

San Diego Courthouse Tunnel (USA) Sheet Waterproofing

Country	USA, California (CA)
Type	Transfer Facilities Structure, Shaft & Pedestrian Tunnel
Client	County of San Diego, SDC Middle Block
Main Contractor	Guy F. Atkinson Construction, LLC
Execution of the work	Renesco Inc.
Designer	McMillen Jacobs Associates
Construction Period	2021

Project Description

The below-grade Courthouse Commons Tunnel in downtown San Diego connects the County Central Jail with the new State Courthouse. The tunnel crosses beneath a city block that is part of a larger multiblock development of new high-rise mixed-use residential and commercial projects.

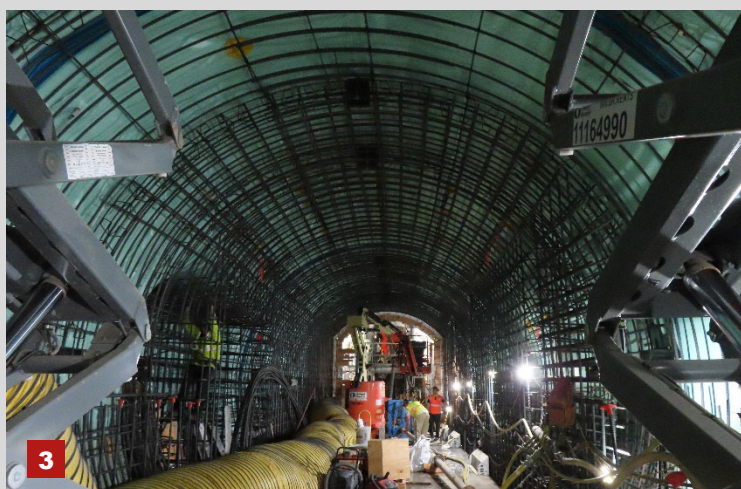
The 23-foot-diameter (7m) modified horseshoe tunnel is approximately 320 feet long (98m) and is to be constructed in alluvial soils across an active fault. The Courthouse Commons Tunnel is approximately 60 feet (18m) deep, and cover above the tunnel (the mid-block building foundations) is approximately 6 feet (1.8m). The groundwater table will be drawn down below the tunnel invert while the tunnel is constructed using sequential excavation methods (SEM). Pre-support comprises three arrays of canopy tubes between 80 (24m) and 100 feet (30m) in length under the mid-block buildings and pipe piles for the remainder of the tunnel. The low cover requires extensive geotechnical instrumentation to perform a real-time grouting program under sensitive foundations as the tunnel is advanced.

The Transfer Facilities Shaft is a three-story underground structure immediately adjacent to and connected with the existing Central Jail. The shaft is supported by a combination of secant piles and soldier piles and lagging with three bracing levels.

Scope of Service

Sheet waterproofing in region of high seismicity, loose-laid, full-round (360°) sealing onto a styrene protection board/foam (squeezing zone, crushable backfill) via specialized fixation technology.

- 100 mil (2.5mm) PVC-P sheet waterproofing
- Geotextile, Polypropylene (22oz./sq. yd)
- PVC-P Water barriers (11-1/4" width, 1-11/16" height, 4 ribs)
- Remedial Grouting System & Concept
- BA anchors
- Termination detail to an existing building, transfer from a fully bonded system
- Seismic Joint Details
- 10-year leak free warranty



1. Waterproofing System
2. Sheet waterproofing/ invert
3. Construction sequence, reinforcement, cast-in-place concrete