Below Grade Waterproofing

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Waterproofing – Site Evaluation

- Water table
- Hydrostatic Head
- Local Topography, Soil Type, Contaminates, Gas
- Historical information
- Utilities
Waterproofing
- Basement Grades

- Wet
  - Some Seepage and Damp Areas Tolerable
- Damp
  - Damp Areas Tolerable
- Dry
  - No Water Penetration Acceptable
Waterproofing
- Protection Types

• Type A - Barrier-Physical Barrier
  – Fully Bonded Membranes, Loose Laid Geosynthetic Clay Liners
  – Cementitious Mortars, Liquid Waterproofing Systems
• Type B - Structural Integral-Protection by Design
  – Admixtures, Controlled Crack Width Design
  – Sheet Piling (may need further protection)
• Type C - Drained Protection-Cavity Drain
  – Preformed Cavity Formers
  – Designed Open Cavity
Type A - Barrier-Physical Barrier

- Pre-Applied Bonded Membranes
- Bonded Sheet Membranes
- Cementitious Coatings
- Mastic Asphalt
- Mechanical Key Membranes
- Bentonite Carpets
Type B - Structural Integral-Protection by Design

- Structural Design
- Concrete Design with Admixture
- Sheet Piled Wall
Type C - Drained Protection-Cavity Drain

- Drain Cavity
- Open Cavity Design
Use of Combined Systems Reduces Risk
Systems Can Fail
Repair of Cracks and Voids

- Epoxy Injection
- Chemical Grouting
- Cement Grouting
Epoxy Injection
Chemical Grouting

- Often used to seal water leakage
  - Many are single component
  - Some are expansive
  - Some react very quickly with water
Chemical Grouting
Negative Side Waterproofing  
- Steps to Success

- Stop Active leaks
- Dry Clean Substate
- Waterproofing Product Should Be Mineral Based
  - Becomes one with substrate
  - Material has to be open to vapor transmission
  - Product has to be able to resist high water pressure
Waterproofing - Summary

• Three Types of Barriers
  – Type A - Barrier-Physical Barrier
  – Type B - Structural Integral-Protection by Design
  – Type C - Drained Protection-Cavity Drain

• Combined Systems Reduce risk

• Positive Side Waterproofing Most Effective

• Negative Side Waterproofing Options
  – Epoxy Injection
  – Chemical Injection
  – Cementitious Injection
  – Negative side Coatings/Membranes
Questions