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My Concrete Is Cracked! Is that okay?

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MWH[®]

BUILDING A BETTER WORLD

Tate Modern reveals giant crack in civilization



Cracks in existing facilities

- Shrinkage cracks.
 - Cracks, spalls and corrosion.
 - Cracks from differential settlement.
 - Alkali Silica Reactive concrete (ASR)
 - Overloading of the structure.
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- Construction of water tight structures – Dusit Roongsang, 4pm, this room

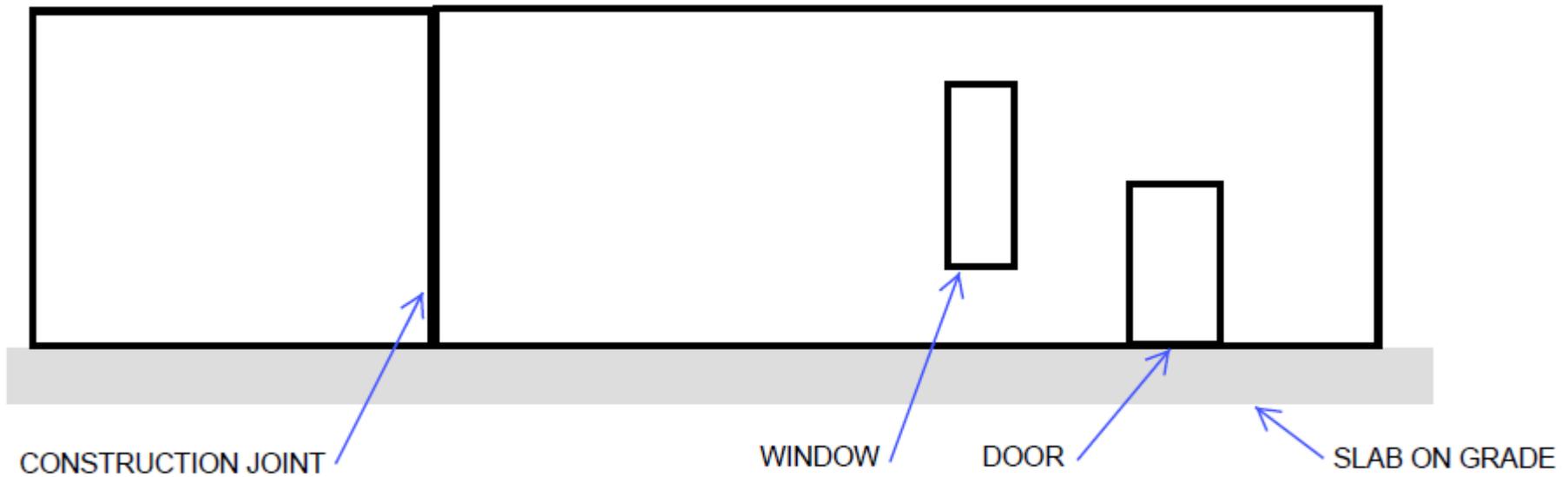


The facts of (concrete) life.

- Concrete shrinks as it cures.
- When restrained (which it almost always is), internal tensile stresses form.
- Concrete preforms well in compression, poor in tension.
- Rebar preforms well in tension,
but cannot resist all tensile stresses in every case.
- **Concrete cracks!**



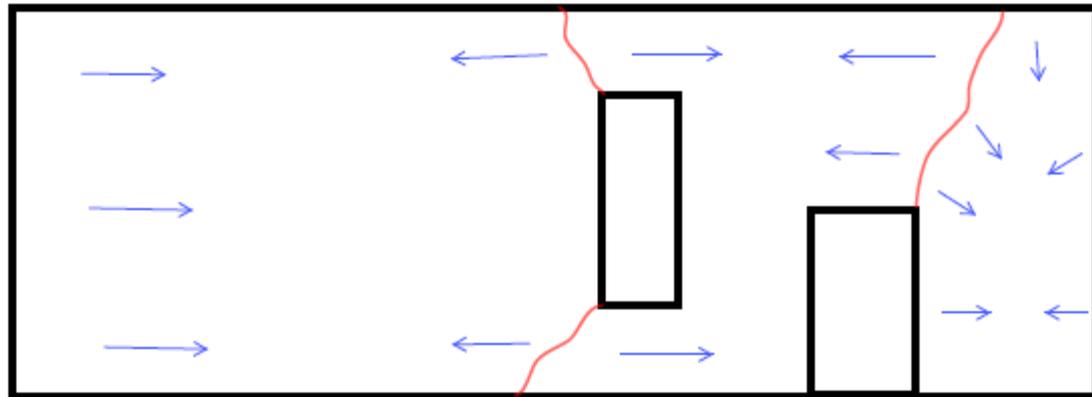
Shrinkage Cracks



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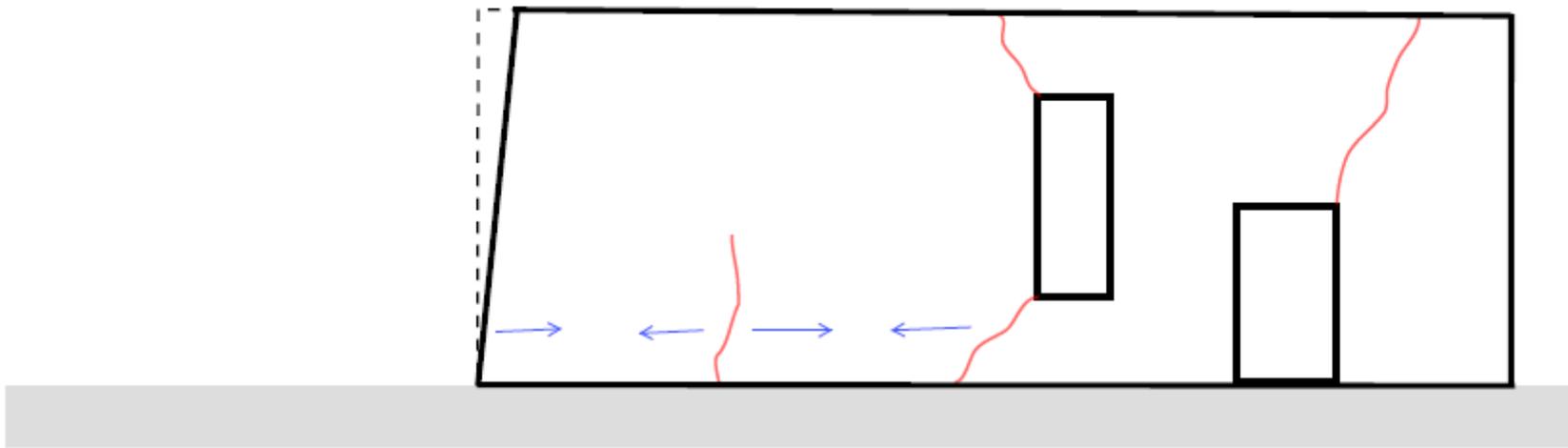
Shrinkage Cracks



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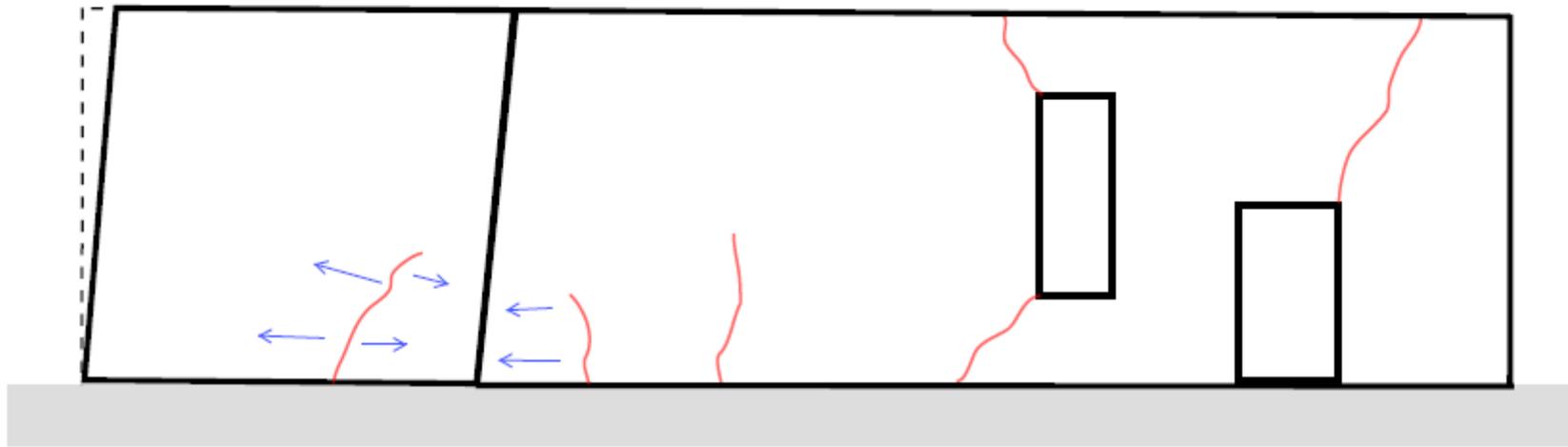
Shrinkage Cracks



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Shrinkage Cracks



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Shrinkage Cracks Leaking Water



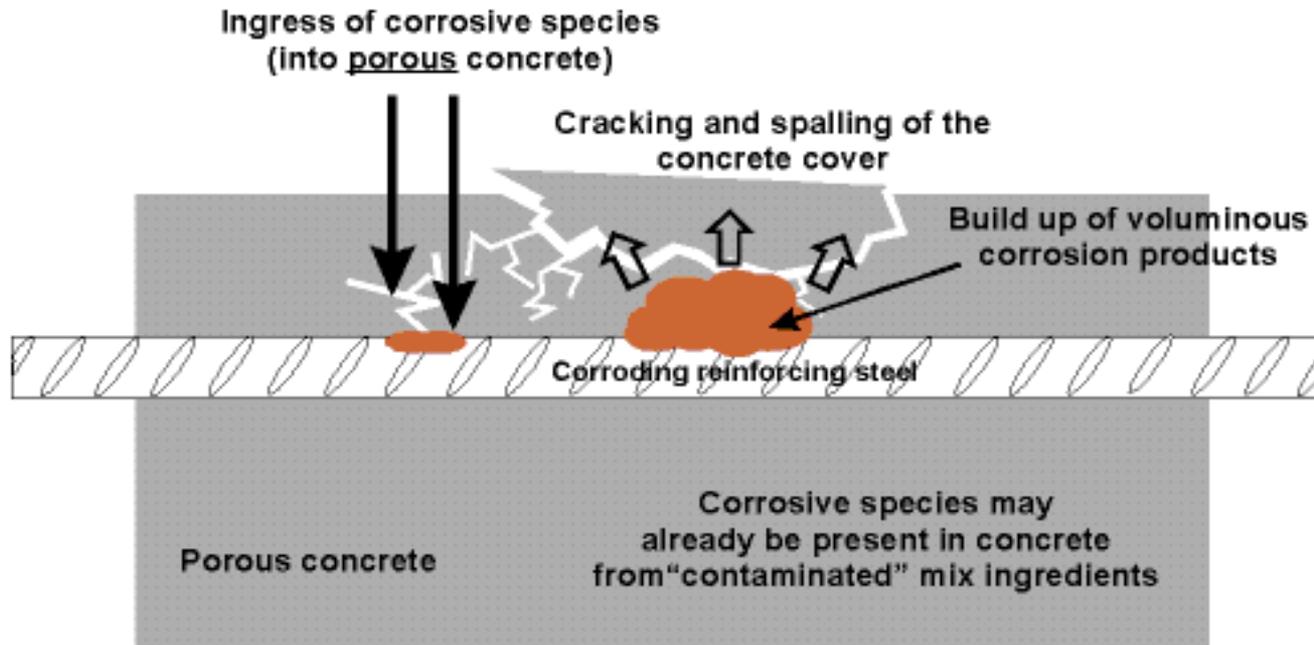
Shrinkage Cracks Leaking Water



Differential Settlement Cracks



Spalled Concrete



Spalled Concrete



Spalled Concrete



Spalled Concrete



Alkali Silica Reactivity



Structural Overloading

- Beams and suspended slabs do deflect. **OKAY**
- As load increases, reinforcing in engaged and concrete cracks. **OKAY**
- As load increases, cracks grow significantly in size and length, from the bottom of the beam almost to the top. **(NOT OKAY)**
- Chunks of concrete spall off columns exposing reinforcing. **(NOT OKAY)**



If in doubt, call a professional engineer.



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