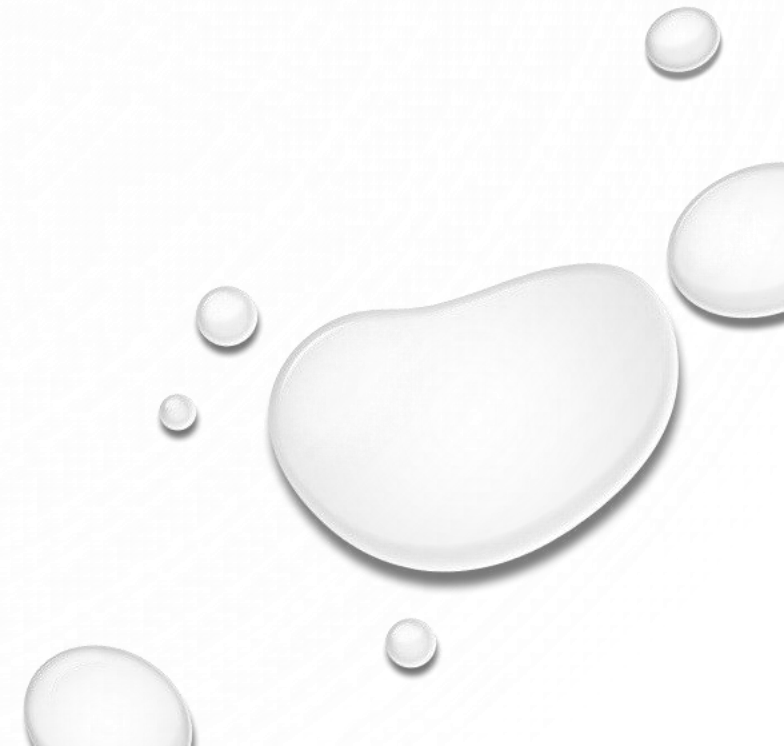


# Waterproofing Misconceptions Rundown



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# Overview

- Why is Waterproofing Important?
- Why do Misconceptions Exist?
- What are the 10 Most Common Misconceptions?
- How to Improve Waterproofing Practices?
- Questions?

# Why is Waterproofing Important?

- It protects the underlying structure and is a water barrier
- The health of the structure is contingent on the performance of the waterproofing system
- Premature failure of the waterproofing system can have substantial cost implications to building owners



# Why do Misconceptions Exist?

Misconceptions may arise when stakeholders in the waterproofing industry exhibit some of the following attributes:

- Lack of knowledge/experience
- Not fully understand site conditions
- Make wrong assumptions of what works

# Common Types of Waterproofing Misconceptions

- Surface Preparation
- Substrate Conditions
- Waterproofing Applications
- Maintenance and Repairs

# Waterproofing Misconception 1

Misconception 1: Newly placed concrete with a broom/trowel finish does not require surface preparation.

# Waterproofing Misconception 1

- Does not achieve the appropriate concrete surface profile for good bond
- Need to remove concrete laitance



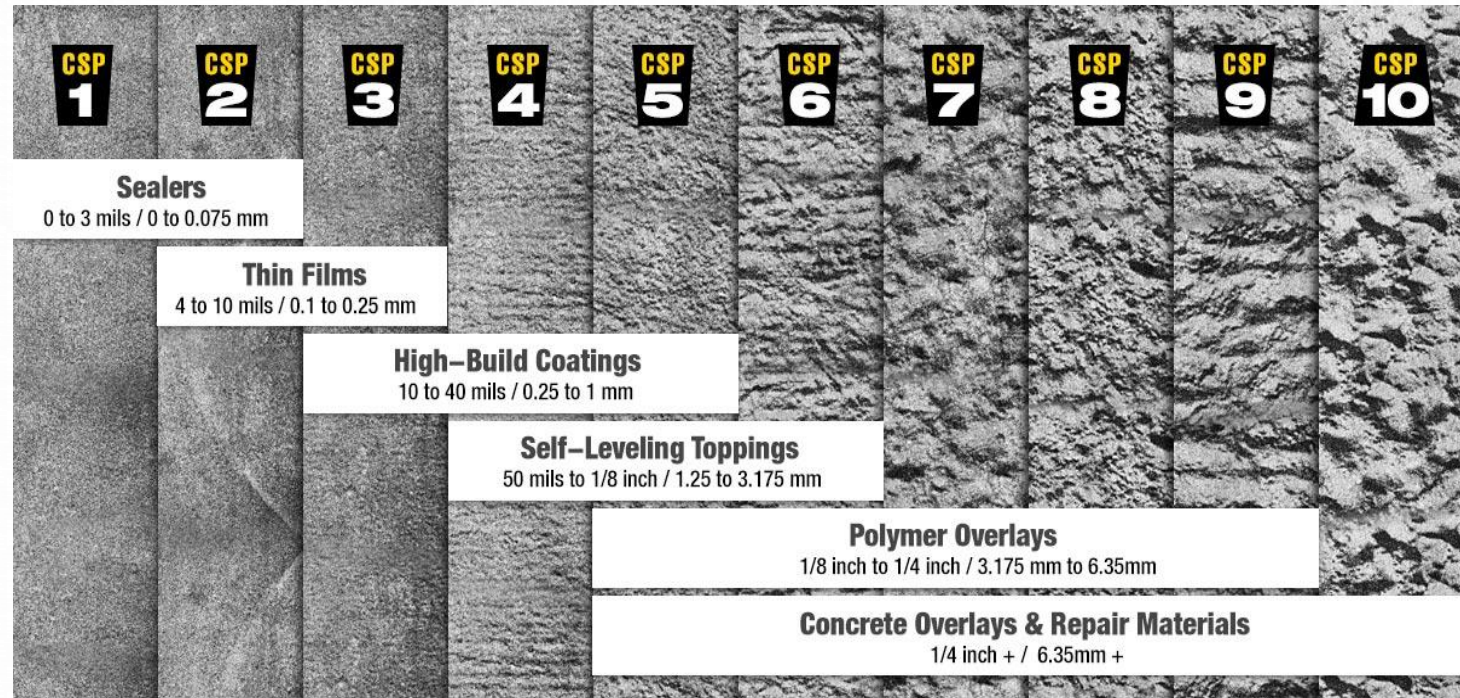
# Waterproofing Misconception 2

Misconception 2: Using a handheld grinder is sufficient preparation for waterproofing application.



# Waterproofing Misconception 2

- Grinding cannot achieve the appropriate concrete surface profile (CSP) of 3-4
- Typically classified as a maximum of CSP 1-2
- Refer to ICRI Guideline No. 310.2R-2013



# Waterproofing Misconception 3

Misconception 3: Using high early strength ready mix concrete means you can apply waterproofing sooner.

# Waterproofing Misconception 3

- Level of moisture present is the key vs. the amount of strength gain
- General rule of thumb, it takes a minimum of 2 weeks for moisture to dissipate.
- Consider using a low moisture concrete mix





# Waterproofing Misconception 3

- Moisture in substrate exceeding maximum thresholds can potentially result in debonded waterproofing membrane.
- Perform an adhesion test as a quality control measure.





# Waterproofing Misconception 4

Misconception 4: Waterproofing can be applied to a non vented composite steel deck or hollow core slab.

# Waterproofing Misconception 4

- CSA S413 H.9.3.1 requires the composite steel deck to be perforated



# Waterproofing Misconception 4

- CSA S413 H.7.8.4 requires drainage holes to allow water to drain from slab with voids



# Waterproofing Misconception 5

Misconception 5: Moisture only moves vertically.





# Waterproofing Misconception 5

- Moisture can dissipate laterally from walls to slabs



# Waterproofing Misconception 5

- Common source of water migration and debonded membrane is the trench drain.



# Waterproofing Misconception 6

Misconception 6: Chloride contaminated concrete surfaces are ok to waterproof.



# Waterproofing Misconception 6

- If chloride contamination is suspected on suspended slabs, perform chloride testing at the top surface as well as at the steel rebar.





# Waterproofing Misconception 6

- Top surface chloride contamination if not treated can potentially attract moisture and debond the waterproofing membrane.
- Another sign is a white powdery layer on the surface when dry.



# Waterproofing Misconception 7

Misconception 7: Thicker polyurethane thin membrane system is better right?

# Waterproofing Misconception 7

- Thin membrane system coating layers are engineered to certain thicknesses. The thicker the coating the less flexibility and elongation capability. Also can cause the membrane to be spongy.





# Waterproofing Misconception 7

- If the waterproofing system is applied to thin it is more prone to debonding and premature failure.





# Waterproofing Misconception 8

Misconception 8: Standard polyurethane thin system traffic coatings are a durable option for roof decks on multi-story garages.

# Waterproofing Misconception 8

- Standard exposed polyurethane coating will be more susceptible to damage from various sources.
- High performance coatings like PMMA or PUMA should be considered and/or install a concrete or asphalt topping over a waterproofing system



# Waterproofing Misconception 9

Misconception 9: A crystalline coating is considered a traditional waterproofing system.

# Waterproofing Misconception 9

- Crystalline coatings are classified as plugs and are not an external water barrier.
- Should not be used on the underside of a suspended slab that is readily accessible from the topside.





# Waterproofing Misconception 10

Misconception 10: The waterproofing will last 20 years without any maintenance.

# Waterproofing Misconception 10

- Failures are inevitable at penetrations, movement joints, high traffic areas.
- Important to address the failed waterproofing before it affects the structure.



# Waterproofing Misconception 10

- The CSA S413 standard provides guidance on maintenance and condition audits.

S413-07

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## *Annex E (informative)* **Maintenance**

**Note:** *This Annex is an informative (non-mandatory) part of this Standard.*

### **E.1 Routine maintenance**

Routine maintenance is necessary if the structure is to remain durable throughout its design service life (see Parking Consultants Council, 2006). Inspections should take place at regularly scheduled intervals (e.g., a walk-through survey annually and a more extensive condition audit about every three years). Any defects should be immediately repaired. The cost of repairs to protection systems is a small fraction of the cost of repairing consequential damage to the structure.

The inspection should be carried out under the direction of personnel knowledgeable in parking garage deterioration and repair.

# How to Improve Waterproofing Practices?

- Education and practical training is key for all stakeholders to improve the application and review process for waterproofing.
- Focus on understanding the existing site conditions and ensuring that surface preparation is done properly.
- Understand the limitations and appropriate use of various waterproofing products.
- Increase quality control measures prior to, during and following waterproofing membrane application.



# Questions?

Thank you!

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