

Flashing - *How to do it and not expose yourself*

OAA/RAIC Conference
May 2003

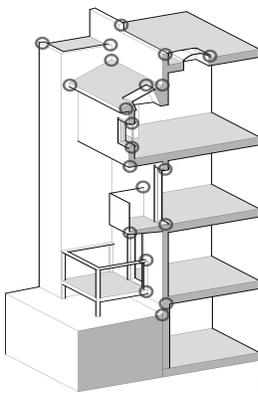
Dr John F Straube
Assistant Professor
Dept of Civil Engineering & School of Architecture
University of Waterloo, Ontario, Canada

www.civil.uwaterloo.ca/beg

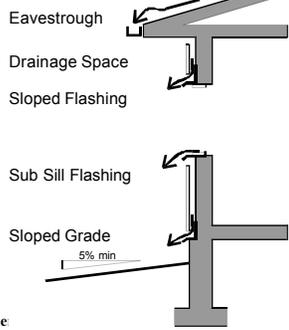
Overview

- ≠ **Flashing Basics and Problems**
- ≠ **Physical Principles**
- ≠ **Good Design Principles**
- ≠ **Flashing Windows**
- ≠ **Summary**

"House of Horrors"



Where to Flash?



Flashing

- ≠ **When??**
- ≠ **Design**
- ≠ **Installation**
- ≠ **Maintenance / Repair**

Physical Principles

- ≠ *Water runs downhill (!)*
- ≠ *Flashing is the perfect barrier in drained walls*
- ≠ *Nothing is installed flat or butted tight*
- ≠ *Everything moves*
- ≠ *Exposed caulking eventually fails*
- ≠ *If it doesn't get wet, it won't leak (exposure!)*





Types of Flashing

- ≠ Base flashing
- ≠ Counter flashing
- ≠ Step flashing
- ≠ Valley flashing
- ≠ Cap Flashing
- ≠ Wall Flashing – drainage plane to exit

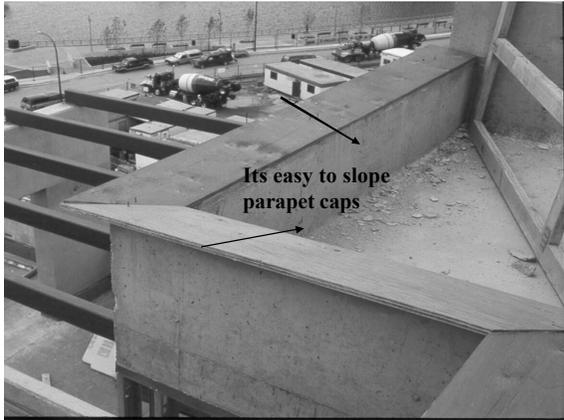
Requirements

- ≠ Slopes
 - drainage
- ≠ Continuity (Sealed Joints)
- ≠ End Dams, backstops, deflectors
- ≠ Drips
 - shedding
- ≠ Accommodate Movements
- ≠ Material choice Watertight

Slope

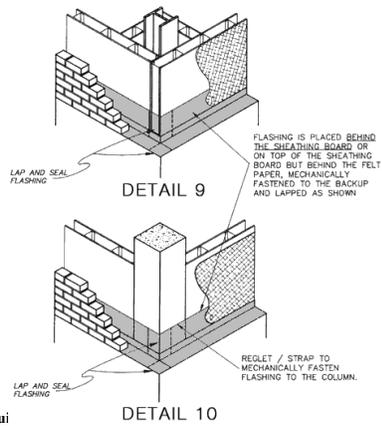
- ≠ encourage water flow with generous slopes
 - 1:12 is good, 1:6 is better.
- ≠ consider future settling and deflection
- ≠ “flat” means it slopes 50% to one direction
- ≠ wind drives water sideways on exposed flashing





Water can build up here -- we need a waterproof barrier

Note water standing



Drips

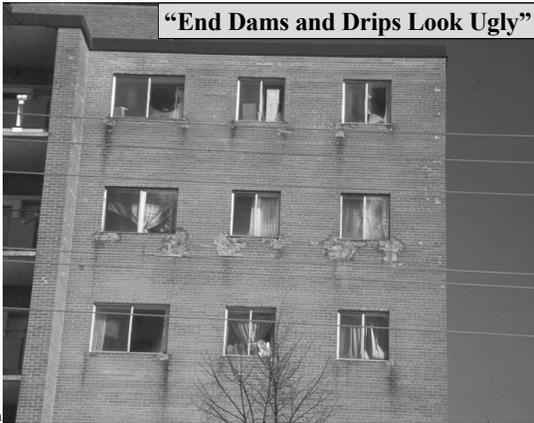
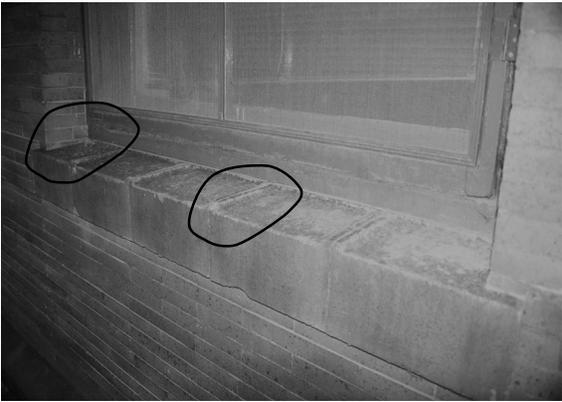
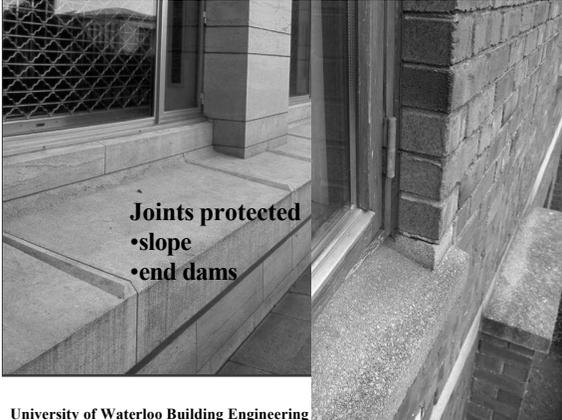
- ≠ project out from wall
 - Minimum 3/8" if you wish to drip free of wall
- ≠ control "run back" by grooves and edges



- Generous projection
- Clear drip groove
- Large side extensions

End-Dams & Backstops

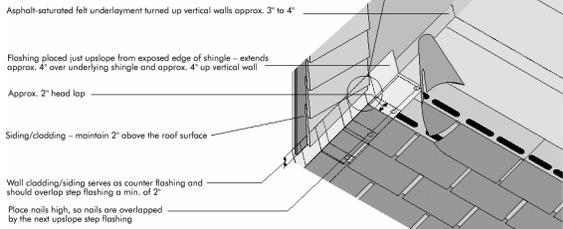
- ⚡ all low-slope flashings need end dams, e.g.
 - window-sills
 - masonry-veneer
- ⚡ Backstop at rear typically minimum of 4"
- ⚡ Typically specify 6" for high exposure
- ⚡ Corners must be made watertight - vulnerable



Low Roof to Wall

Common source of problems

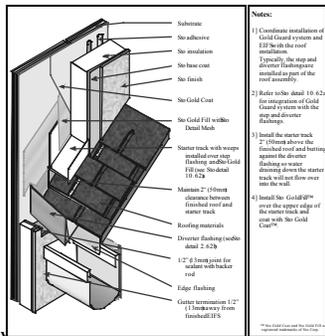
CLOSE UP OF FLASHING DETAIL



Roof to wall



Diverter Flashing

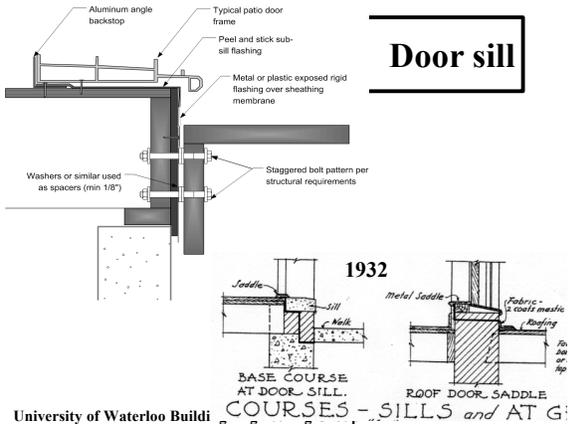


- Notes:**
- 1) Coordinate installation of Gold Coat system and FS with the roof assembly. Typically, the step and diverter flashings are installed as part of the roof assembly.
 - 2) Refer to the detail 10-624 for installation of Gold Coat FS with the step and diverter.
 - 3) Install the starter track 2" (50mm) above the finished roof and bottom against the diverter flashing to water allowing down the starter track without flow over into the wall.
 - 4) Install the GoldFill™ over the upper edge of the starter track and coat with the Gold Coat™.

Another simple, but critical, detail



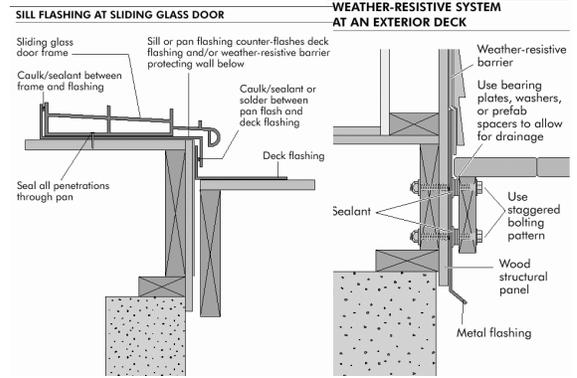
Door Sills



Door sill

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See www.apawood.org better built homes



Continuity: Seal joints

- ⚡ Remember -- Flashing acts as a waterproof layer
- ⚡ Seal all joints, or overlap and drain
- ⚡ Masonry, metal, and precast copings are not waterproof!

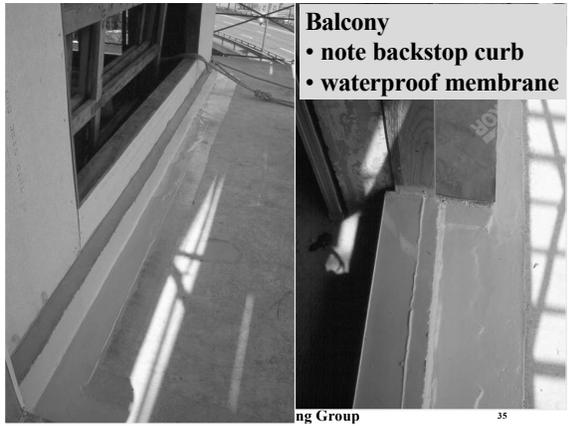
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33



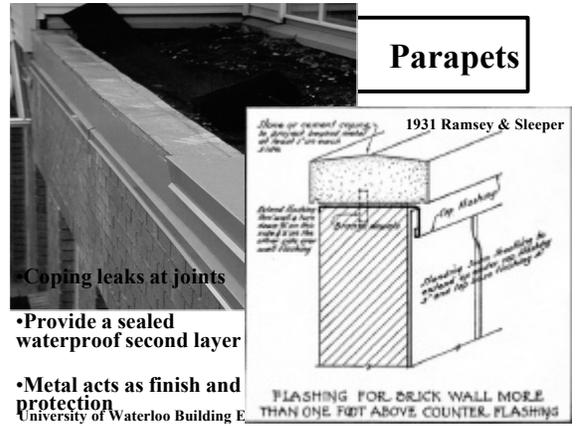
Continuity at Corners

34

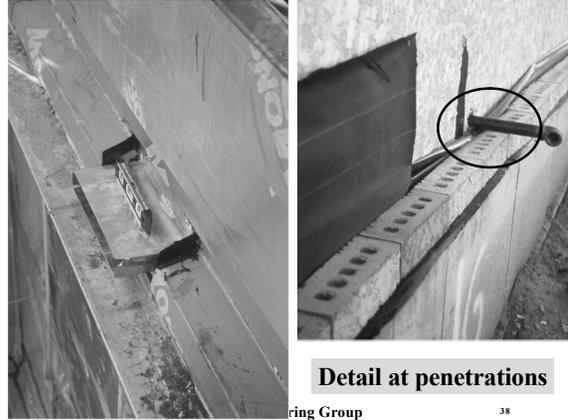
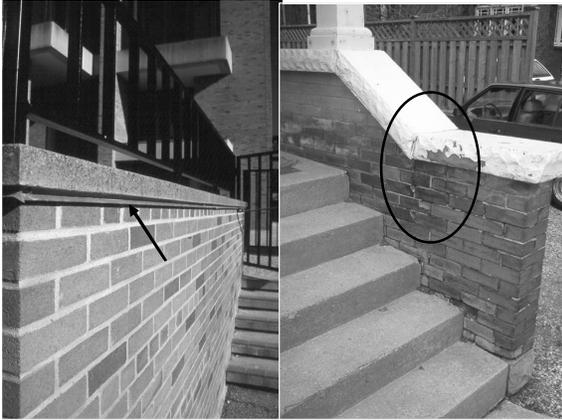


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35



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Accommodate movement

- ≪ Unrestrained flashing materials like metal and plastic expand and contract with temperature
- ≪ Metal copings and etc are susceptible to buckling
- ≪ provide S-lock joints, or sliding joints
- ≪ If flashing fixed and strong, OK.

Proper Materials

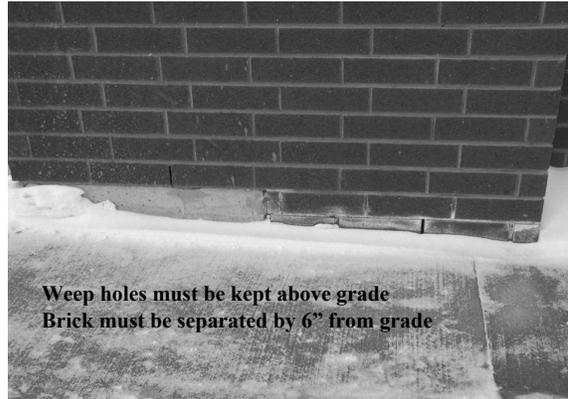
- ≪ **Waterproof**
- ≪ **Durable**
- ≪ **Compatible**
 - With adhesives, substrates, and fasteners
- ≪ **Formable**
 - at a range of temperatures
- ≪ **Mechanical properties**
 - Puncture resistance (Self-sealing)
 - tear resistant

Materials

- Poly
- PVC
- Galv steel
- Copper
- Lead coated copper

Capillary Break

- ≪ Flashing may provide a break for capillary flow
- ≪ Important at grade
- ≪ Important for claddings like wood, stone, masonry



Process

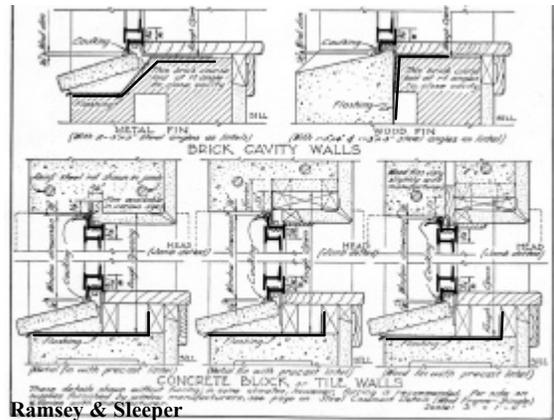
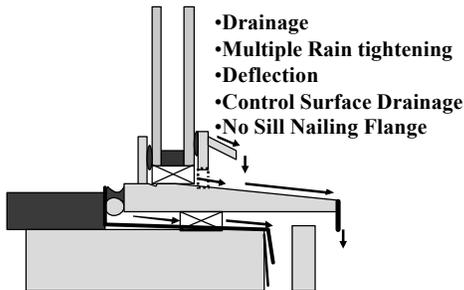
- ≠ Purpose / Need
- ≠ Choose Solution
 - Must be a detail
- ≠ Designer Checklist (Builder?)
- ≠ Installer Checklist (Builder, or subtrade)
- ≠ Maintenance Checklist
 - By whom Consumer? Builder?

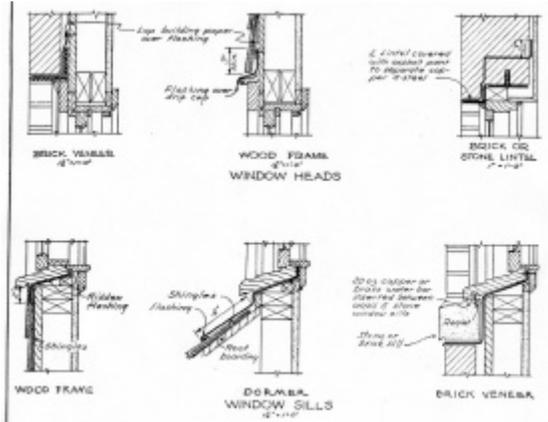
Flashing Windows - A Pane

- ≠ Windows often leak
- ≠ Joint between wall and window often leaks
- ≠ Windows interrupt the drainage plane
- ≠ Assume rain water enters the rough opening of the window
- ≠ So ...

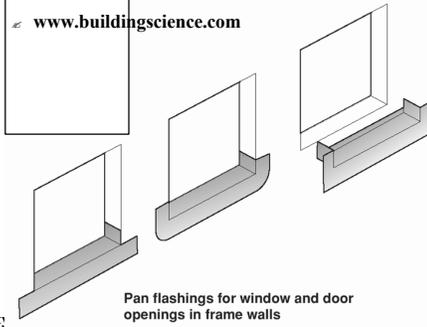
Provide Sub-Sill Flashing!

Window Principles



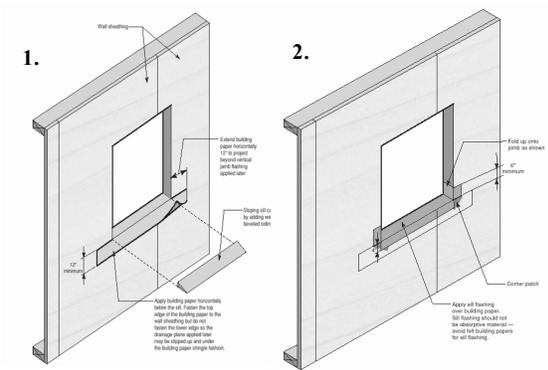


Sub-sill flashing



University

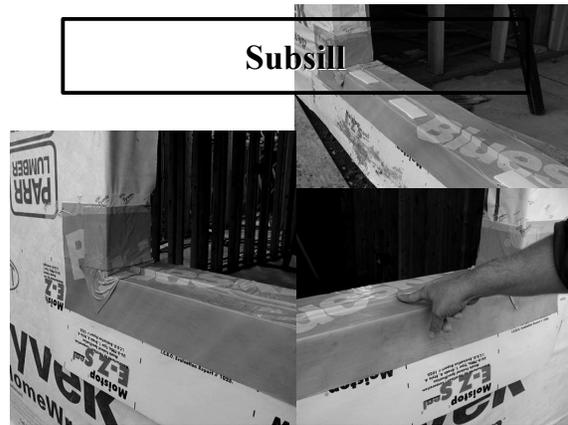
Pan flashings for window and door openings in frame walls



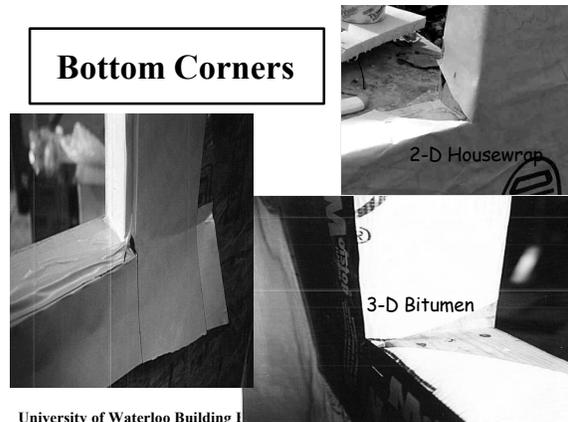
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51

Subsill



Bottom Corners



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Roof



Roof Valleys



Conclusions

Design Principles

- ≠ Slopes
 - drainage
- ≠ Continuity (Sealed Joints) Watertight
- ≠ End Dams, backstops, deflectors
- ≠ Drips
 - shedding
- ≠ Accommodate Movements
- ≠ Material choice