

## MEMORANDUM

**DATE:** Monday, November 26, 2001

**TO:** District Design, Construction, Project Management, Structures and Maintenance Engineers

**FROM:** Billy Hattaway  
State Roadway Design Engineer

Greg Xanders  
State Construction Engineer

**COPIES:** Freddie Simmons, Bill Albaugh, Sharon Holmes, William Nickas, Ed Rice, Jack Brown, FTBA

**SUBJECT: Selection of Temporary Crash Cushions (Attenuators)**

**Redirective Types are: REACT 350, QuadGuard, ADIEM 350 or TRACC**  
**Inertial Types are: Sand Barrels Arrays**

“Redirective crash cushions are the principal (standard) devices to be used for shielding approach ends of temporary concrete barrier walls” (Index 415 sheet 3 of 4, note 1). When the plans call for a redirective type crash cushion, an inertial (gating) crash cushion cannot be substituted. Redirective and inertial crash cushions are not considered equal in performance characteristics; therefore, cost should not be the basis when selecting a temporary crash cushion. Any change from the crash cushion identified in the contract plans is considered an engineering change and must be documented and signed and sealed by a responsible professional engineer.

Also, when the plans identify a specific attenuator such as QuadGuard for a specific location, other redirective attenuators such as REACT 350, ADIEM 350 or TRACC cannot be substituted unless the engineering change is documented and signed and sealed.

Field reviews repeatedly have shown numerous incorrect installations and the improper maintenance of inertial crash cushions (sand barrel arrays). Correct placement and maintenance of each module within an inertial crash cushion array is critical for the array to perform its intended function properly. Careful review of each site-specific location, along with the details, notes, application and restrictive conditions in Index 417 should be completed prior to utilizing an inertial crash cushion. Any deviation from the standard drawings requires an engineered site-specific attenuator design detail that must be documented and signed and sealed.

Changes to pay items and standards have been made to clarify the difference between attenuator types. Starting with the July 2000 letting the following changes will be reflected in the plans:

- Pay items have been updated to clearly distinguish between the inertial and redirective different types of attenuators

102-81-1      Vehicular Impact Attenuator Modules (Inertial)(Temp)      EA

102-89-xxa    Vehicular Impact Attenuators – Redirective Option (Temp)      LO

- a =    1      (GREAT CZ)
- 2      (REACT 350)
- 4      (QuadGuard)
- 5      (ADIEM 350)
- 6      (TRACC)
- 7      (Redirective Option)

- Roadway and Traffic Design Standards have also been updated to clearly distinguish between the inertial and redirective different types of attenuators

2000 Metric Standards effective starting with the July 2000 letting.

2000 English Standards effective starting with the January 2001 letting.

Index 415 PRECAST CONCRETE TEMPORARY BARRIER WALL has been updated to show redirective type attenuators only (*Sand barrel array details have been removed from this index*).

Index 415 PRECAST CONCRETE TEMPORARY BARRIER WALL Page 3 of 4 Note #3 will be revised by special provision for projects starting with the January 2001 letting as follows:

Inertial crash cushions are not optional systems for locations designated for redirective crash cushions by the plans; can not be substituted for redirective crash cushions ~~without expressed approval by the Engineer~~; and, ~~such substitutions~~ are not eligible for VECP consideration.

Index 417 INERTIAL CRASH CUSHION is a new index that was created to detail standard module arrays for inertial gating type attenuator. (Sand barrels).

Index 417 INERTIAL CRASH CUSHION Note #1 last sentence will be revised by special provision for projects starting with the January 2001 letting as follows:

These arrays can not be substituted for redirective crash cushions called for in the plans ~~without the expressed approval by the Engineer~~; and, ~~such approved substitutions~~ are not eligible for VECP considerations.

Please contact Cheryl Adams at (850) 414-4327 SC 994-4327 with any questions.