

# Precautions During Prestressing Concrete Operations

Included in this attachment are considerations for:

1. Patching concrete under prestressing bearing plates
2. Electric welding of prestressing strands

## **1- Patching Concrete Under Prestress Bearing Plates**

Epoxy tends to creep or flow under sustained high stress. Therefore, when patching or replacing concrete immediately behind a prestress bearing plate or in the bearing seat area, the repair shall not be made with material that uses epoxy as a binder. However, epoxy may be used for bonding the repair material to the existing concrete.

Extensive repairs should be re-poured rather than dry-packed. The concrete used in the repair area should have attained the strength required for the structure concrete before the stressing operation is started.

## **2- Electric Welding of Prestress Strands**

The issue of field welding prestressing strand typically arises when contractors want to arc weld the ends of the strands together to a pulling head. Welding the ends together prevents the individual strands from slipping in the bundle when the tendon is pulled through the duct.

The main concern with electrical welding of prestress strands is that stray current from the welding procedure may arc and pit a portion of the strand far from the actual weld location. The pitting damage to the strand may adversely affect the service life and performance of the post-tensioning system.

The use of pulling grips or non-electrical based welding of the strand ends (e.g. oxyacetylene brazing, chemical, etc.) are acceptable methods for pulling long prestress strands. Pulling grips are used extensively in the electrical industry and have been successfully used to pull long prestress tendons. Regardless of the method used, all damage to the strands caused by the pulling system must be removed (cut back) from the portion to be incorporated into the final work.