

# Rawmat HDB - Waterproofing Case History: 717 Atlantic Avenue Elevator Pit, Boston, Jan 2006

## The Problem:

This 100 year old building is situated in the old tannery district of Boston close to the harbor. Originally a fur storage warehouse the building was converted into condominiums in the 1980's. The elevator pit needed to be deepened to satisfy building codes. The elevator shaft was also prone to frequent flooding due to the high water table. Geotechnical investigation identified Perchloroethylene (Perc) in the ground. Perc is extremely volatile and classified by the EPA as a Class1 carcinogen. Perc is a strong solvent and very aggressive to most waterproofing materials. The problem was finding a waterproofing system that would resist Perc. Under the direction of Environmental Consultant GZA, contaminated water was collected and used to test Rawmat HDB membrane to prove that the product would be resistant to the Perc contaminated into system.



## The Solution:

Rawmat HDB membrane was found to be extremely resistant to the contaminated water and the swell characteristics of its clay core were unaffected. The material was left on test for 3 months. Most polymer based waterproof products show signs of attack after only a few hours in such liquids. As a results following system was specified.

**Waterproofing Membrane: Rawmat HDB:** a pre-hydrated platelet aligned polymer modified sodium bentonite waterproof membrane. It is a high density, polymerized, chemically resistant, pre-hydrated, bentonite waterproofing membrane specially developed for below grade waterproofing. The vacuum extrusion process produces a dense clay mass and aligns bentonite platelets which makes the product resistant to dry-out and freeze/thaw attack.

A key advantage is that the product provides an immediate gas and vapor barrier as well as forming a block to the passage of a variety of liquids including many contaminants which degrade conventional waterproofing barriers. The material has the capacity to self heal punctures whilst being a completely natural material without any health and safety restrictions.

**Water Stop: Rawseal HDB:** is a prehydrated vacuum extruded polymer modified sodium bentonite waterstop. This produces a very high performance waterstop which will swell in saline and contaminated ground water and form a flexible compressive seal within the construction joints in concrete.

Both products have a successful international track record world wide for use in saline and chemical contaminated water.

## Application:



Elevator pit prior to waterproofing

Rawmat HDB was applied to the floor of the elevator pit to form an immediate barrier to the ground water and contamination in the ground, the membrane was then covered with an 8 inch (200mm) thick concrete floor slab poured directly on to the membrane. The horizontal sheets of this very flexible membrane passing from beneath the base of the elevator shaft were overlapped and sealed to the vertical membrane which was fixed to the existing masonry walls of the shaft to provide a barrier to liquid entering the lift shaft during periods of high ground water. The membrane formed a self adhesive bond to both the existing shaft wall and the newly constructed base to prevent any ingress of water in the event of movement in the structure or puncture of the membrane. The transition in the floor to wall kicker joints were sealed using Rawseal SQ25 waterstop.



Installation of Rawmat HDB prior to placing concrete