

Research Notes

RSN 97-1

September 1997

Crushable Barrier Blocks Installed

The Oregon Department of Transportation is testing another low cost life saving device. On September 9, 1997, an ADIEM II concrete barrier end terminal was installed on I-5 south of Salem, at the Delaney Road overcrossing construction project. The ADIEM was used because of its low cost and narrow space requirement. Space was limited because the shoulder barrier end, to which the ADIEM is attached, was located near the fill edge.

Innovative Design

The ADIEM II has two main parts: the

wedge shaped base and ten lightweight concrete modules (see photos below and diagram on reverse). The base is fabricated using a conventional concrete mix design. The crushable blocks are made lightweight by replacing some of the aggregates with Perlite, a white granular filler sometimes used in potting soil. Also, voids or hollow areas are built into the blocks. Because this type of concrete is porous, the blocks are coated with acrylic latex to protect them from moisture.

Life-Saving Potential

Crash testing of the system to NCHRP 230 standards has shown that the ADIEM can reduce injuries during



Installation of the wedge shaped end terminal base

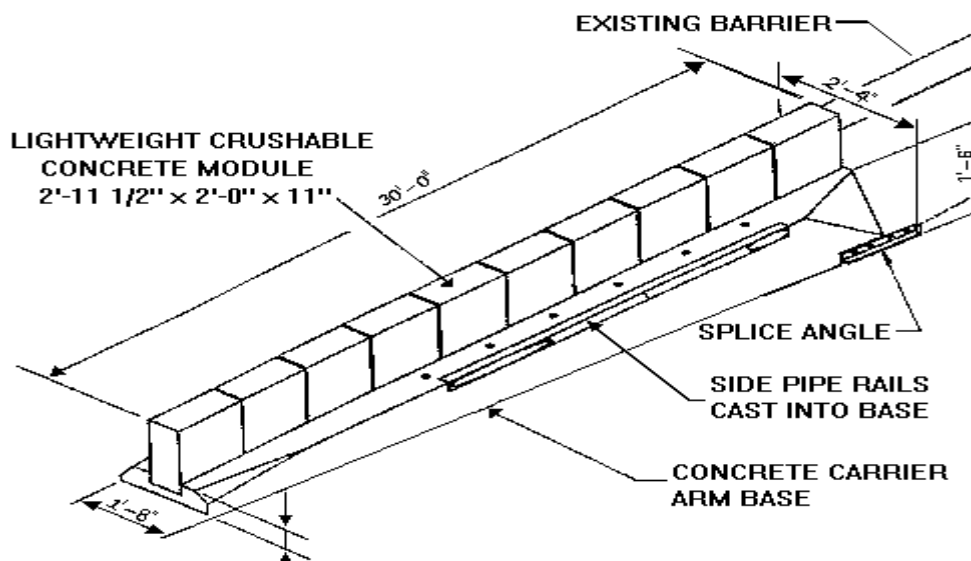


Workers begin fitting the crushable blocks to the base

head-on impacts. In a head-on crash test, a 1979 Lincoln sustained damage to the front bumper, grill and radiator. The car remained upright on impact and no penetration of the passenger compartment occurred. In actual work zone impacts, many cars were driven away. Upon impact, the blocks are crushed and require replacement. The base, however, is not usually damaged.

ODOT Research Unit Monitors Performance

Other states using the ADIEM have had mixed results because of variations in the durability of the coating. The ODOT Research Unit will monitor the coating longevity and operational features for the next three years. If the coating of the system proves durable, ADIEM use could be upgraded from temporary to permanent.



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