

FDOT Evaluation Guide – Temporary Concrete Barrier

This is a guide developed to aid in evaluating the condition of Temporary Concrete Barrier used in work zones and is based, in part, on information published by the American Traffic Safety Services Association (ATSSA). This guide illustrates examples of FDOT specific Temporary Concrete Barriers, which include Type K, proprietary concrete (i.e. JJ Hook), and Low-Profile categorized into acceptable and unacceptable conditions. It should not be considered comprehensive and should be used in conjunction with good engineering judgement.

Introduction

Temporary concrete barriers are used in work zones to protect motorists and as Positive Protection to safeguard construction workers while construction activities are taking place. Temporary concrete barriers are subject to lose their effectiveness due to vehicle impacts as well as during the storage, shipment, installation, relocation, and removal of barriers. The performance of the barrier system depends on the condition of each barrier unit at the time of a project's initial installation as well as throughout the life of the project.

Since it is not practical to require new barrier units at all times, guidelines are needed to help evaluate the condition of temporary barrier to assure proper performance. Use these guidelines to aid in the determination of the condition of used temporary concrete barrier. A determination of the condition of temporary concrete barrier quality should be made at several stages: upon delivery to the project site, during initial setup, during phase changes, and periodically throughout the duration of the project. Contractors and inspectors are encouraged to apply these guidelines prior to installation of temporary concrete barrier to minimize agency involvement and reduce costs related to on-site replacement.

Quality Classifications and Guidance:

The quality classifications of TTC temporary concrete barrier in these guidelines have been divided into two categories: acceptable and unacceptable. Unacceptable barriers installed on the project must be repaired or replaced.

ACCEPTABLE

Temporary Concrete Barrier exhibiting the following conditions is considered Acceptable:

1. The barrier is completely intact and has only minor blemishes or imperfections, which may include superficial gouges or minor cracks. The barrier has no structural cracks or cracks that exist through the entire cross-section.
2. Minor spalls with a depth of 1.5 inches or less, and no exposed rebar (excluding anchor slots).
3. The unit-to-unit connection assemblies are functional with no damage, are all intact, and fixed in their positions.
4. Temporary Concrete Barrier previously repaired in accordance with Specification 102.
5. Examples of acceptable Low-Profile concrete barrier are shown in Figures 1 and 2.
6. Examples of acceptable Type K or Proprietary concrete barrier are shown in Figures 3, 4, and 5.



Figure 1: Examples of Acceptable Low-Profile Concrete Barrier



Figure 2: Acceptable Low-Profile Concrete Barrier with spalls of 1.5 inches or less



Figure 3: Examples of Acceptable Type K or Proprietary Concrete Barrier



Figure 4: Acceptable Type K or Proprietary Concrete Barrier Anchor Slots – From left to right: Undamaged anchor slot; Anchor slot with spalled concrete less than 1.5 inches in depth; Anchor slot with spalled concrete less than 1.5 inches in depth and exposed rebar



Figure 5: Examples of Acceptable Type K or Proprietary Concrete Barrier with spalls of 1.5 inches or less

UNACCEPTABLE

Temporary concrete barrier exhibiting any of the following conditions is considered unacceptable and must be repaired or replaced in accordance with Specification 102.

1. The barrier has multiple cracks throughout, structural cracks or cracks through the entire cross-section.
2. Spalls with a depth greater than 1.5 inches; any location with exposed rebar or rebar protruding from the barrier (excluding anchor slots); or bolts protruding from the barrier face.
3. Cracked or broken concrete that could easily be dislodged if hit, resulting in either of the two conditions above.
4. Anchored barrier with broken concrete with shear cracks.
5. The unit-to-unit connection assemblies are deformed, bent, broken, or no longer in a fixed position.
6. Examples of unacceptable Low-Profile concrete barrier are shown in Figure 6.
7. Examples of unacceptable Type K or Proprietary concrete barrier are shown in Figures 7 through 10.



Figure 6: Examples of Unacceptable Low-Profile Concrete Barrier – From left to right: Barrier with spall greater than 1.5 inches; Barrier with cracked and broken concrete that could easily be dislodged resulting in conditions 1 or 2 above; Barrier with damage to a connection assembly and spalling greater than 1.5 inches in depth with exposed rebar.



Figure 7: Example of Unacceptable Type K or Proprietary Concrete Barrier – Barrier has multiple cracks that extend through the entire cross-section and broken concrete with shear cracking around the anchor slots.



Figure 8: Examples of Unacceptable Type K or Proprietary Concrete Barrier with connection assembly damage – From left to right: Barrier has damage to unit-to-unit connection assembly and spalls greater than 1.5 inches in depth; Barrier has damage to unit-to-unit connection assembly, spalls greater than 1.5 inches in depth, and exposed rebar.



Figure 9: Examples of Unacceptable Type K or Proprietary Concrete Barrier with spalls greater than 1.5 inches– From left to right: Barrier has spalls greater than 1.5 inches in depth; Barriers have spalls greater than 1.5 inches in depth and the righthand unit has exposed rebar.



Figure 10: Examples of Unacceptable Type K or Proprietary Concrete Barrier with broken concrete or shear cracking at the anchor slot – From left to right: Concrete has completely broken away at the anchor slot due to shear cracking; Broken concrete at the anchor slot due to shear cracking; Broken concrete at the anchor slot due to shear cracking.