

CASE

High rise development in cities is constant. New buildings often get grafted onto the side of old ones, presenting unique problems for engineers and architects. In nearly every instance the old building has finished settling, but the new one will start its process even before it is completed.

In this case study involving the construction of a new Calgary high-rise, in Alberta, Canada, there were serious considerations arising from the city being located on a bend of the Bow River with its relatively high water table and permeable sandstone substrate on which the foundations were being based.

Problem

The core issue was the need for absolute imperviousness to water between the older building that currently houses much sophisticated telephonic switch gear and the new one as any ingress of water up through the foundations or touching walls could, potentially, have a catastrophic effect on the telecommunications equipment and wiring. The pair of buildings forms a highly important Western Canadian telecommunications hub.

Anticipating potential movement, albeit likely to be measured in millimetres annually, it was vital that the coating have a very long term retained flexibility and integrity. Conventional epoxy coatings typically micro-crack very quickly if subjected to any kind of physical movement or contraction and expansion caused by temperature fluctuations.

Another critical consideration was the time constraints of a two-week foundation work window from the contract being let to completion and handover. Also, the preparation work had to make sure the asphalt encountered was properly coated as removal prep work could not involve high pressure water.

Solution

Ecodur was chosen as it demonstrably has performed in decades-old applications on ship decks and concrete structures, including high traffic areas. Salt water tests have shown no measurable degradation for samples submerged for over 20 years.

Ecodur permanently retains its flexibility for the entire life of the coating as it also does for any future remedial work because of its ability to re-bond to original Ecodur coated surfaces. An additional advantage in this case is it actually polymerises with asphalt unlike conventional coatings. Ecodur is made from vegetable oil and gypsum and its unique chemistry, as a 'plas-



ticised gypsum', produces double the adhesion of most industrial coatings with it even sticking aggressively to Teflon in some cases.

Ecodur's VOC-free status and complete freedom from solvents either in content, application or clean-up, was significantly advantageous as it meant there were no toxicity considerations for close-by workers who were thus able to carry on working without major areas being shut down. Additionally, the tight time frame for the start of main construction phase was not compromised.

Application Results

The job was completed on time by Ener-Spray Services with full handover within 24 hours of completion of the spraying. Typical epoxy coatings often require three to four days for full cure. No anomalies were reported.

The case study marks an important step for Ecodur as it is the first time it has been used in a substantial way as a foundation membrane for a major North American multi-storey building with an absolute requirement for foundation envelope integrity not only in where it stands but also with an older building immediately adjacent. It also demonstrated its compatibility with polyurethane foam and geotextile protective covering.

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