

# WATER DAMAGE DURING CONSTRUCTION

## A Contractor's loss prevention guide

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### INTRODUCTION

Most water losses are preventable by reducing construction defects.

Water damage is a major cause of loss during construction and represents a substantial portion of Builder's Risk claims. Water damage occurs in many types of construction projects and it affects small and large projects alike. The mitigation of water damage losses can reduce Builder's Risk claims and prevent project delays, which will ultimately benefit all parties involved including the owner, the contractor and the insurer. The majority of water losses are preventable if the contractor focuses on reducing construction defects. Water damage occurs from water entering the building envelope or from internal building releases. These water releases are most costly when interior construction is completed or water sensitive equipment is installed prior to the intrusion/release. In addition to expensive repairs, rework results in project delays (preventing the contractor from focusing on new profitable projects) and results in displeased owners.

### TYPICAL WATER DAMAGE CAUSES

#### Unsecured Building Openings

- Door and window openings
- Roof openings

#### Water Delivery or Drainage System Failure

- Plumbing system
- Fire protection system
- Mechanical system
- Drainage system

#### Subsurface Drainage Problems

- Dewatering operations issues

#### Material Storage Problems

- Water sensitive equipment stored improperly
- Failed just-in-time delivery results in improper storage
- Storage in low lying areas subject to water damage

#### Building Envelope System Deficiencies

- Door, window and exterior wall
- Roof, gutter, and window flashings
- Damp-proofing and waterproofing

#### Site Drainage Problems

- Improper drainage away from excavations and building structures
- Inadequate retention ponds

#### Foundation and Structural Element Problems

- Cracks/fissures in waterproofing structures
- Separation of building envelope elements
- Flooded/undermined excavations
- Excessive/premature loading

### BEST WATER DAMAGE PREVENTION PROGRAM ATTRIBUTES

The good news is that almost all water losses are preventable using risk management best practices that are relatively easy to implement, with only a negligible impact on the project budget. Prevention should occur at the following phases of construction:

- Pre-Construction
- Active-Construction
- Project Close-out/Post Construction

Typically, there are “General Program Measures” that are established at the corporate level and “Specific Construction Measures” that are addressed at the project level.

There are several steps that the contractor can take to prevent water damage in each phase of construction.

### PRE-CONSTRUCTION

#### General Program Measures

1. Implement a formal Quality Assessment and Quality Control (QA/QC) design program, including a constructability review. A constructability review prior to construction will help eliminate design problems that could lead to water damage.
2. Perform a peer review of all plans and specifications before beginning construction work on any project.
  - a. Plan and specification review should include review

6. Employ roofing and waterproofing consultants if internal resources for inspection are not available or the project type is outside of the company's expertise.
  - a. Consultants may be better able to identify deficient construction.
  - b. Hi



- f. Contact information for vendors and subcontractors who can provide services or supplies.
- g. Security measures that may be needed to protect the site, equipment and workers in case the weather emergency disrupts normal site security.

Allow only authorized fire protection contractors to place fire protection systems into service. Even if the fire protection system previously passed a hydrostatic test and were then drained, have the fire protection contractor return to recharge the system.

D Ensure that fire protection systems are hydrostatically tested per the requirements of the most recent edition of NFPA 13 "Standard for the Installation of Sprinkler Systems" and monitor for leakage during testing.

E Ensure that accept

18. Prevent the accumulations of snow and ice to avoid overloading an incomplete structure. Snow loads that accumulate during the construction process, especially when structural systems are not fully established, can result in structural failures and infiltration of water.
19. Maintain backup storage plans for water-sensitive materials and equipment. Even if you are relying on just-in-time delivery scheduling, it is rare to have everything proceed according to plan. Develop a backup dry storage plan in case the structure is not yet ready for safe installation of materials when delivered.
20. Identify and placard water shutoff valves on every floor for potable and fire water systems. In the event of a leak, time is critical to shut off the flow of water and prevent damage. Shutoff valves should be placarded and their location discussed routinely.  
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