

9/11 MEMORIAL & MUSEUM

AUDIO TRANSCRIPT

Arturo Ressi

I'm Arturo Ressi. I was involved in the original construction of the slurry wall from the World Trade Center. Slurry wall is a special technique that allows for the construction of reinforced concrete wall from the ground down to any practical depth in the presence of water. And that was the problem in the site of the World Trade Center, because it was adjacent to the Hudson River, and any other excavation method of construction would have to deal with a enormous amount of water, and pumping would not have been sufficient. The Port of the New York Authority was the owner of the site, spent quite a bit of time investigating techniques, and the construction that was chosen was such that would have allowed for the excavation of the site to bedrock, because the planned building were so big and so heavy that the Port Authority would not want to rely on caissons or piling. They wanted actually to see the rock upon which they were going to be founded, and the only way in which that could be accomplished was to create a water-tight enclosure that would have allowed for the excavation of the whole site, exposure of the bedrock, and then creating the foundation of the bedrock.

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This was the first time it was used for a building foundation. The bedrock in Manhattan is particular. Technically, it's called a mica schist, and it is composed of layers that range from almost pure mica to almost pure quartz. Mica is relatively soft, and quartz is very hard. Due to the characteristic of the rock that was so variable, the designer of the building wanted to be sure that wherever they put the foundation of the building, it was an area of sound rock. The wall was designed to be retained by tiebacks, which are anchors that anchor the wall to the bedrock. The design was that when the floor system of the basement of the World Trade Center went against the wall, those anchors, those tieback, would be cut, because if they had failed differentially, one would have failed and then one near it not, they would have put differential stresses on the wall. So in order not to have that, they were all cut. So when the building collapsed and destroyed the floor system, the wall in many area was unsupported, because the floor system was not there and the tieback had been cut. So it should have collapsed.

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I remember when the final level at grade was built, that's when you couldn't see any more of the slurry wall from the outside. You could still see it from the inside in the basement where it could be visible until September 11th, when it was seen again, unfortunately. The slurry wall would have failed, the Hudson River would have come into the site and through the PATH tubes, would have gone to New Jersey, come back on 35th and flooded all the subway system of New York. And the loss of life would have been incredible. But thank God that the structure held, and I've always said it held because it wanted to. To say "Thank God" when 3000 people are killed seems strange, but it could have been much, much worse.

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