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16.1 Scope**16.1.4 Uses requiring Approval**

Delete clause and replace with the following:

The following uses require Approval:

- Any fibre or matrix not listed in 16.12 or 16.13
- FRP as primary for lifeline structures.

16.4 Durability**16.4.3 Fibres in FRC**

The use of alternative fibres shall not be considered by the Ministry.

16.4.6 Allowance for wear in deck slabs

Delete and replace with:

The requirement for an additional thickness of 10mm shall be waived by the Ministry.

16.7 Externally restrained deck slabs**16.7.1 General**

Delete Item (c) and replace with:

The total thickness of the deck slab, t , is at least 175 mm and at least $s/15$.

Delete Item (e) and replace with:

The deck slab is confined transversely by straps in accordance with the applicable provisions of Clause 16.7.2, 16.7.3 or 16.7.4.

Commentary: *The Ministry does not allow stay-in-place formwork*

16.7.2 Full-depth cast-in-place deck slabs

Delete Item (a) and replace with the following:

The top flanges of all adjacent supporting beams shall be connected by straps that are perpendicular to the supporting beams and either connected directly to the tops of the flanges, as in the case of the welded steel straps shown in Figure 16.6, or connected indirectly, as in the case of the partially studded

straps shown in Figure 16.7. Stay in place formwork is not an Approved transverse confining system.

16.7.3 Cast-in-place deck slabs on stay-in-place formwork

The clause is deleted in its entirety.

Commentary: *The Ministry does not allow stay-in-place formwork.*

16.7.4 Full-depth precast concrete deck slabs

The clause is deleted in its entirety.

16.8 Concrete beams and slabs

16.8.1 General

Commentary: *Gamil Tadros and John Newhook, under the sponsorship of ISIS Canada, have agreed to share their beam slab design spreadsheet as an aid to the designer. The designer is responsible for the use and results generated by this program. The Ministry does not warrant the accuracy of this program and does not accept any liability with regards to its use.*

[Deck Slab Bridge Design.xls](#)

16.11 Rehabilitation of existing concrete structures with FRP

16.11.3 Shear rehabilitation with externally bonded FRP systems

16.11.3.1 General

Seismic retrofit must also conform to the requirements of the Ministry's Bridge Standards and Procedures Manual - Volume 4, Seismic Retrofit Design Criteria.