

## Technical Changes BC Building Code 2006

### Division B – Part 9 Housing and Small Buildings

#### 9.26., 9.27. Precipitation Protection

1

## 9.26. Roofing



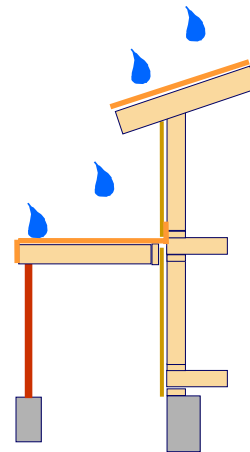
### 9.26.1.1. Purpose of Roofing

#### BCBC 1998

- applied to roofs

#### BCBC 2006

- roofs to include other constructions that serve as roofs
  - balconies
  - decks
  - exterior walkways
  - etc.



2

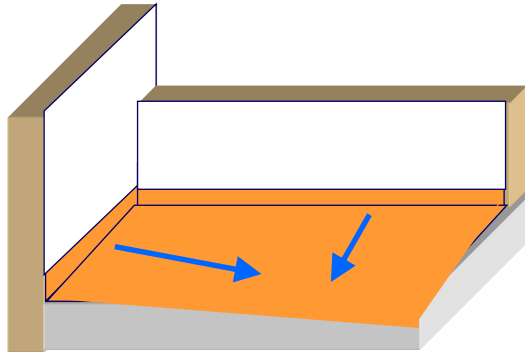
## 9.26. Roofing



### 9.26.3.1. Slope

#### BCBC 2006

- away from walls and clad guards



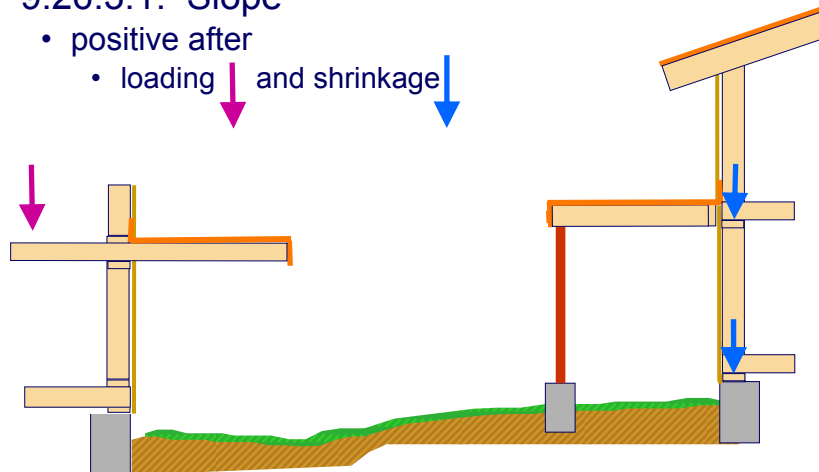
3

## 9.26. Roofing



### 9.26.3.1. Slope

- positive after
  - loading ↓ and shrinkage ↓



4

## 9.26. Roofing



### 9.26.3.1. Slope



Balconies with positive slope to accommodate shrinkage

Photo permission of Polygon Construction Management Ltd., Vancouver

5

## 9.26. Roofing



### 9.26.4.1. Required Flashing BCBC 1998



6

## 9.26. Roofing



### 9.26.4.1. Required Flashing



7

## 9.26. Roofing

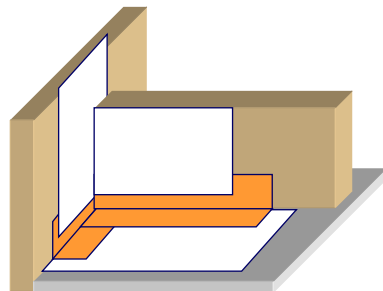


### 9.26.4.1. Required Flashing BCBC 2006

- all roof-wall junctions

AND

- junctions of similar types of constructions



8

## 9.27. Cladding



### 9.27.1. to 9.27.3.

- application
- protection against ...
- minimum precipitation protection
- location of sheathing membrane requirements
- flashing locations
- flashing configurations

9

## 9.27. Cladding

### 9.27.1. Application



BCBC 1998 Requirements	9.27. Cladding	9.20. Masonry	9.28. Stucco	Other
Performance	✓	—	—	—
Protection Level	—	—	—	—
Sealing	✓	ref 9.27.	ref 9.27.	—
Flashing	✓	✓	ref 9.27.	—
Materials				
lumber	✓			
shingles	✓			
wood-based	✓			
metal	✓			
vinyl	✓			

Part 5 ?

10

## 9.27. Cladding

### 9.27.1. Application



BCBC 2006 Requirements	9.27. Cladding	9.20. Masonry	9.28. Stucco	Other
Performance	✓	✓	✓	Part 5 ↓
Protection Level	✓	✓	✓	
Sealing	✓	✓ref 9.27.	✓ref 9.27.	
Flashing	✓	✓	✓ref 9.27.	
Materials				
lumber	✓			
shingles	✓			
wood-based	✓			
metal	✓			
vinyl	✓			

11

## 9.27. Cladding

### 9.27.2. Required Protection



#### 9.27.2.1. Minimizing and Preventing Ingress and Damage

- two performance requirements
  - precipitation protection consistent with Part 5
  - other damage mechanisms (mechanical, UV, etc.)



12

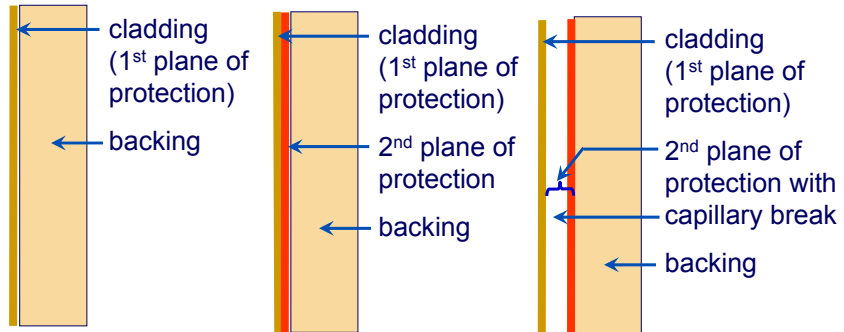
## 9.27. Cladding

### 9.27.2. Required Protection



#### 9.27.2.2. Minimum levels of protection

- required planes of protection
- required capillary breaks
- construction deemed to provide a capillary break



13

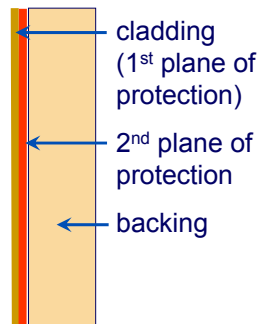
## 9.27. Cladding

### 9.27.2. Required Protection



#### 9.27.2.2. Minimum levels of protection

- two planes of protection for residential



14

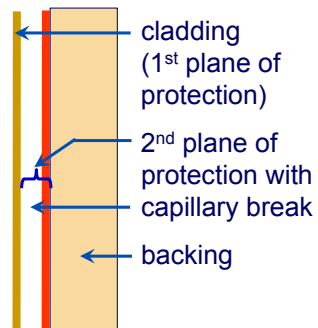
## 9.27. Cladding

### 9.27.2. Required Protection



#### 9.27.2.2. Minimum levels of protection

- two planes of protection for residential
- two planes of protection with a capillary break in regions with high exterior moisture loads



15

## 9.27. Cladding

### 9.27.2. Required Protection



#### 9.27.2.2. Minimum levels of protection

##### Capillary breaks

- clear air spaces between furring
- open drainage material
- configuration of interrupted air spaces typical of vinyl or aluminum siding



16



## 9.27. Cladding

### 9.27.2. Required Protection



#### Approaches for Determining Moisture Load

Optimum Approach	Rain	Wind Speed	Wind Direct'n	Temp	RH	Drying
------------------	------	------------	---------------	------	----	--------



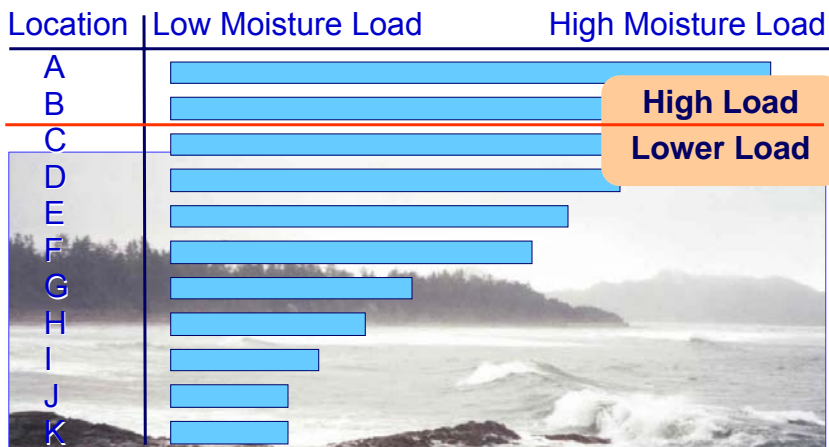
17

## 9.27. Cladding

### 9.27.2. Required Protection



#### Approaches for Determining Moisture Load



18

## 9.27. Cladding

### 9.27.2. Required Protection



#### Approaches for Determining Moisture Load



#### Moisture Index (MI) combines

- annual rainfall
- annual drying capacity

19

## 9.27. Cladding

### 9.27.2. Required Protection



Table C-2 (Continued)

Province and Location	Elev., m	Design Temperature				Degree-Days Below 18° C	15 Min. Rain, mm	One Day Rain, 1/50, mm	Ann. Rain, mm	Moist. Index	Ann. Tot. Ppn., mm	Driving Rain Wind Pres-sures, Pa, 1/5
		January		July 2.5%								
		2.5% °C	1% °C	Dry °C	Wet °C							
Tatamagouche	25	-21	-24	27	21	4500	18	118	875	1.05	1150	260
Truro	25	-21	-23	27	21	4650	18	123	1000	1.16	1175	240
Wolfville	35	-19	-21	28	21	4200	18	123	975	1.13	1175	260
Yarmouth	10	-13	-15	22	19	4100	13	150	1125	1.32	1260	280
<b>Prince Edward Island</b>												
Charlottetown	5	-20	-22	26	21	4600	13	107	900	1.09	1150	350
Souris	5	-19	-21	27	21	4650	13	112	950	1.14	1130	350
Summerside	10	-20	-22	27	21	4650	13	112	825	1.03	1060	350
Tignish	10	-20	-22	27	20	4800	13	96	800	1.01	1100	350
<b>Newfoundland</b>												
Argentia	15	-13	-15	21	18	4600	15	107	1250	1.47	1400	400
Bonavista	15	-17	-19	24	19	4950	18	96	825	1.11	1010	400
Buchans	255	-21	-24	26	19	5400	13	107	850	1.04	1125	200
Cape Harrison	5	-29	-31	27	16	6900	15	112	475	0.94	950	350
Cape Race	5	-14	-16	19	18	4900	18	139	1425	1.66	1550	400

20

**9.27. Cladding**  
**9.27.2. Required Protection**



**Table C-2 (Continued)**

15 Min. Rain, mm	One Day Rain, 1/50, mm	Ann. Rain, mm	Moist. Index	Ann. Tot. Ppn., mm	Driving Rain Wind Pressures, Pa, 1/5
18	118	875	1.05	1150	260
18	123	1000	1.16	1175	240
18	123	975	1.13	1175	260
13	150	1125	1.32	1260	280

21

**9.27. Cladding**  
**9.27.2. Required Protection**



**9.27.2.2. Minimum levels of protection**

- High moisture load areas have:
  - MI > 1.0 and  $\geq 3400$  dd
  - MI > 0.9 and < 3400 dd

22

## 9.27. Cladding

### 9.27.2. Required Protection



British Columbia



Map excerpted from  
National Geographic Atlas,  
Washington, 1963

23

## 9.27. Cladding

### 9.27.2. Required Protection



#### 9.27.2.3. First and Second Planes of Protection

- First Plane (cladding, trim, etc.)
  - minimize passage of rain and snow
- Second Plane
  - intercept incidental water
  - dissipate it to the exterior
- Continuity

24

## 9.27. Cladding

### 9.27.3. 2<sup>nd</sup> Plane of Protection



#### 9.27.3.1.

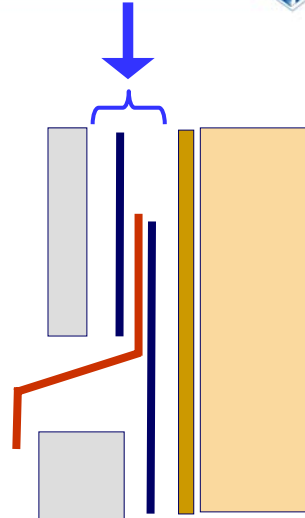
- elements of 2<sup>nd</sup> plane of protection

#### 9.27.3.2. to 9.27.3.6.

- sheathing membranes

#### 9.27.2.7. and 9.27.3.8.

- flashing



25

## 9.27. Cladding

### 9.27.3. 2<sup>nd</sup> Plane of Protection



#### 9.27.3.8. Flashing

#### Sentence (4) Configuration

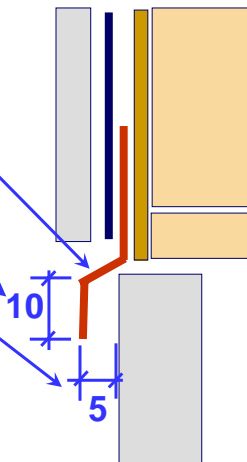


minimum 6% slope

minimum lap

minimum offset

end dams



26

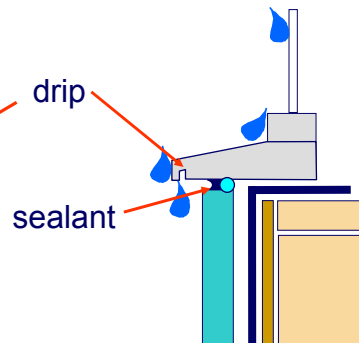
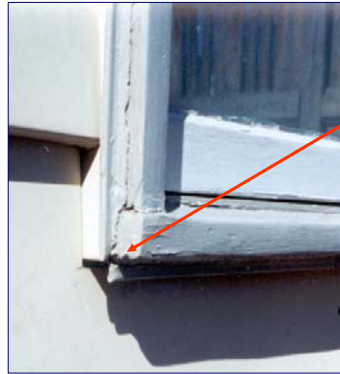
## 9.27. Cladding

### 9.27.3. 2<sup>nd</sup> Plane of Protection



#### 9.27.3.8. Flashing, Sentence (5) Self-Flashing Sills or Sub-Sill Drainage

- old wood windows



27

## 9.27. Cladding

### 9.27.3. 2<sup>nd</sup> Plane of Protection



#### 9.27.3.8. Flashing, Sentence (5) Self-Flashing Sills or Sub-Sill Drainage

- typical present-day window sill



28

## 9.27. Cladding

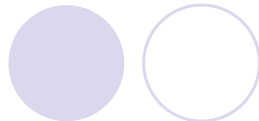
### 9.27.3. 2<sup>nd</sup> Plane of Protection



#### 9.27.3.8. Flashing, Sentence (5) Self-Flashing Sills or Sub-Sill Drainage

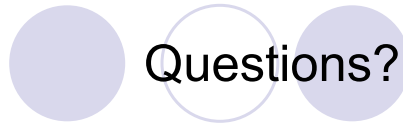
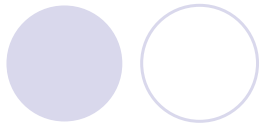


29



- **BCBC 2006**
- **9.26., 9.27. Precipitation Protection**
  - roofing and flashing
    - requirements apply to more constructions
  - cladding
    - two planes of protection for residential
    - two planes of protection with a capillary break in high moisture load regions
    - expanded flashing requirements

30




Questions?

- e-mail: [bob.thompson@gov.bc.ca](mailto:bob.thompson@gov.bc.ca)

- [www.bccodes.ca](http://www.bccodes.ca)

31




**Questions?**

---

**e-mail: [codes@nrc-cnrc.gc.ca](mailto:codes@nrc-cnrc.gc.ca)**

**[www.nationalcodes.ca](http://www.nationalcodes.ca)**



32