Notes on designing, detailing, and specifying ThinCast/ARCIS Cladding Panels
With the "J" clip type hanging system.

Permitting: Arcis panels meet all building code requirements ***except*** for the clear cover of reinforcing due to the thin nature of the panels. The City of Portland has required a variance for the clear cover on occasions. Most jurisdictions (Seattle, Corvallis, Washington County) consider Arcis Cladding similar to glass or plaster or other none structural cladding systems, and do not have many requirements with regards to engineering and special inspection. The City of Portland views Arcis Cladding as a precast concrete item. Portland has required periodic review of our QC program by the jobsite 3rd party special inspector on occasions. There have not been inspection requirements in other jurisdictions, but requirements should be researched.

Inspections and testing: Arcis corp. requires that the project provides periodic third party inspections of field installations including fasteners. Arcis corp. will perform concrete testing for each day's casting along with maintaining our in house quality control procedures, which are in accordance with PCI MNL 116 and 117. We are not a PCI certified concrete precast plant.

Texture and Finish: Most architectural concrete finishes can be accomplished on Arcis panels. Form finish is not recommended, a wire grid shadow can be apparent on an unfinished panel, but is not visible after an acid wash or sandblast finish. Finishes need to be deep enough to avoid the wire grid. Form liners can be used. Outward protrusions can be accomplished if the cross section is consistent and the prestress can be properly balanced; textured finishes need to be reviewed and tested. No inward protrusions or revels are allowable.

Panel size: Panel size is governed by the attachment system, the panel thickness and the installer's method of handling the panels. The panels span vertically between J clips. For most high-rise applications wind loading controls the design. 1" thick panels can span between clips approx 60" with a 35 PSF wind load. 1 1/4" panels can span 80" with a 30 psf wind load. The panels can cantilever above and below the clips. Thicker panels can span further, or panels with ribs or stiffeners. Panel width is controlled only by installation issues up to 10 feet.

Back up system: 16 gage studs (sometimes 18 depending on panel size) are required to get the proper capacity from the fasteners. The project structural engineer should consider the bracket point loading in his stud design. A healing waterproof membrane should be used over gyp sheeting to alleviate water infiltration at the screws. Arcis may suggest use of caulking over the brackets or screws. We suggest the slab edges held back slightly, 1 or 1 ½" from the outside of the stud to allow tolerance in setting the studs. Setting studs straight is critical to the economy of the system to reduce shimming and negate the requirement for adjustable bracketing.

Specifying metal finishes: Bracketing made from G90 galvanized plate, hot dip plate after fabrication, stainless steel or aluminum are all available. The cost associated with the various brackets varies significantly. Selection of the material is up to the architect.

Standard stud mounted system: The stud mounted system is comprised of a horizontal rail that is screwed through the sheeting and into the studs. Waterproofing details flashing details are as designed by the architect but usually include a healing membrane on the outside of the sheeting. Arcis suggests healing membrane as well to avoid any moisture getting into the sheeting around the screws.

Penetrations: Holes can be cored and cut in panels. Openings, electrical outlets, etc. can be field cut, but need to be coordinated with the panel bracketing and the opening size and location coordinated with panel engineering.

Attaching to Arcis panels: Signs and other light items can be attached to Arcis panels up to 20 lbs. More weight or items that place loads on the panels must be reviewed with the panel design. Usually a lead or plastic insert is used for attachment. Any holes drilled into panels must be cored with a non-hammer type drill. Core bits are available as small as 3/8 inch. Hammer type drills will spall the back of the panel and could affect the integrity of the panel. Holes should be 2" or more from the edge of a panel.

Framing: The stud gage needs to be adequate to develop the screw capacity for the clip attachments. This varies by panel size, but should not be less than 18g (16 gage is usually required for tall panels). If floor deflection is anticipated, the Arcis panel bracket placement needs to be coordinated with the framing deflection head. In most cases, either the top or bottom J can be the bearing member and the other floating.

Jointing in general: The Arcis J clip system allows unlimited story drift movement and is very vestal for detailing movement issues, more so than most other panel systems. The panels can be allowed to slide (accordion) as well. As with all panel systems, special attention is required where two different systems meet. When window systems and curtain walls are used in conjunction with Arcis panels, it is important to coordinate the joint locations with the window system requirements. Some window systems rack and some slide with story drift. If the window system story drift occurs at one specific point, it is best to have a horizontal Arcis panel joint at the same place, otherwise, a wide vertical joint my be required between the systems to allow the two systems to move independently. Jointing requirements can differ depending on building jurisdictions. In general story drift issues need to be considered in specifying window systems and laying out panel joints. Arcis should be involved.

Corner Jointing: At corners, some Jurisdictions require that the full story drift movement be accounted for in the corner joint. The panels are set on a horizontal rail and can be allowed to slide (accordion) as well which reduces this size if allowed by the Jurisdiction. Corners can be a miter or short return. A corner piece can be used.

Horizontal jointing: The J clip attachments can be installed to allow live load deflection on the floors. The joint thus needs to be sized to take the movement without exceeding the caulking deflection criteria.

Erection clearance: Clearance is required above a panel where it meets a fixed item (pre-installed pipe, window washing davit, window installed before panel etc.) so that panel can be raised up over J clip. Contact Arcis to discuss these details.