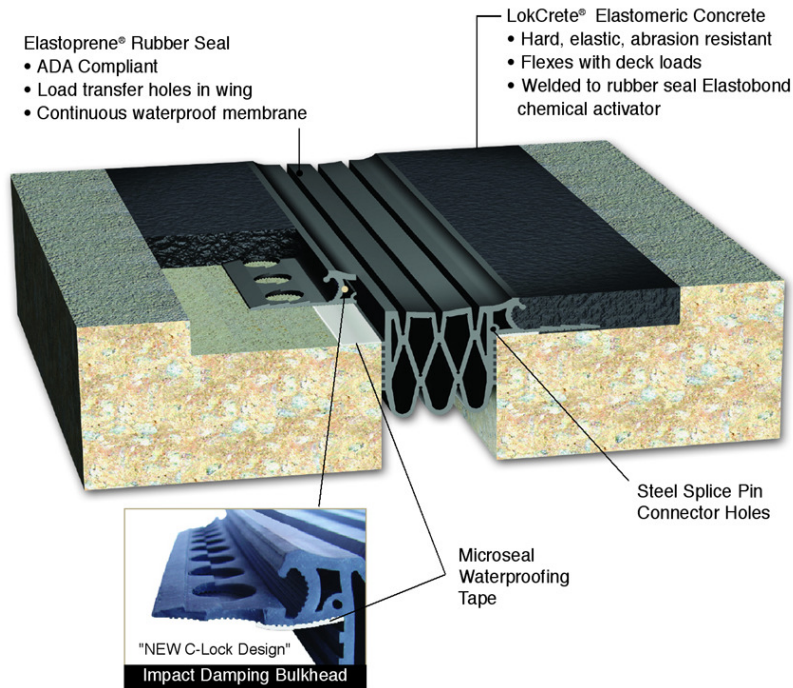




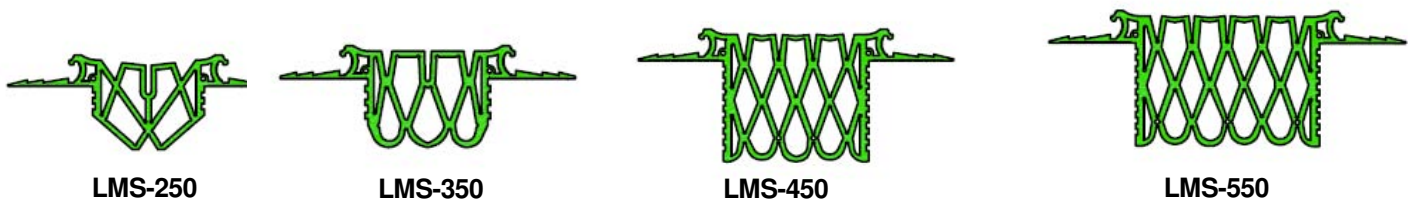
TECHNICAL BULLETIN 101

Subject: LokCrete Membrane Expansion Joint Systems



The LokCrete Membrane System (LMS Series) is a waterproof expansion joint system with impact absorbing elastomeric concrete that bonds a continuous elastoprene membrane seal to the concrete deck. This creates a high performance monolithic sealing system that prevents water intrusion.

The LMS System is available in four sizes with each seal designed independently to accommodate expansion, contraction, shear, vertical and rotational movement requirements. Each seal (drawings below) has unique web wall configurations that maximize its movement characteristics. Please note that vertical displacement is achieved through the center-hinge design in the smaller sizes (LMS-250 & 350) and through multi-cellular design in the larger sizes (LMS-450 & 550). The LMS-550 is available in a Low Profile (LMS-550-LP) and Heavy Duty (LMS-550-HD).



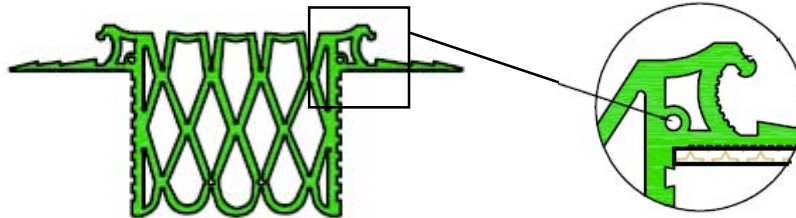


One-Inch Vertical Offset



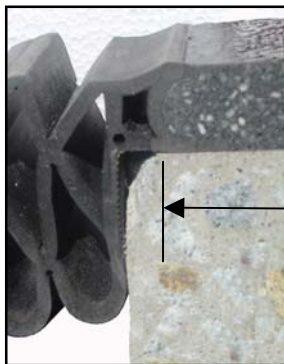
Two-Inch Vertical Offset

The LMS System is designed to accommodate vertical and rotational movement as shown in the photos above. Each seals unique web-wall configurations and hinge points allow for vertical displacement without excess stress to the rubber profile. Consideration must be given to the long-term effects of direct impact loads on the expansion joint system in concrete decks that do not employ load-leveling devices to reduce the amount of vertical displacement.

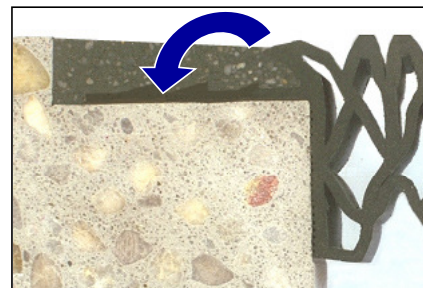


“Box” Bulkhead Design – absorbs tire impact loads, protects against spalled edges and built-in formwork guarantees proper elastomeric concrete coverage.

The “box” bulkhead design of the LMS provides the first line of defense related to vehicular impact loads. The ¾ inch system depth is critical for long-term performance. The “box” design feature eliminates the possibility of the bulkhead rolling over during seal installation that could result in insufficient elastomeric concrete depth.



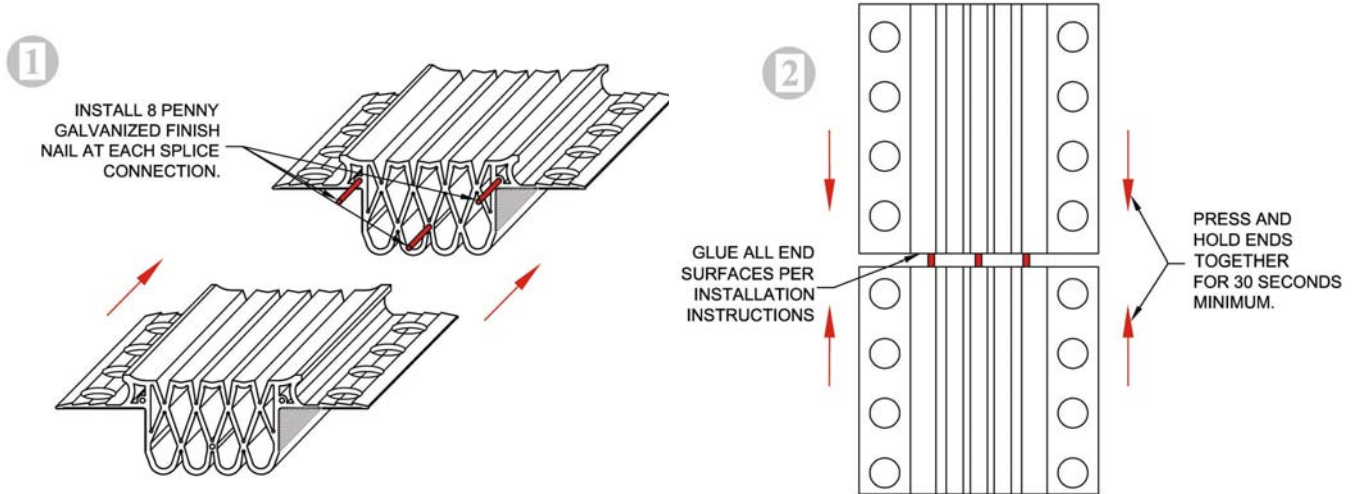
The designed setback of the elastomeric concrete behind the “box bulkhead” provides protection against cracking of unsupported elastomeric concrete due to spalled concrete edges along the joint opening.



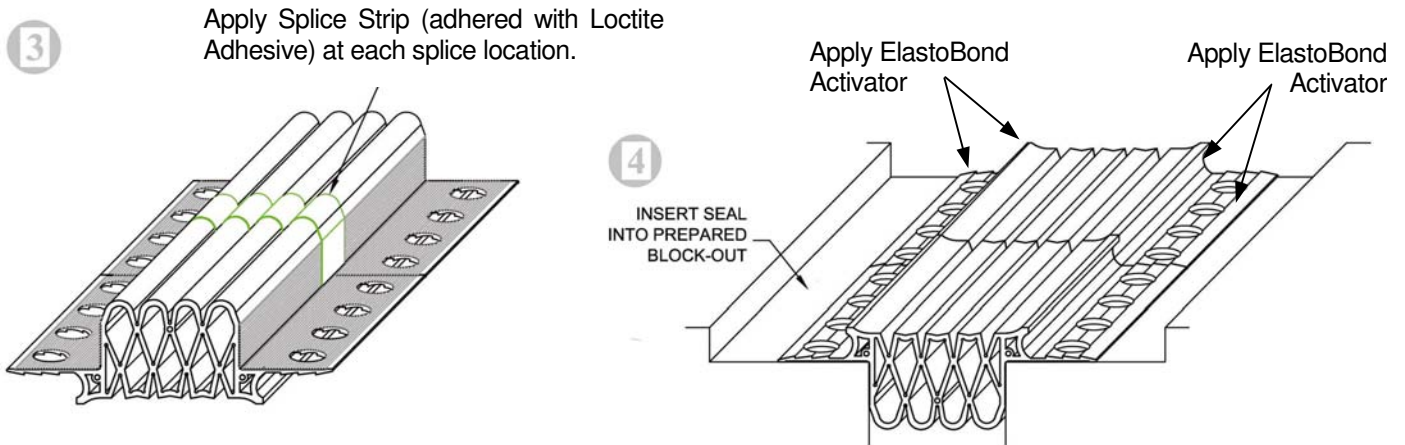
The “box” bulkhead design (shown to the left) eliminates the possibility of standard bulkheads rolling over during installation (shown above).

The LMS “box bulkhead” design features a 1/8-inch tapered recess to protect against excess tire abrasion and damage from snowplow blades. This built-in quality assurance feature eliminates field installation errors.

Elastoprene rubber is resistant to UV, ozone, acid rain, most chemicals and extreme temperatures. Elastoprene is a thermoplastic rubber (similar to santoprene and starlink) with enhanced adhesion properties resulting in superior field splicing characteristics.



Splices are reinforced through the use of galvanized pins that align the internal rubber webs. Elastoprene can be heat spliced or fusion bonded with a specialty gel adhesive engineered for Elastoprene. It has been proven that better field splice results are achieved by using the specialty gel adhesive, splice pins and splice strip as compared to field welding with a heat-platinum. Inconsistent results may occur if the heat-platinum does not reach the correct temperature for melting rubber (considering inclement weather conditions) and if the rubber webs are not properly aligned. The properties of Elastoprene Thermoplastic Rubber accommodate either method.



ElastoBond Activator is spray applied to the sidewall and to the continuous wing of the seal to create a welded bond between the Elastoprene Rubber Seal and the LokCrete Elastomeric Concrete. The ElastoBond Activator reverts the surface of the rubber seal thereby allowing the curing elastomeric concrete to chemically cross-link with the rubber seal.

LokCrete elastomeric concrete is a two-part polyurethane with chemical cross-linking technology that eliminates the need for primers. To eliminate the risk of field related adhesion problems, LokCrete was formulated with a chemical scavenger to negate moisture intolerance characteristics. LokCrete is available in black and gray with matching seal colors.



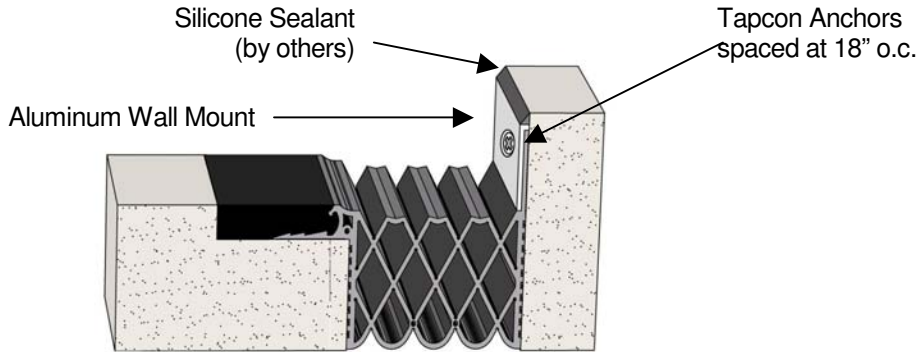
Each unit of LokCrete consists of one 5-gallon bucket containing the following: one (1) gallon can of Part A black resin, one (1) quart can of Part B clear resin and 30 pounds of specialty sand/aggregate blend. By shipping all three components together in a watertight plastic bucket both field storage and exposure problems are reduced. It also insures that pre-measured mixing ratios are followed.

Many brands of elastomeric concrete require the use of primers to shield the polyurethane-based mixture from moisture in the concrete. Laboratory pull tests confirm that primers reduce the actual adhesion properties. Most primers cure in less than five minutes and require the elastomeric concrete to be placed within the cure period to insure proper adhesion. LokCrete's initial cure period is 25 to 35 minutes allowing sufficient time for proper placement and quality finishing.



LokCrete has the consistency of mortar and can be applied directly to sloped decks or ramps. No additional additives are required that many self-leveling materials require. LokCrete's consistency also insures that all blockouts will have proper 3/4 inch thickness coverage along the entire length of the expansion joint.

The LMS-C seal is specifically design for slab-to-wall conditions. The flat rubber sidewall provides greater waterproofing capability compared to designs that turn up the wing of the seal. The low profile seal design accommodates post tension cable ends and conduit.



Factory pre-fabricated directional sections are recommended.

MM Systems provides a Contractor Certification Program that includes classroom and hands-on training related to the proper installation and the "built-in" quality assurance features of each type of expansion joint system. The MM Systems Field Service Group supervises the first project installed by each Certified Contractor.



◀ **example of neat workmanlike finished installation**



◀ **tapered column treatment**

The photos above demonstrate quality installations available through the MM Systems Certified Contractor Network.

MM Systems offers a comprehensive field-support program available to troubleshoot field problems, recommend remedial solutions and provide on-site expansion joint analysis. Our team includes: Field Application Engineers, Engineering Manger, Product Development Engineers and Parking Division General Manager.

For additional information or to schedule an AIA accredited continuing education seminar, contact MM Systems at 866-506-6929 for the nearest local representative.