12.0 PLUMBING

GENERAL

In traditional building methods, plumbing installation practices generally maintain that whenever possible hot and cold supply waterlines should be kept to the interior partition walls or within floor spaces under cabinets, tubs and sinks. With NUDURA's Integrated Building Technology the same rules will apply. By running the waterlines and any vent stack pipes through interior partition walls will not jeopardize the EPS insulation on the exterior walls and it will reduce the risk of freezing in cold climates. All plumbing codes must be followed with regards to waterlines, vent stack pipes, and waste piping.

In Section 6.7 (Service Penetrations) this manual discussed the need for installing sleeves and inserts prior to concrete placement for a variety of different mechanical, electrical, and, of course, plumbing needs. If copper piping is used for water supply, the plumber is cautioned to ensure that all EPS foam is protected from open flame especially if sweating copper joints at or near the foam surface by using sheet metal or other means.

The NUDURA Installer and/or Project Supervisor should note that for any NUDURA job requiring standard wood, engineered wood joists, floor trusses or light framed metal floor systems, despite ideal installation conditions as discussed above, the Plumber MAY require access to specific wall locations AFTER the concrete walls have been poured and BEFORE the floor system is hung to enable access for any plumbing runs that may need to transition a floor level that is installed inside the NUDURA wall. If the Plumber cannot access the site before the floor is installed, the Project Supervisor can identify the area where penetrations may be required and install PVC or ABS vertical vent pipe sections that extend sufficiently above and below the project floor level to accommodate the plumber's access behind the floor joists at a later date.

WATER SUPPLY

Despite best recommended practices above, should the building design dictate the need to run water lines in the EPS, a chase the size of the piping will be necessary to be cut at the required location The chase can be cut in after the NUDURA walls are completed poured and the roof has been finished. Just as cuts are made for creating chases for electrical wiring, the same is true for water supply lines that need to be installed in NUDURA. Chain Saw, Reciprocating saw or Hot Knives will all work effectively, however, for water supply lines, it's best to use a hot knife to cut the chases – and ONLY as deep as required to keep the pipe insulated behind to it's maximum level and tight to the backside of the finish or as close as Plumbing Codes will permit. This will reduce risk of freeze-up in colder climates. Be sure to keep the piping away from web locations so that there is no danger of fasteners penetrating the pipe.

For extreme climates where temperatures will fall below the freezing point, a non-freeze hose bib should be installed. If this is not available, then a shut off valve with drainage capabilities can be installed for exterior hose bibs. Should the through wall service penetration be installed prior to concrete placement, NUDURA recommends that the piping used for the penetration extend beyond the face of the EPS on both sides of the wall as to accept couplers at a later date.

WASTE WATER DRAINAGE AND VENTS

As with most conventional buildings, the main toilet waste water drains and vent stacks will typically be 4" (100mm) PVC or ABS pipe. If they do not extend outward BELOW the footing, they will have to extend through the wall at the elevation necessary to direct the waste water by gravity to either the septic tank and bed or street sewer line. These through-wall penetrations will need to have extra care taken around the pipe extending past the outside of the wall to ensure leaking from surface water will not penetrate through the wall at these locations. An EPS capable primer or caulking around the penetration before the peel and stick membrane is applied, will seal any areas around the sleeve and prevent surface water migration from getting through the wall section.

As discussed earlier with water supply, despite the most ideal planning, inevitably the situation will arise where waste water vents and pipes will require installation within a NUDURA Wall.

NOTE that the EPS foam in a NUDURA insulated panel has a MINIMUM foam thickness (due to the vertical dovetail channels on its interior concrete facing surface) of 2 ¼" (57 mm). This means that the MAXIMUM inside diameter ABS or PVC Vent pipe that can be installed in the wall including coupling fittings will be 1 ½" (38 mm).

FIGURE 12.01

If a vertical waste stack is required to be installed at a NUDURA wall, there are 3 options for installation. These are:

1. Non-recessed stack with full chase finish around
2. Partially recessed stack cut into foam – post concrete placement
3. Fully recessed stack partially intruding into concrete core

Non-recessed and partial recessed stack options do not need any special planning or preparation prior to concrete placement. The downside however, is that they will result in the interior finish surface having to be chased around the pipe to accommodate them which may NOT be the most ideal for your end use client.

Full recessed vent stack pipes will need to be pre planned before any concrete is poured into the wall section, but the added advantage is they visually do NOT intrude into the interior space. The vent stack pipe size should not exceed more than ⅓ of the depth of concrete core being used for the wall thickness. This ensures that the solid concrete wall will not be jeopardized, structurally from the vent stack requirement. In the pre-planning operation, foam inserts cut to size as shown in Figure 12.02 are foamed into place during the form installation at the required stack location and marked for later reference. Remember that additional vertical reinforcement will be required for the concrete behind this area and care will have to be taken to ensure that horizontal reinforcement is maintaining a minimum 3'4" (1016 mm) clearance from the foam surface of the insert.

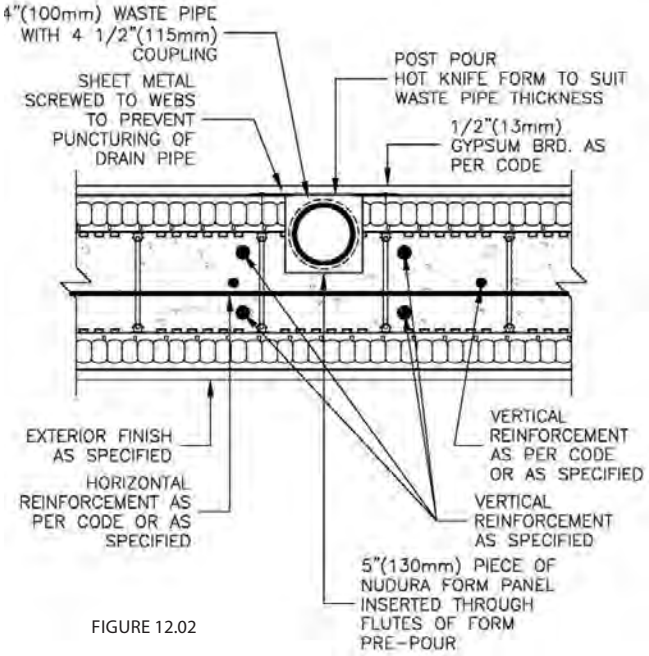

FIGURE 12.02

Once plumbing work begins either the plumber can either saw or hot knife cut the foam clear and install the vent stack in place and anchor (per code requirements) the vent stack in place inside the chase.

Remember that, should larger diameter drains or vents that 1 ½" (38 mm) need to be run in the interior EPS panel of NUDURA forms, with careful planning and marking for later access by the plumbing contractor, the same foam insert technique discussed above can be used as may be necessary.