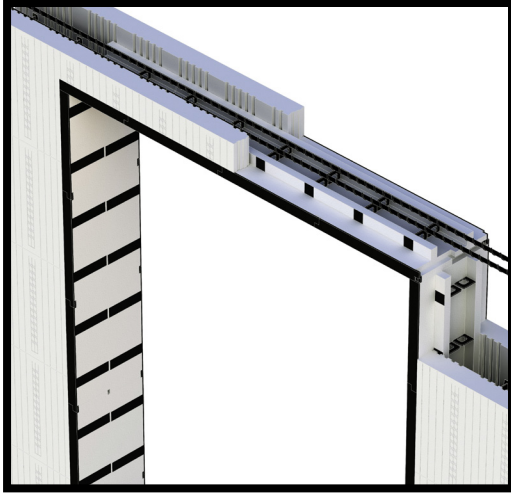
Safety can also be a factor for developers. Logix mid-rise buildings are stronger and are more fire resistant than wood structures. During construction a wood building is more likely to collapse during a fire compared to buildings made of reinforced concrete.

Since Logix ICF are permanent formwork systems for reinforced concrete walls, the structural design of ICFs is based on the same design principles and design codes (ACI 318 and CSA A23.3) as conventional reinforced concrete structures. This makes it an easy transition from conventional concrete to ICFs for design engineers.

In addition, because the concrete is perpetually insulated, and protected from the elements, shrinkage and temperature cracks are reduced, which could reduce the amount of rebar required to control shrinkage and temperature cracks.

For architects, the added detailing required, including the costs of added materials and labor, to comply with the new, and more stringent, energy efficiency requirements increases with conventional construction. However, the high thermal insulation values inherent in Logix ICFs, including the thermal mass properties of concrete, can readily meet the new energy requirements without adding material costs or labor, and makes detailing less cumbersome.

Due to the thick rigid foam insulation, and mass properties of concrete, ICFs are also known to provide high STC values, and are commonly used not just for



the exterior but interior or partition walls where high STC values are required.

CONSTRUCTION

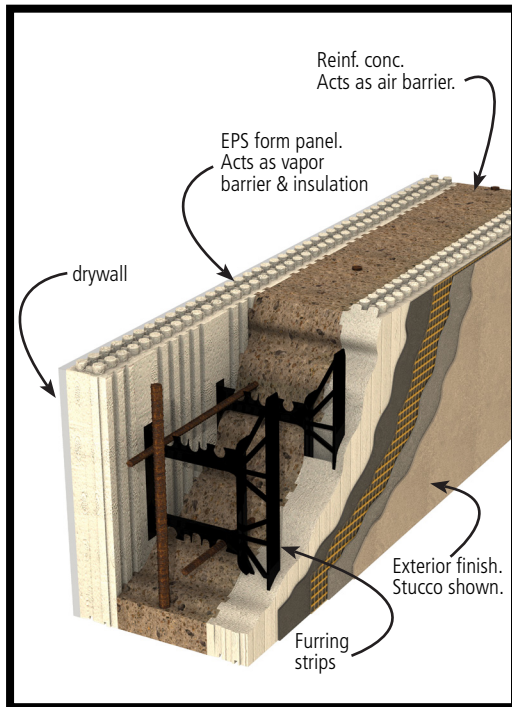
For mid-rise buildings designers typically use ICFs to create the building's shell, and interior walls where high STC values are required. Precast concrete floors, instead of poured-in-place, are often preferred to match the speed and efficiency of ICF construction.

With precast floors, no material and labor is required for shoring and formwork. The design detail between precast floors and ICF walls are also very similar to conventional concrete.

Punch out window designs are very cost effective with ICFs and optimize the wall to opening area ratio, which maximizes the building's thermal performance. In addition, compared to wood buck, Logix Pro Bucks provide a faster install while creating a complete thermal break around openings.

Any type of exterior finish or attachment, such as brick, panels, stucco and siding, can be attached to Logix ICF. These are typically attached with fasteners to the polypropylene furring tabs embedded within the form panels.

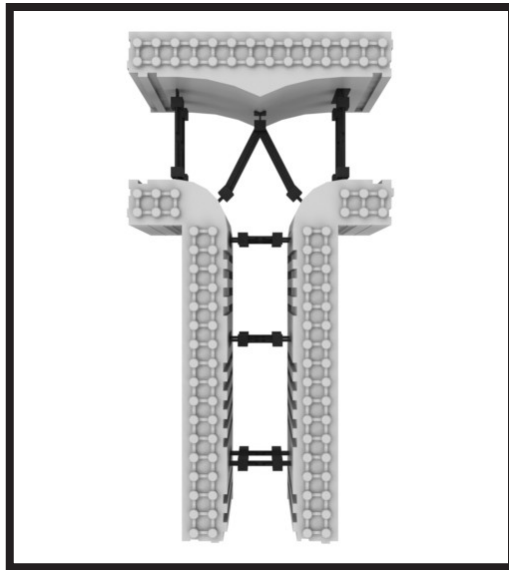
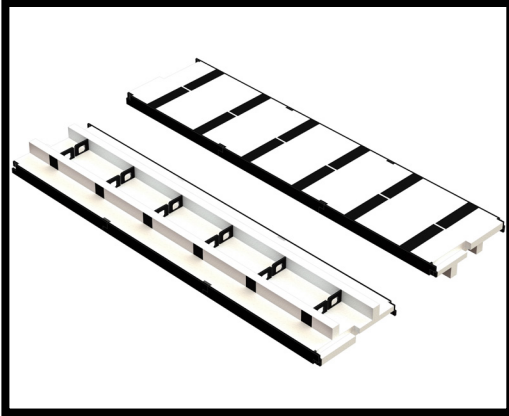
However, for mid- to high-rise buildings designers typically prefer to fasten cladding directly into the concrete of the ICF wall. In the event of a fire or unusually strong winds, fastening direct to concrete



ensures the cladding material will not detach and fall from tall heights.

There are many other benefits that make Logix faster, easier and less labor intensive than conventional construction. This can add up to significant savings compared to wood, cmu or conventional concrete structures.

- **Made primarily of rigid foam, Logix is extremely lightweight and durable.** A typical Logix form, 16" tall x 48" wide, can weigh just a few pounds. This makes it faster and easier to work with than conventional construction. Also, Logix forms are erected with simple handset tools and so less skilled labor is often required
- **Reduces trades required on the job site.** A typical Logix wall assembly combines six building components (concrete, rebar, insulation, air barrier, vapor barrier and furring strips) into a single building system that is efficiently installed all at once.
- **Consistent curing of concrete walls.** The concrete wall structure within Logix is perpetually insulated creating ideal curing conditions even during extreme temperature swings. During cold winters no additional protection from the elements or heating is required making it feasible to work during the winter season.



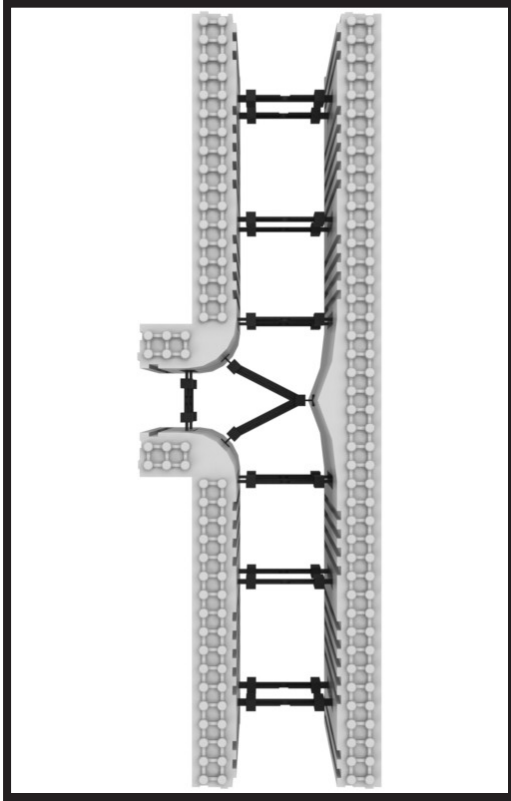
- **Reduces wood forming material and site waste.** The strength of Logix to resist form pressure comes from the thick rigid form panels held together with polypropylene cross ties. The forms are strong enough that conventional wood forming is not required.
- **User friendly.** To build a wall Logix ICFs are simply stacked in a running bond pattern - similar to building a wall with CMUs. Most construction crews are comfortable with ICFs with a day of training, and most masonry builders find the transition from CMU to ICFs quick and simple due to its similarity in building.

SPECIFIC LOGIX ICF PRODUCTS THAT ENHANCES SPEED & EFFICIENCY FOR MID-RISE CONSTRUCTION

Logix offers additional products that make it even faster and easier to design and construct Logix mid-rise buildings. For a full list of Logix ICF products and accessories visit logixicf.com and follow the "Technical Library" link.

Logix Pro Buck

Logix Pro Buck is designed to replace wood bucks and create a complete thermal break around window and door openings. Because wood bucks are not required, the savings in wood material and reduction in jobsite waste can add up for mid-rise construction.

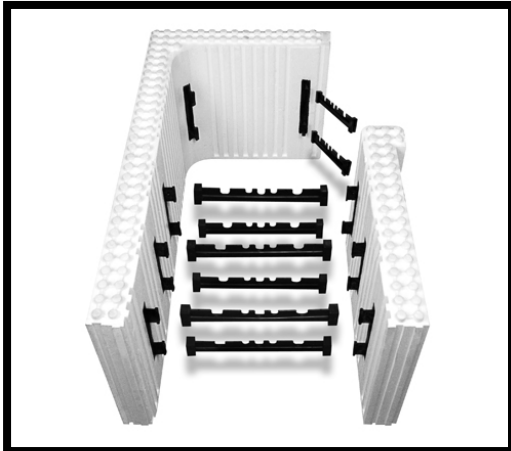


Made of dense molded expanded polystyrene (EPS), Logix Bucks are durable and lightweight making it faster and easier to work with compared to wood bucks.

Designed to fit with Logix ICF, Logix Pro Bucks are easily secured around the window openings and provides plenty of fastening points for bracing and window/door framing.

Logix T-walls

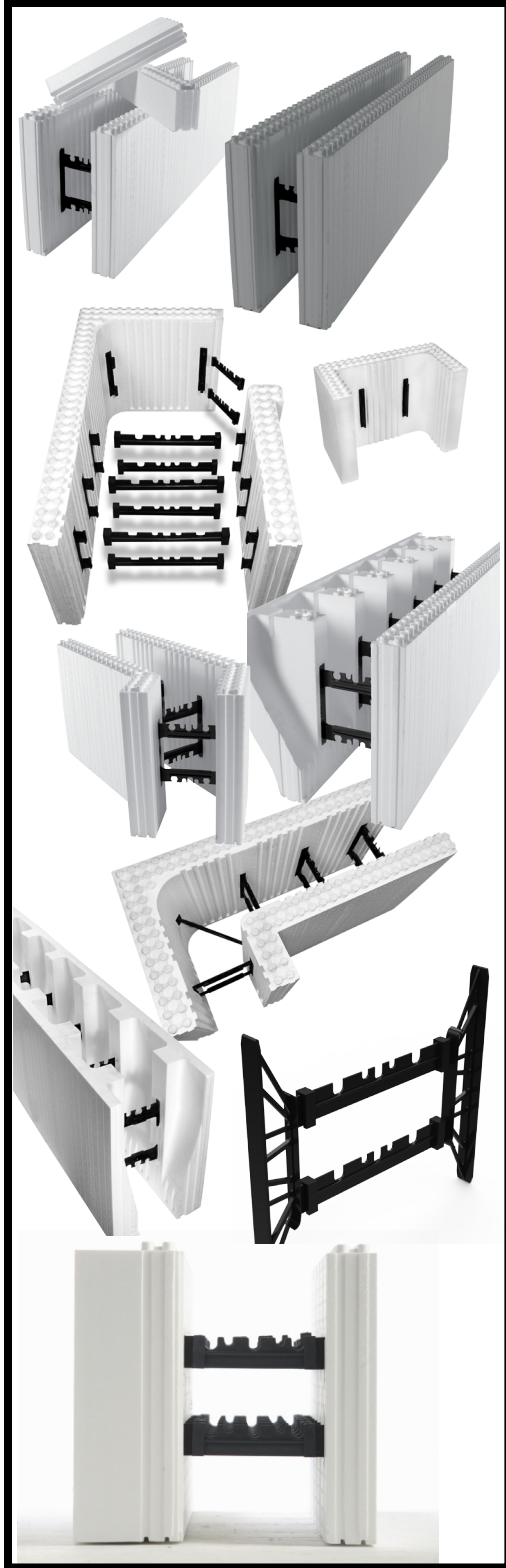
Logix Standard forms can be easily cut to form t-wall junctions. However, for fast and efficient installation Logix also provides Logix T-wall ICFs. Logix T-walls are preformed ICFs that form t-wall junctions without the need to cut the ICFs, and requires less form support.



Logix Hybrid

Logix Hybrid is the construction of Logix walls made up of Logix Pro forms (assembled ICFs) and Logix Knock-down forms (Logix KD). Logix KD forms are ICFs assembled on the jobsite.

The majority of the wall may be built with Logix Pro forms to simplify construction and build efficiently. However, Logix KD forms ease ICF construction in places where heavy rebar congestion is encountered.



TYPICAL LOGIX MID-RISE DESIGN DETAILS

The following drawings show examples of typical architectural and structural details used in ICF mid-rise buildings. Although these details are common for ICF mid-rise construction, they are meant for information purposes only, and as a guide, for the designer/ builder. More drawings from foundation to roof details can be found in the [Logix Technical Library](#).

Logix also provides project specific technical support by providing on-site training, and assisting designers and builders to ensure they have the proper details required for their projects.

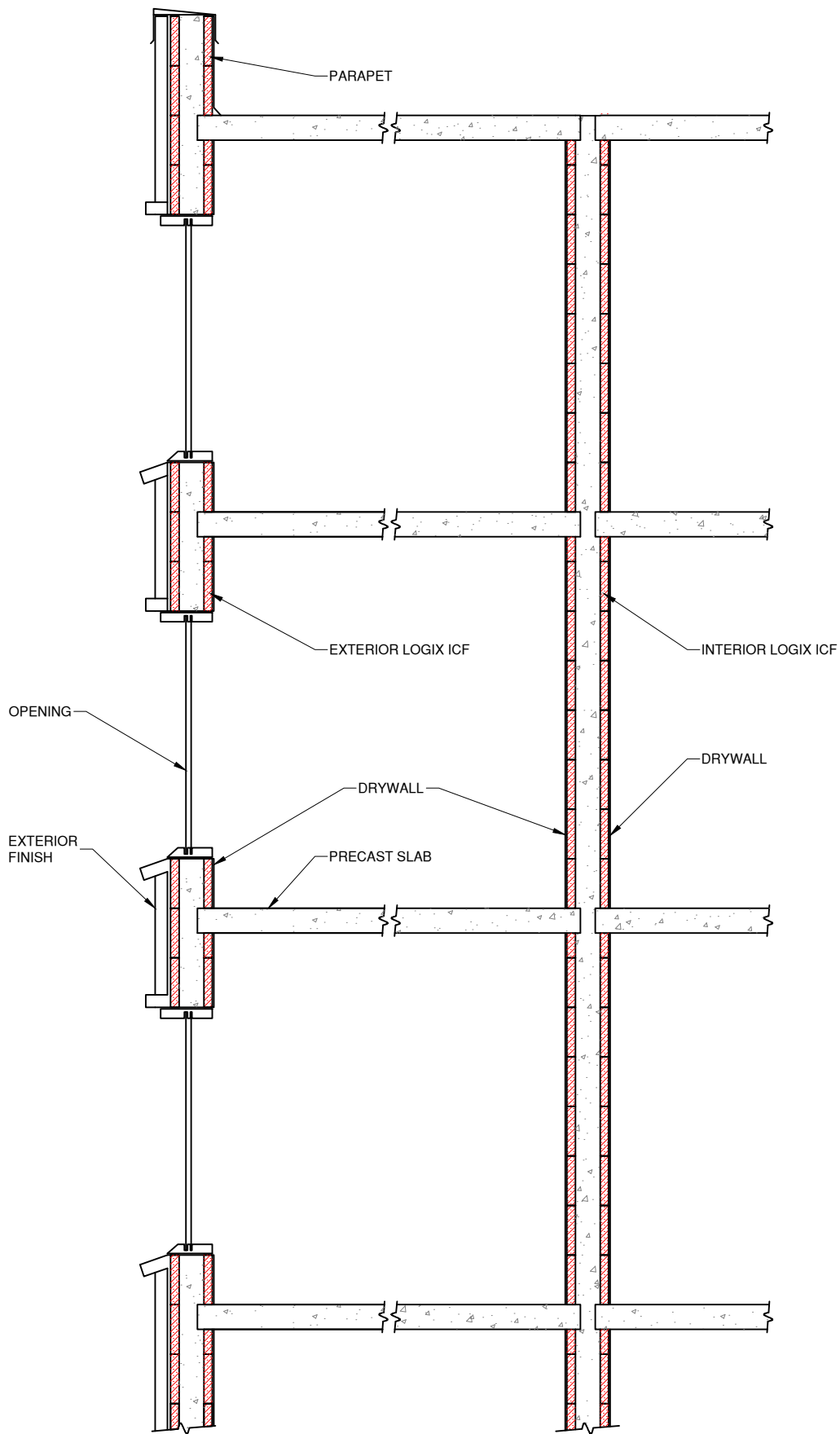
For more information contact your local Logix representative, or e-mail us at info@logixicf.com.

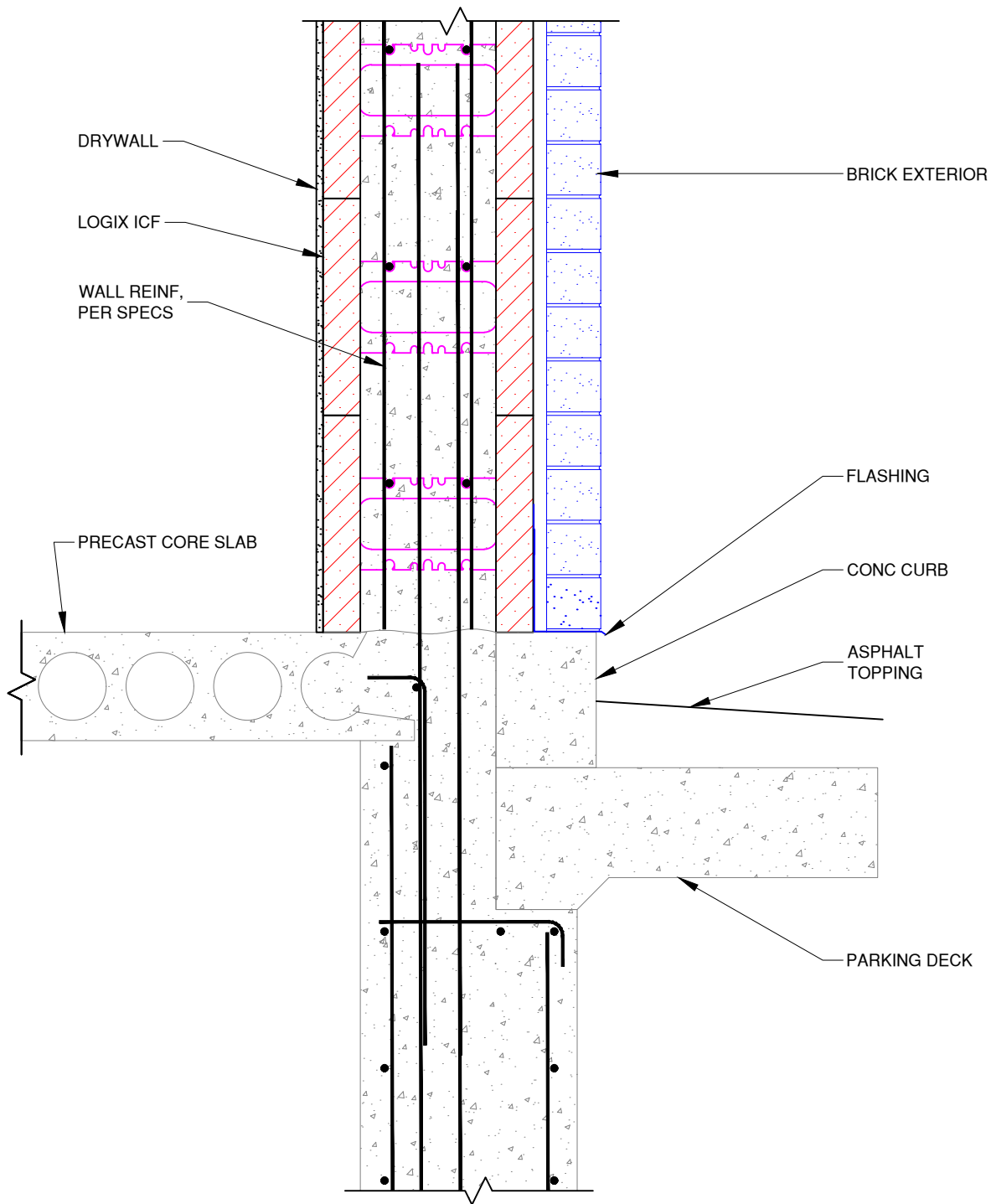
MID-RISE EXAMPLE DETAILS

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NOTES:

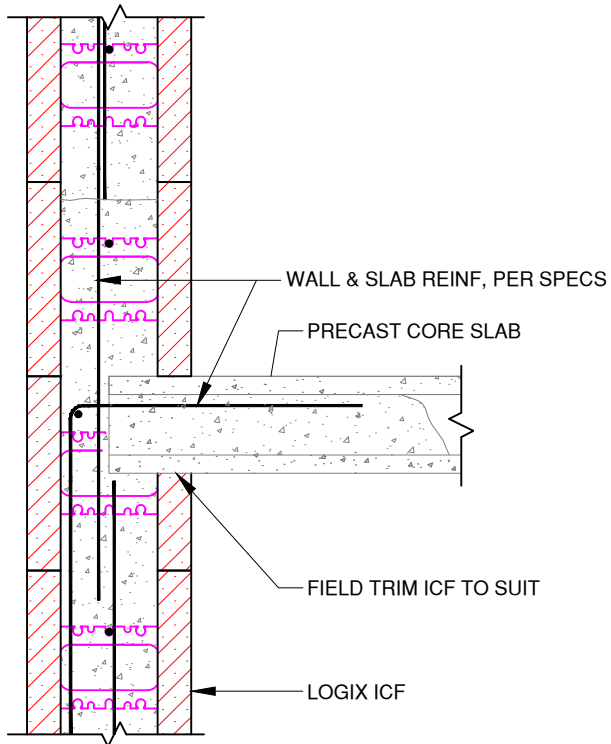
For a full list of available CAD details, including Logix ICF products and specifications, visit the Logix Technical Library at logixicf.com, or email info@logixicf.com.



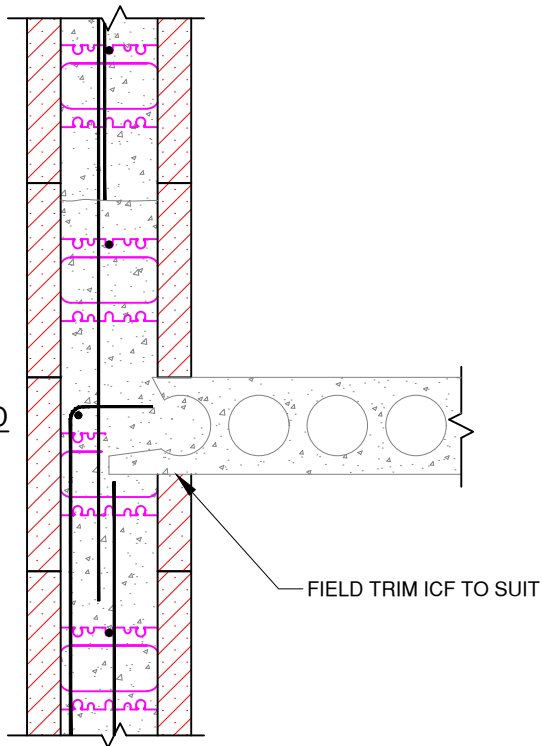


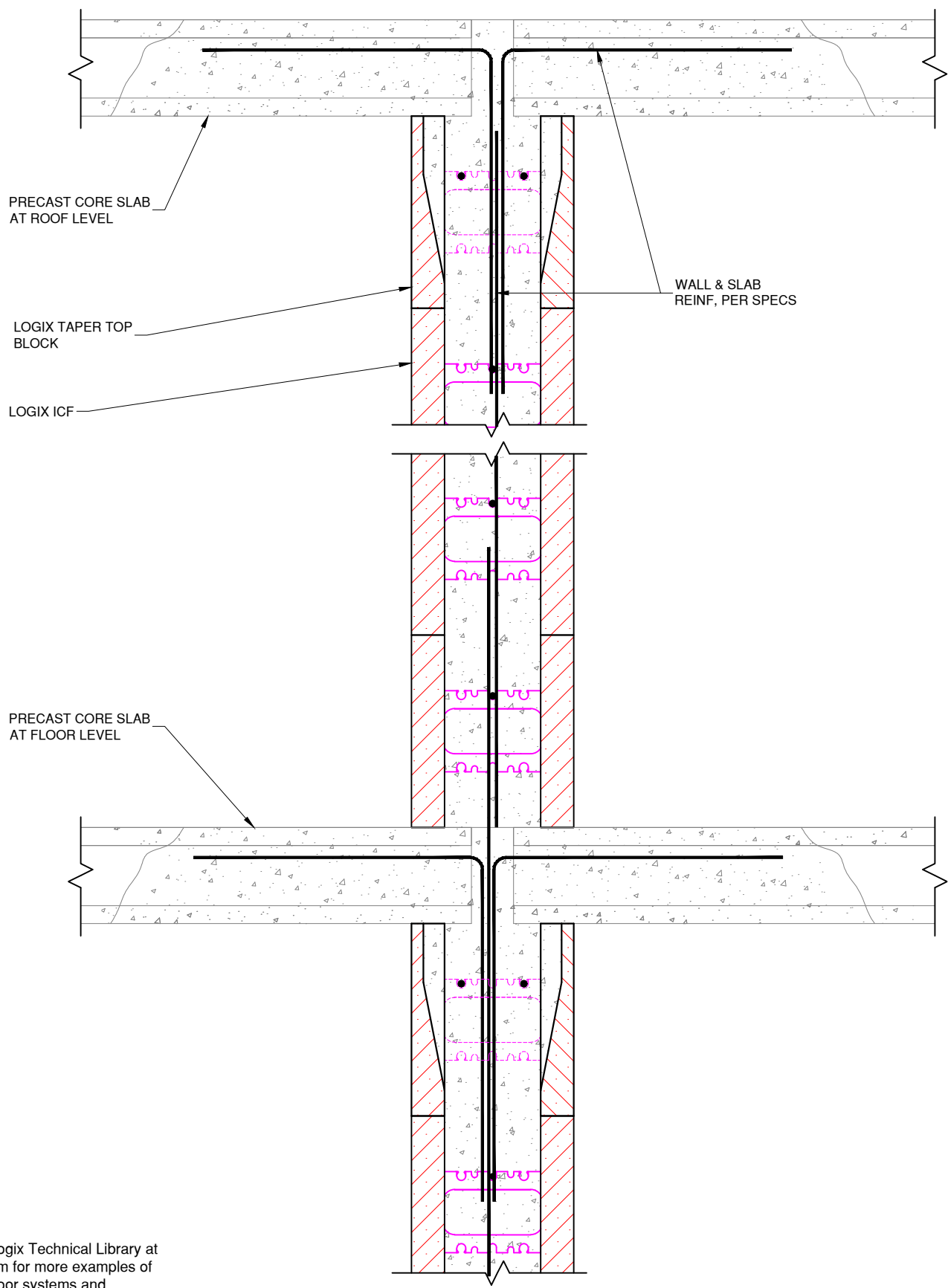
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BEARING END



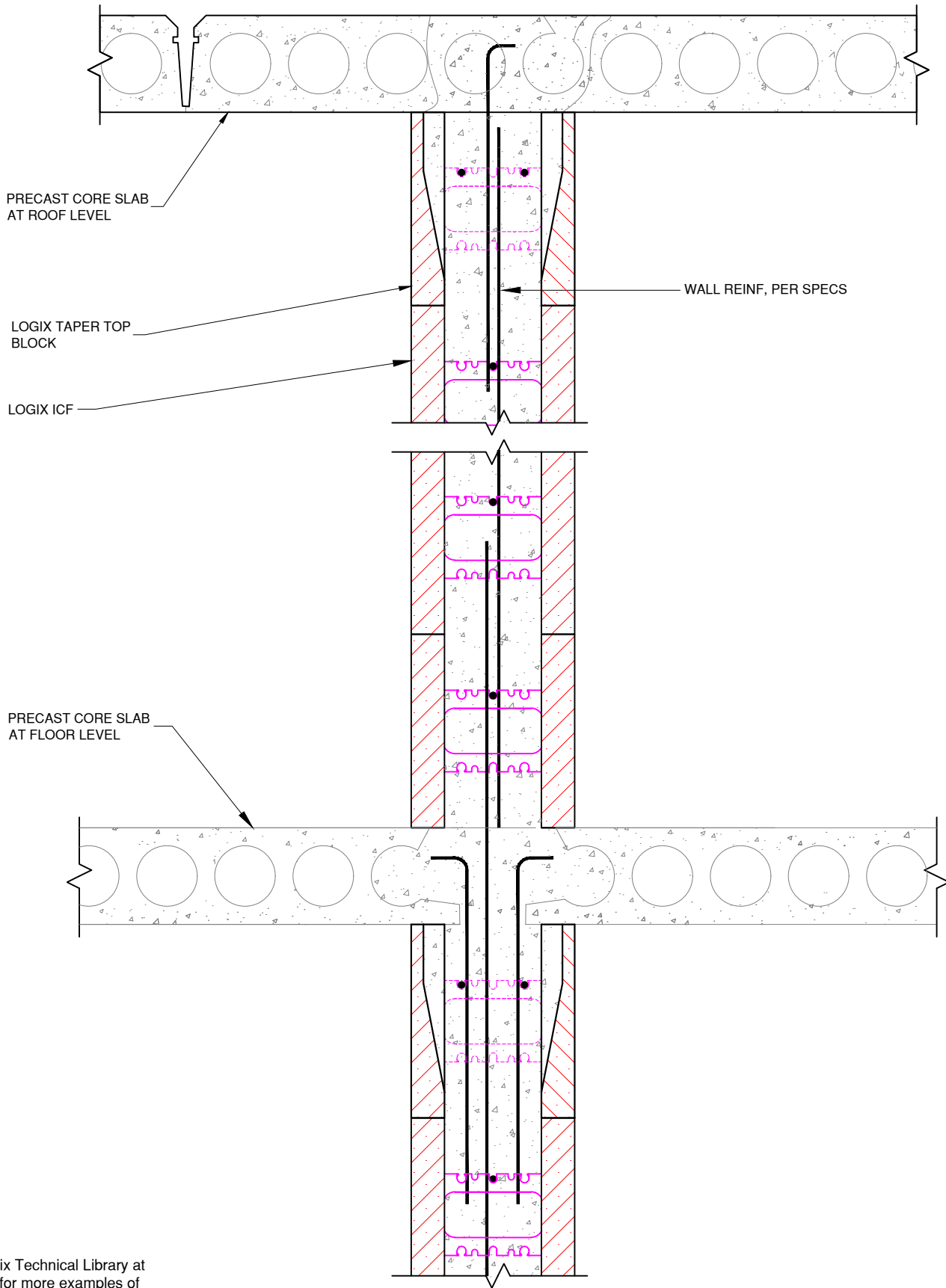
NONBEARING END





NOTES:
 Visit the Logix Technical Library at logixicf.com for more examples of different floor systems and connections

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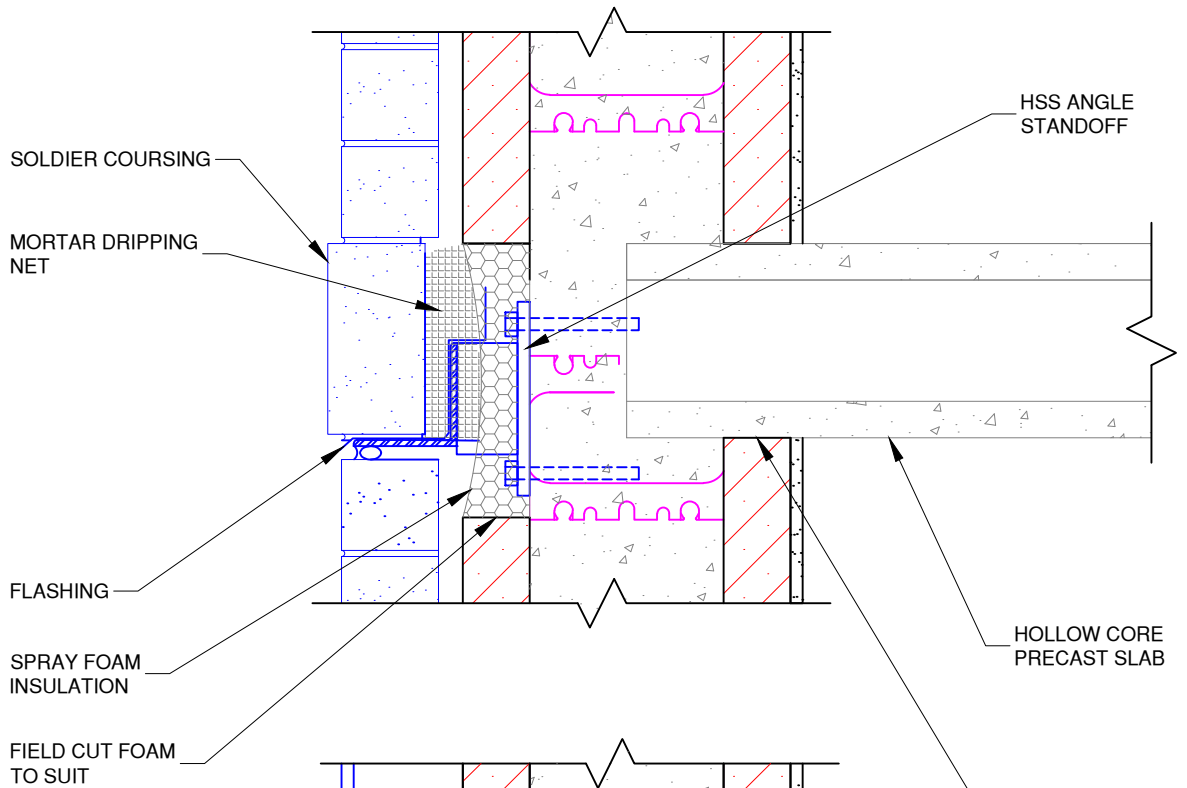
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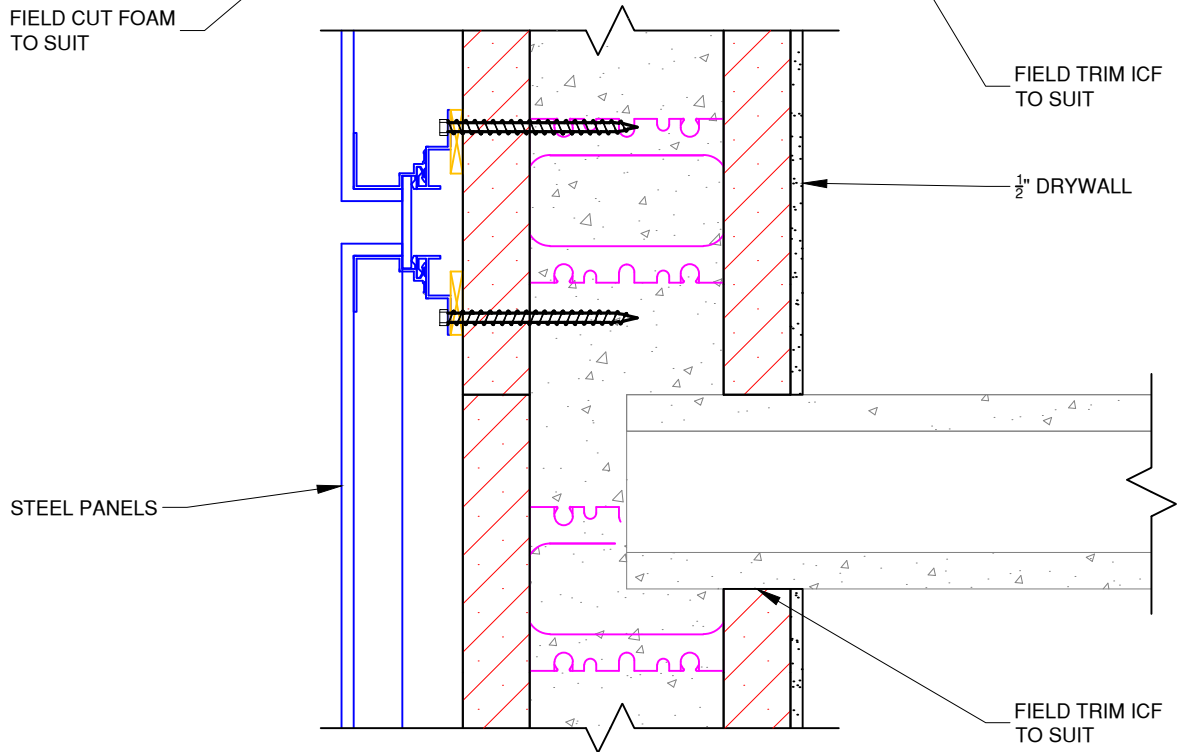
Title:

INTERIOR WALL SECTION - NONBEARING END

BRICK EXTERIOR



STEEL PANELS



NOTES:
 Visit the Logix Technical Library at logixicf.com for more examples of wall transitions.

BRICK EXTERIOR

SOLDIER COURSING

MORTAR DRIPPING NET

FLASHING

SPRAY FOAM INSULATION

FIELD CUT FOAM TO SUIT

HSS ANGLE STANDOFF

HOLLOW CORE PRECAST SLAB

LOGIX TAPER TOP

CEILING

1/2" DRYWALL

1/2" DRYWALL

LOGIX TAPER TOP

STEEL PANELS

STEEL PANELS

NOTES:

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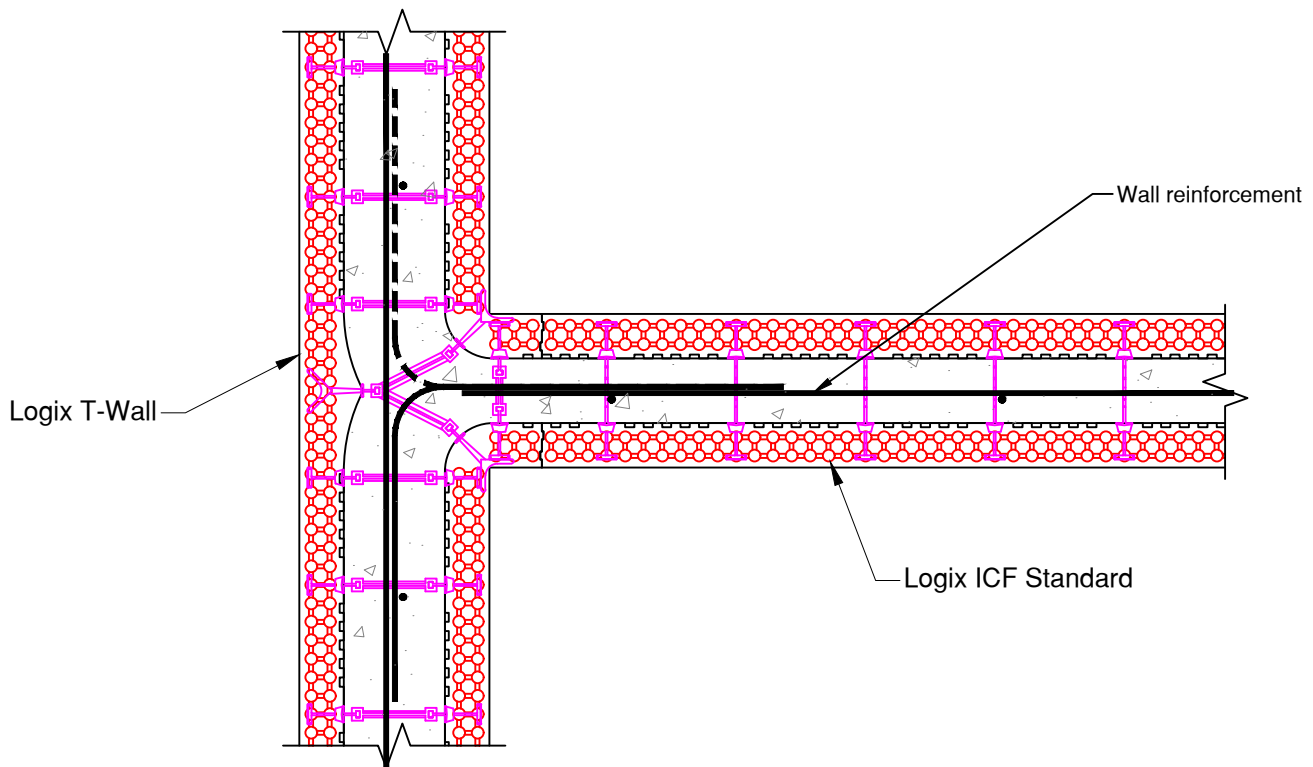
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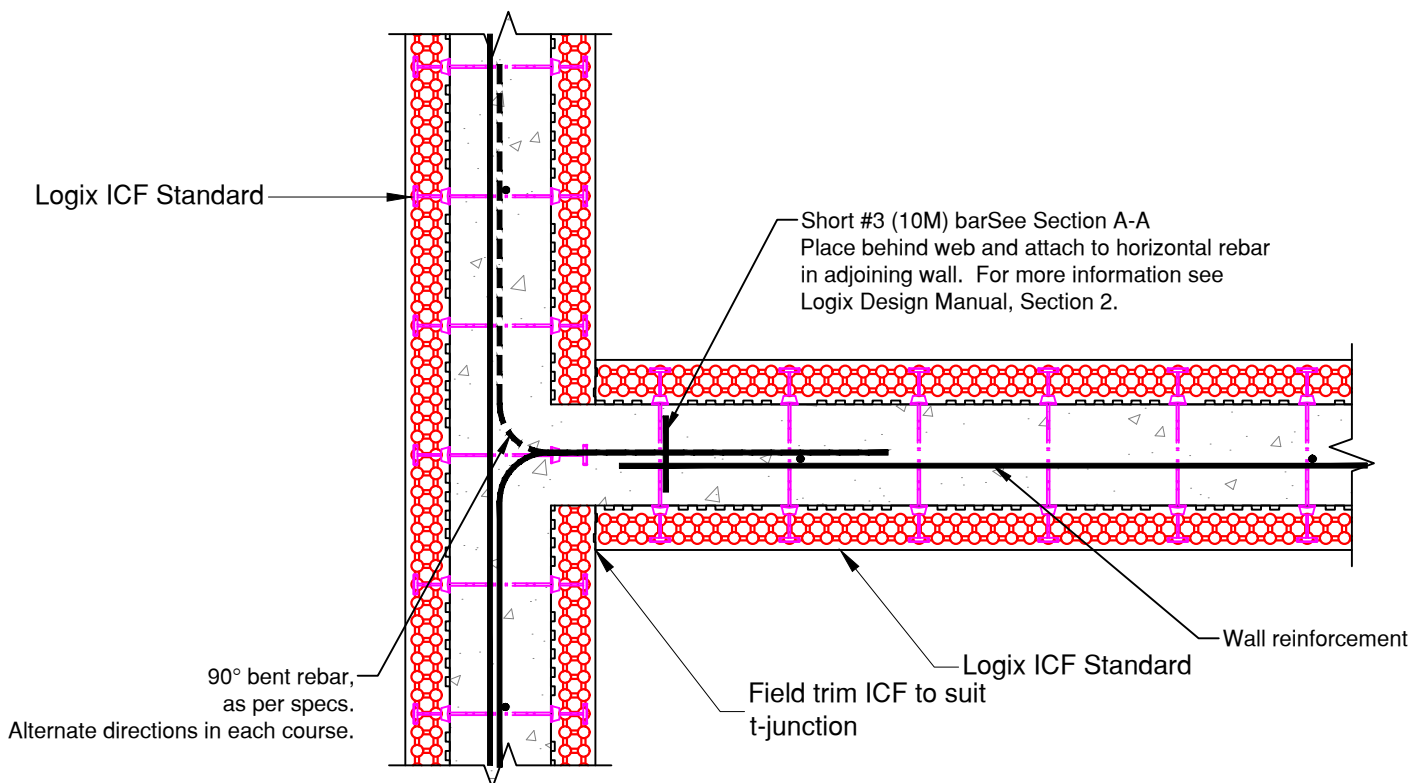
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Title:

WALL TRANSITIONS WITH LOGIX TRANSITION BLOCK

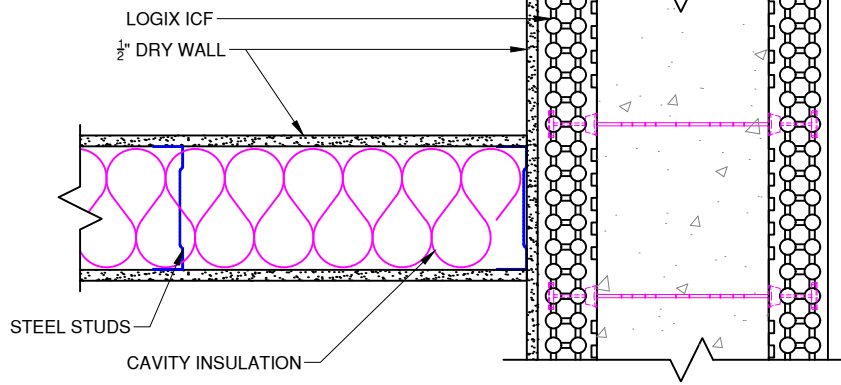


T-WALL JUNCTION WITH LOGIX T-WALL ICF

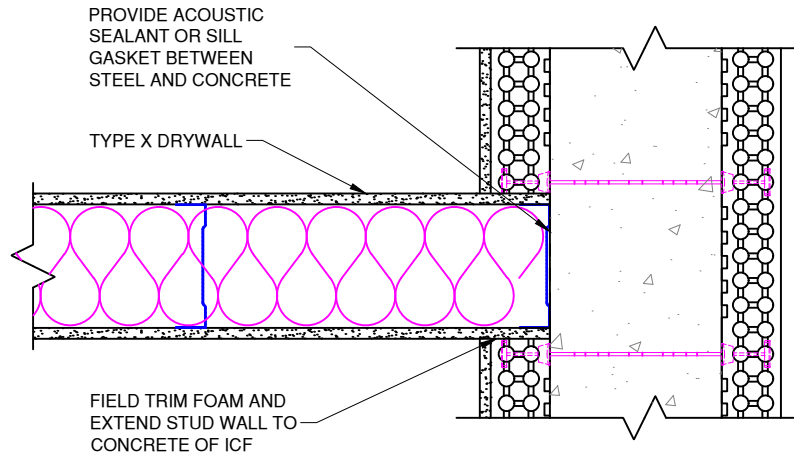


T-WALL JUNCTION WITH LOGIX ICF STANDARDS

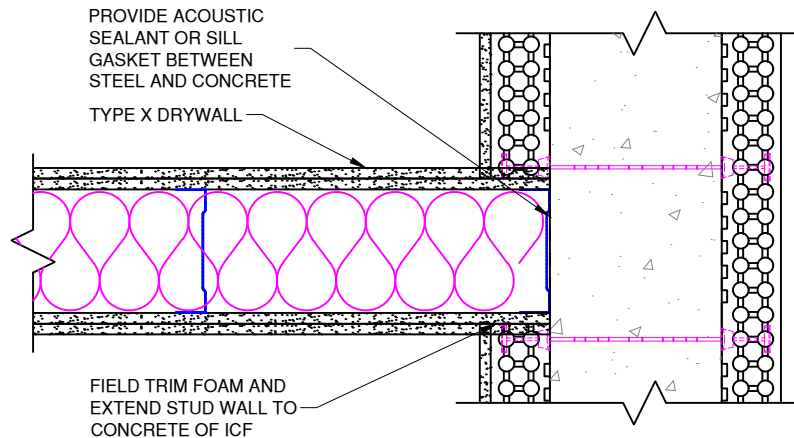
TYPICAL INTERIOR NON-FIRE RATED PARTITION



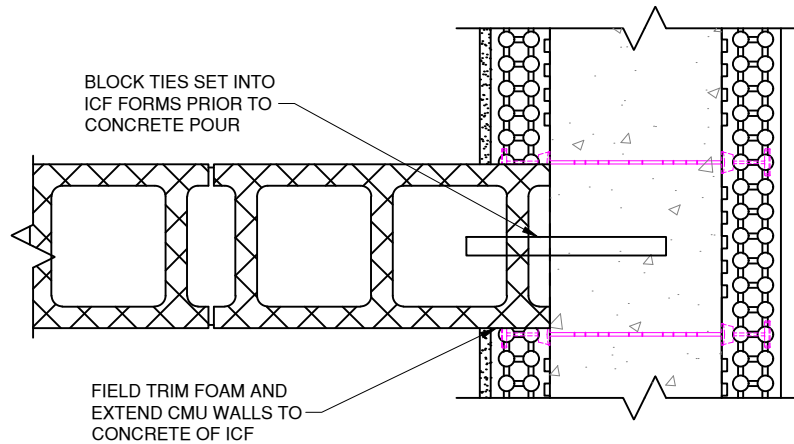
TYPICAL 1 HR FIRE RATED UNIT SEPARATION PARTITION



TYPICAL 2 HR FIRE RATED UNIT SEPARATION PARTITION



TYPICAL FIRE RATED UNIT SEPARATION PARTITION



NOTES:
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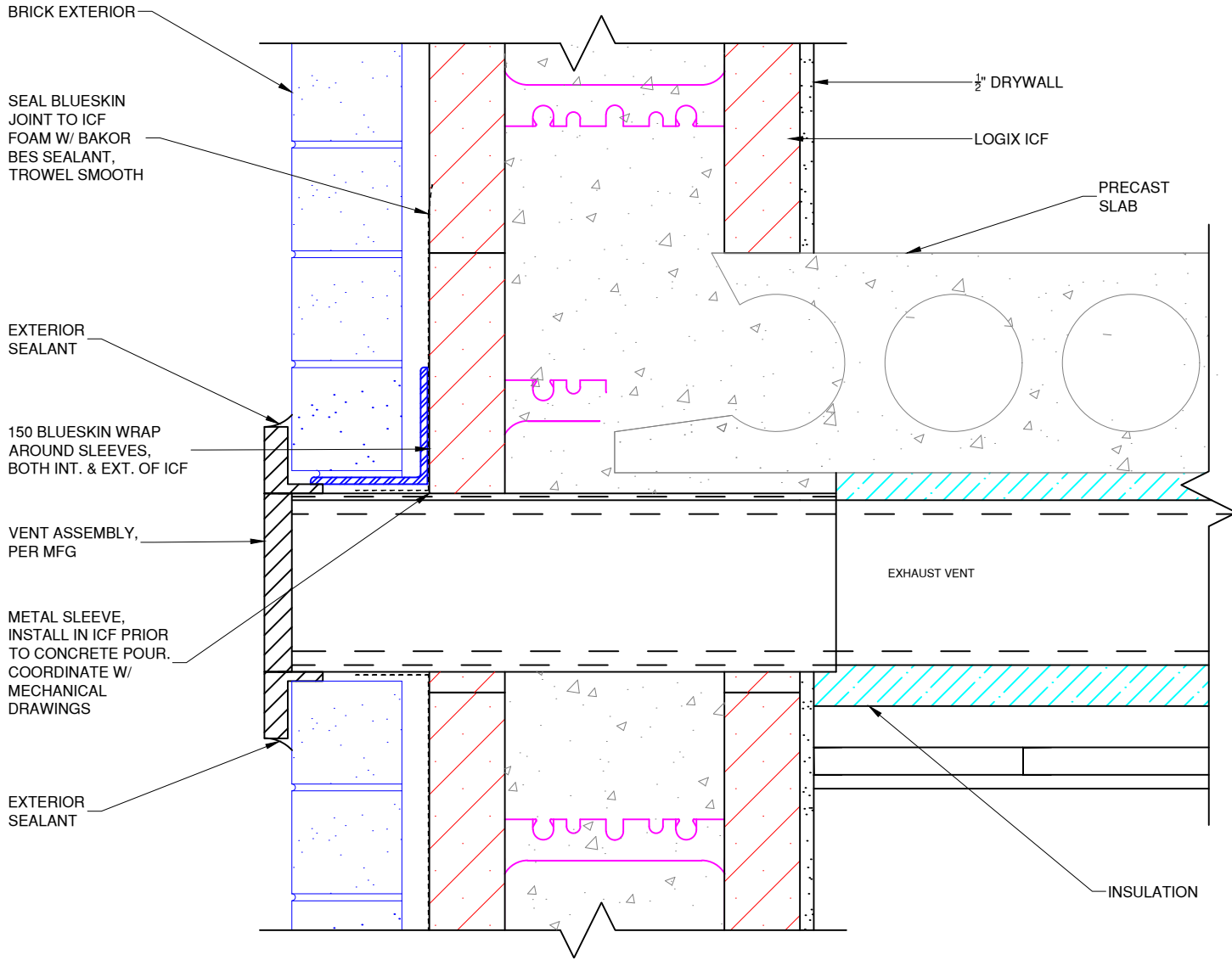
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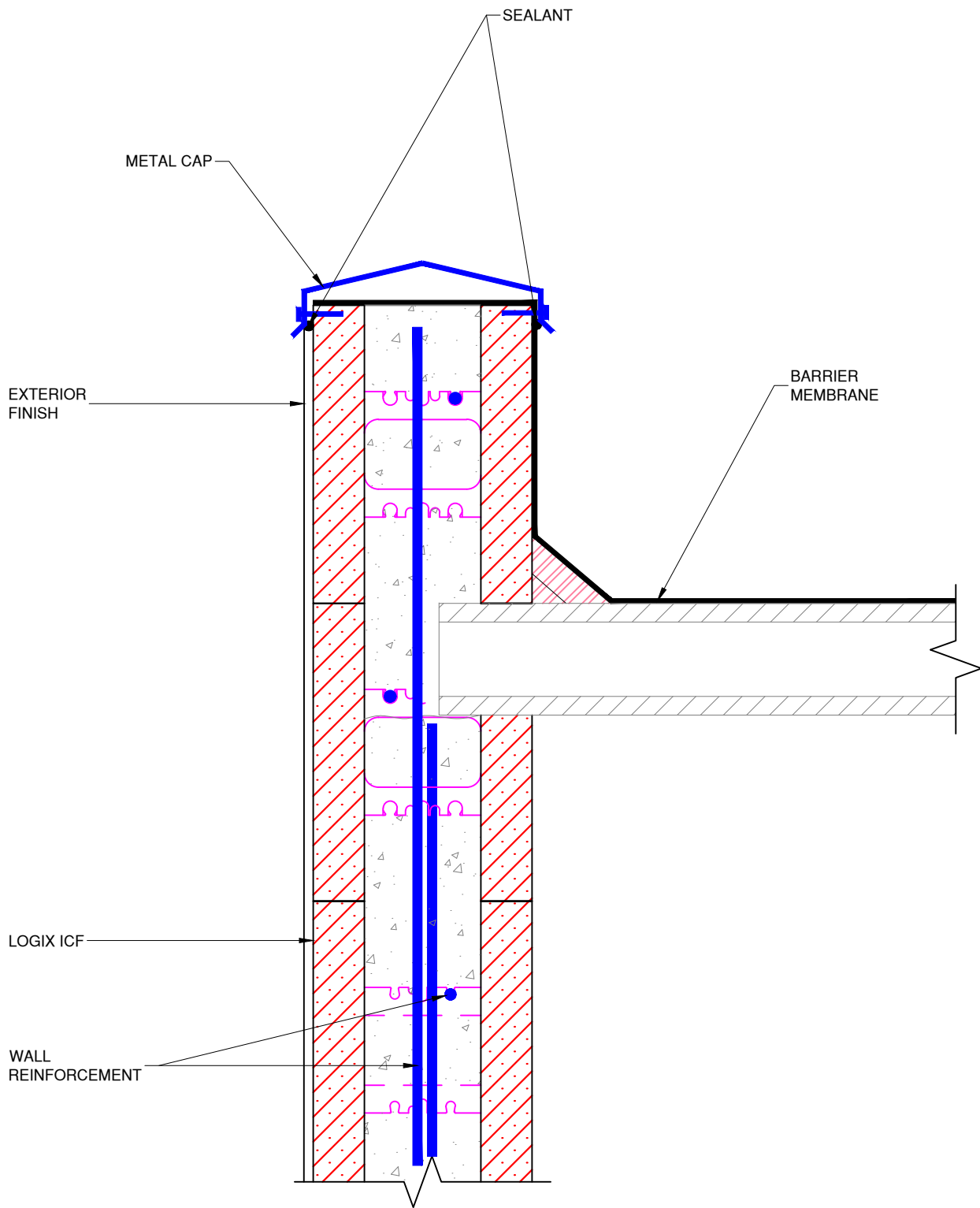
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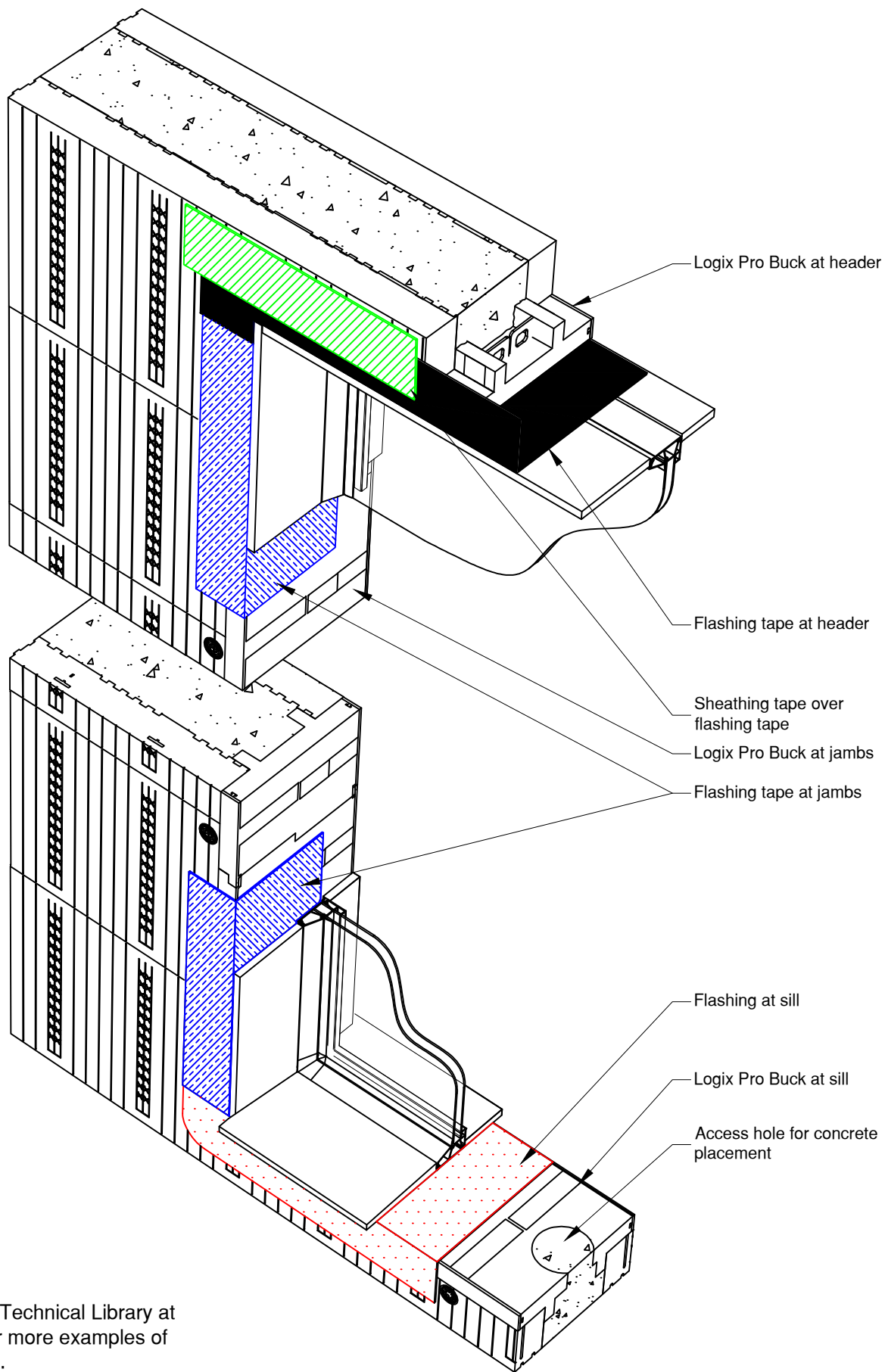
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WALL TRANSITIONS

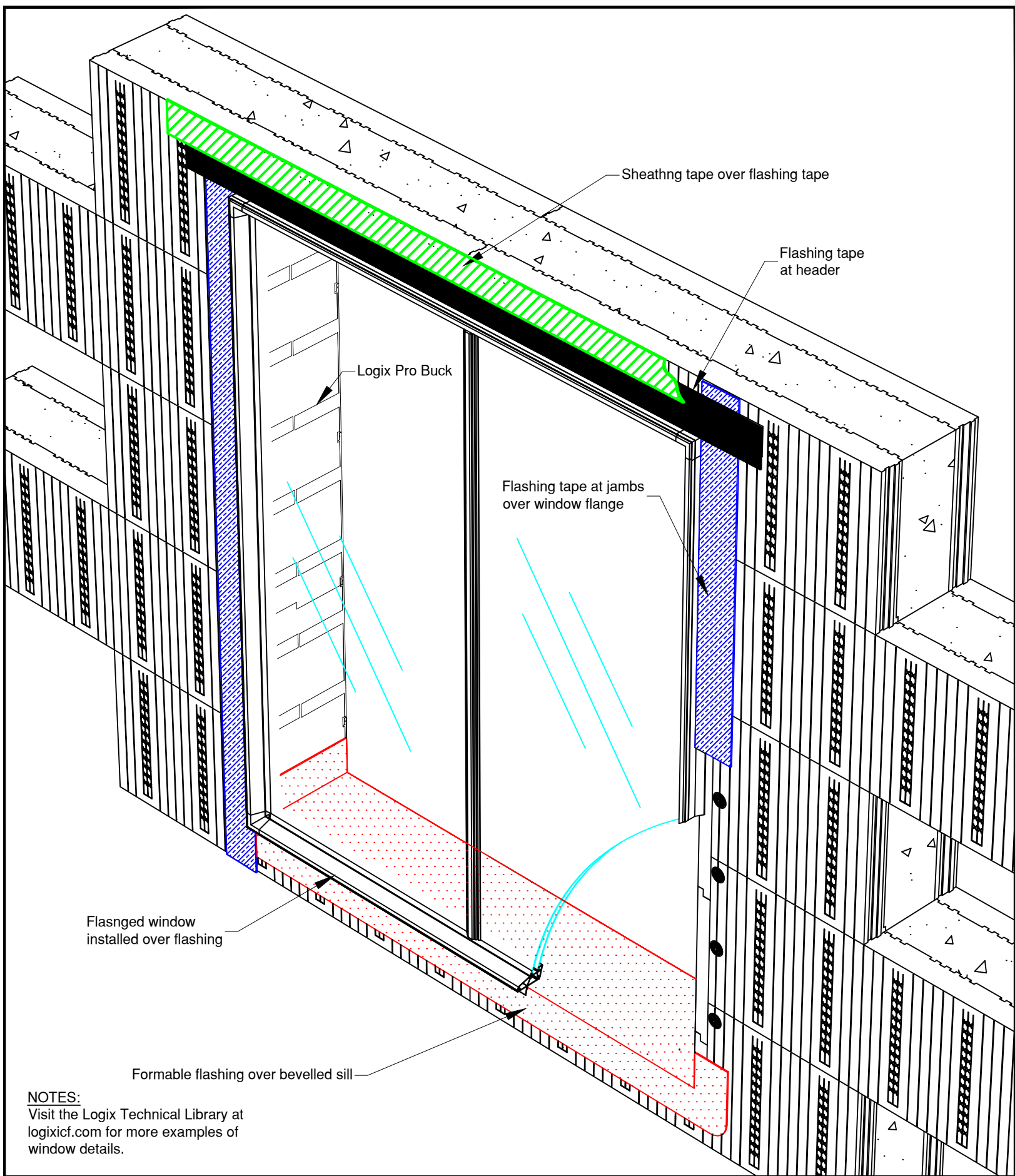




NOTES:
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NOTES:
 Visit the Logix Technical Library at logixicf.com for more examples of window details.



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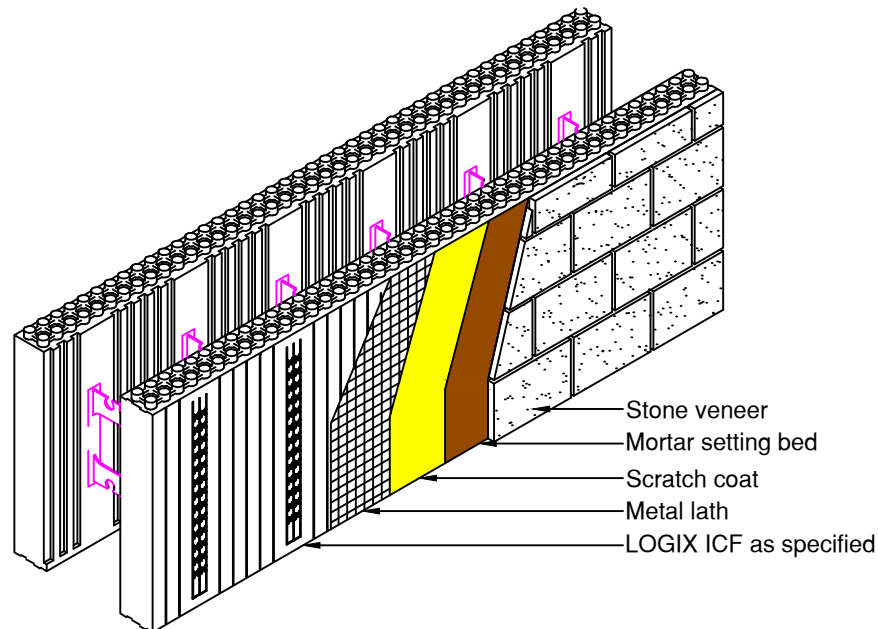
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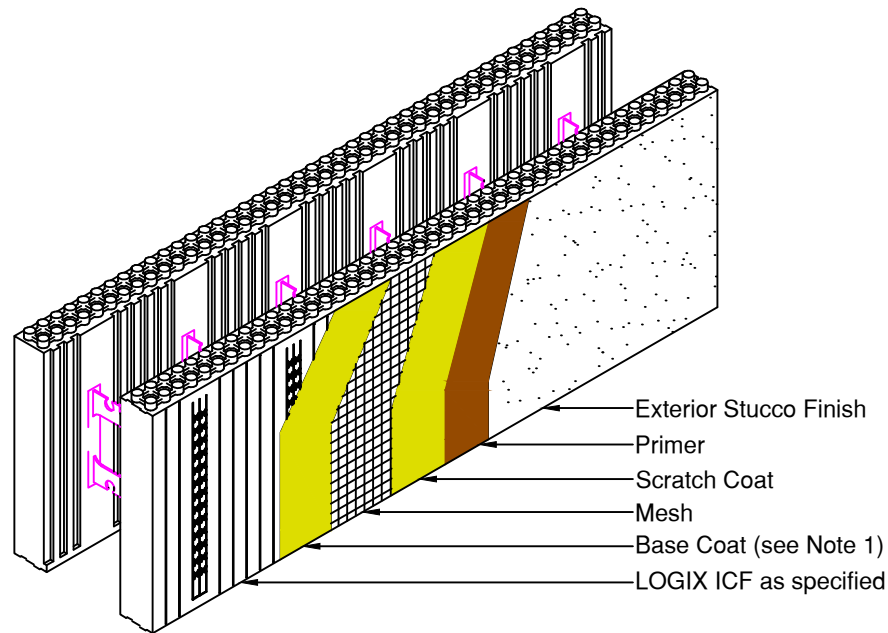
Title:

**LOGIX PRO BUCK
 FLANGED WINDOW FLASHING**



NOTES:

1. All fasteners to be attached to the embedded furring tabs.
2. Recommended min. fastener spacings:
 1. Grabber construction non-corrosive screws: No.8 min. 1.25" long, 8" o.c. horiz., 12" o.c. vert. spacing. (3/8" head ring shank nails with washers can be used in lieu of No.8 screws)
 - OR
 2. Staples 1.59mm 16ga. min. 1.25" long, 8" o.c. horiz., 5" o.c. vert. spacing.
3. Always follow manufacturer's instructions or recommendations.
4. Visit Logix Technical Library at logixicf.com for more exterior finish examples.



NOTES:

1. If no base coat, fasten mesh to ICF with staples.
2. Follow manufacturer's installation instructions.
3. Visit the Logix Technical Library at logixicf.com for more exterior finish examples.

