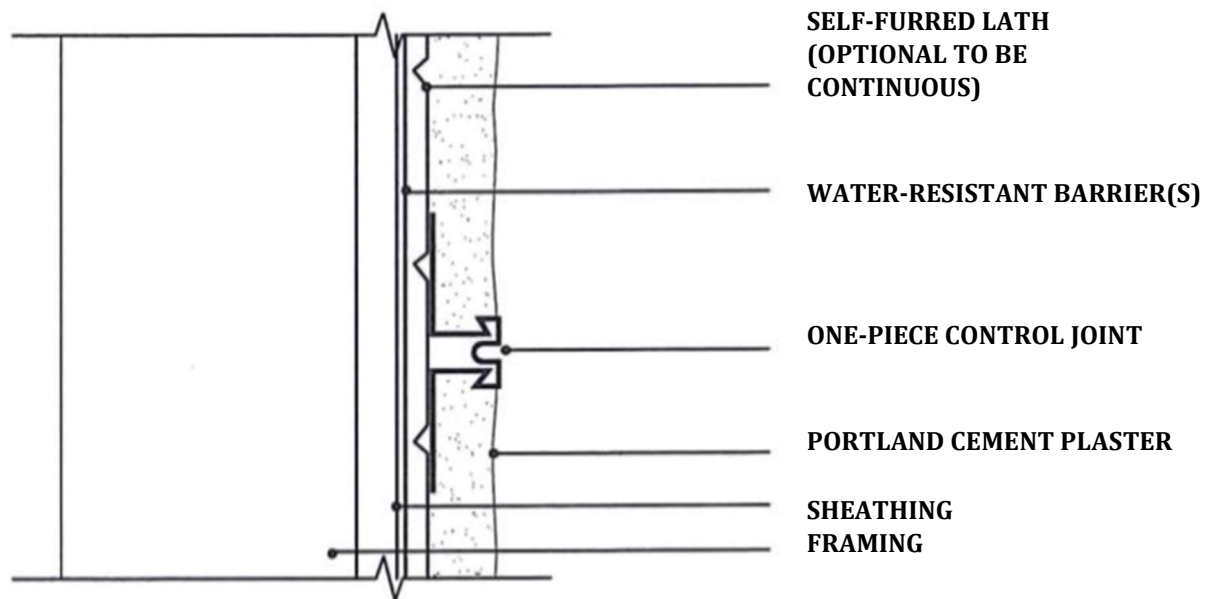


One-piece control joints are used in cement plaster assemblies to relieve stress and establish plaster thickness. ASTM C1063 is a standard referenced by building codes to provide guidance on placement, spacing, and attachment of lath and trims. The following are guide recommendations on one-piece control joints from the SMA with options as allowed by Section 104 of the International Building Code. Installation shall be per the designer of record, approved by the local Building Official and not in violation of manufacturer recommendations. One-coat stucco shall have control joints installed per that system's manufacturer recommendations/requirements and its current Evaluation Report.

GENERAL INFORMATION: Control joints allow for minimal stress relief in one direction to help reduce hairline cracking in cement plaster. Using control joints and following ASTM C1063 is no guarantee of a crack-free cement plaster. The occasional hairline crack in a cement plaster is not detrimental, nor should it be considered a defect. Designers should be allowed some flexibility with design options concerning one-piece control joints. Sometimes using control joints is undesirable. For example, a Spanish or Tuscan style home with control joints would be aesthetically unappealing. In some cases, a hairline crack relieving minor stress would be preferred. The designer of record is allowed to make a design decision and building code (Section 104) specifically allows for "Alternative materials, design and methods of construction" as approved by the local building official.



ONE-PIECE CONTROL JOINT

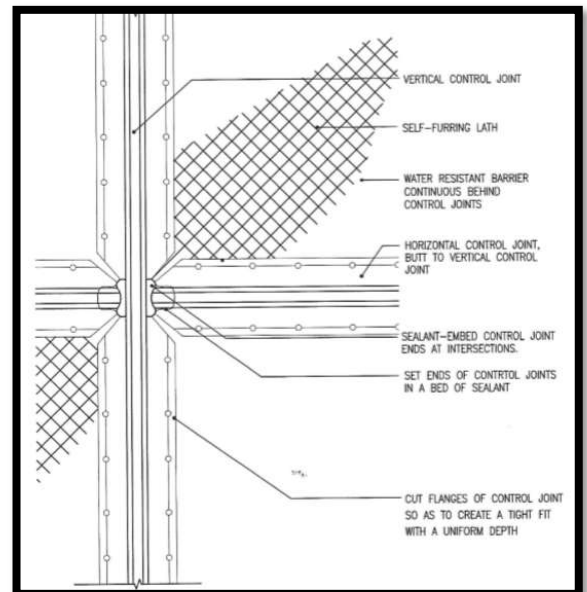
SPACING: ASTM C1063-19a Section 7.4.10.2 states “Install control joint(s).....at locations to delineate...areas of 144 ft² (13 m²) maximum for walls...”. Section 7.4.10.3 “...delineate cement plaster panel areas of 18 ft. (5 m) maximum dimension.... or a maximum length-to-width ratio of 2 ½ to 1”. The SMA supports a designers option of larger panels when using fibered or engineered basecoat mixes. Panels should be kept as square as possible. The designer must provide direction to the contractor during the bid phase. Generally, designers are the most qualified to determine the need and spacing of control joints for stucco. The designer of record must illustrate the locations of one-piece control joints on the elevations, referencing ASTM C1063 is an insufficient directive for placing of control joints.

MATERIAL: Control joints are constructed of metal, zinc or plastic. Control joints come in a variety of styles and configurations. Some materials and styles are regionally preferred. It is recommended to use only control joints designed explicitly for use in cement plaster (stucco) assemblies. The “designer of record” shall select the design/type of control joint and the material.

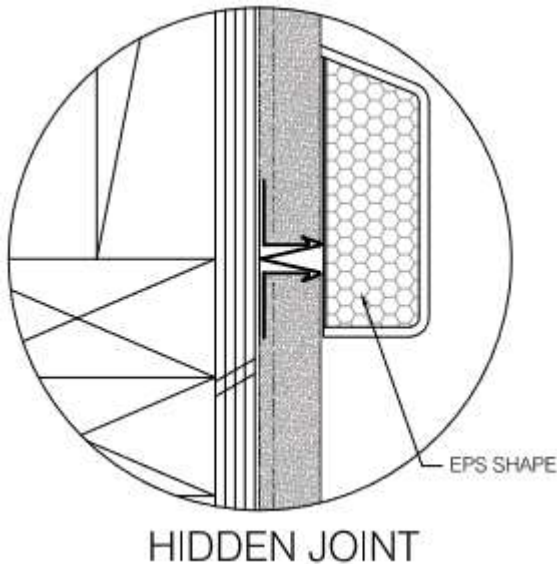
- GALVANIZED STEEL: Common in stucco
- ZINC: More resistant to corrosion, softer and subject to damage
- PLASTIC: Will not rust or corrode, available in colors

INSTALLATION: Control Joints shall be installed per the direction the Designer of Record. Contractors shall notify the designer if a control joint in underlying substrates needs to be honored. Installation is per direction of the Designer/Owner.

- Ground depth shall align with other trim grounds (contractors responsibility)
- The water-resistant barrier(s) shall be continuous behind control joints.
- Vertical control joints should be continuous through horizontal control joints
- Vertical control joints shall terminated at horizontal expansion joints
- Additional flashing strips (optional) behind control joints should be installed in “shingle-fashion”.
- ASTM C 1063-19a Section 7.3.1.5 states “Lath shall not be continuous through control joints...”. Most manufacturers and the SMA allow the lath to be continuous behind one-piece control joints as a proven option. Discontinuous lath at vertical control joints may require additional framing or blocking.
- Attachment of a control joint may be to framing members and/or tied to a properly secured lath. Fastening is approximately 16 to 24 inches on center, it is critical the control joint not move during the application of plaster. Terminations, joints and miters should be sealed to prevent water entry on walls subjected to frequent wind-driven rains.



Graphic courtesy of the Northwest Wall & Ceiling Bureau



Graphic courtesy of the Technical Service and Information Bureau (TSIB)

FOAM SHAPES: One-piece control joints are designed to allow for minimal movement in one direction. Expanded Polystyrene (EPS) decorative foam shapes also allow for minimal movement and may be placed over one-piece control joints.

Horizontal Joints: The lower section (edge), may be left unattached (**see graphic**), if the foam section below the horizontally oriented control joint is less than 25% of the total height of the EPS shape.

Vertical Joints: The top or upper edge should be sealed to prevent water entry behind the foam shape and the bottom or lower section should left open to allow for incidental water to weep/drain from behind the foam shape.

FIRE: Control joints spaced more than ASTM C1063 guidelines will not devalue the fire rating of the assembly. Plastic joints should be avoided in fire-rated assemblies where the fire protection is dependent on the cement plaster membrane or must have additional backing.

CHANGE ORDERS: There should be no charge to move or relocate control joints prior their installation, provided they are over a continuous lath. Discontinuous lath may require additional framing members and may incur additional charges. Adding or additional lineal footage of control joints shall be compensated at a fair market value by the building owner.

ALTERNATES: A proven method to reduce surface cracking in cement plaster is the use of a base & mesh system (refer to SMA Technical Bulletin “). This is a lamina made from a fiberglass mesh embedded in a skim coat of polymer enriched basecoat placed over the brown coat. Properly installed, a base & mesh system is robust, flexible, vapor permeable and proven to greatly reduce cracking in cement plaster without negatively impacting the assembly. This lamina is an upgrade and is not part of a traditional cement plaster assembly.

Tip: Designers can request a square foot price for the base & mesh system as an alternate when collecting stucco bids. This “alternate bid item” price would be valid only when installed over the brown coat during the initial construction phase. The base and mesh may be added over the finish coat, but this may require re-mobilization and possible re-scaffolding charges, etc. Always follow manufacturer recommendations for use of all products. Ensure finish and skim coats are compatible.

The SMA is an industry wide not-for-profit trade association dedicated to the promotion and education of the stucco industry. Designers are encouraged to contact SMA for clarification on design, product selection or installation regarding one-piece control joints. Due to circumstances beyond our control, the SMA can provide no warranty, express or implied. Graphics are courtesy of the TSIB and the NWCB.