



# EAVES-DROPPING: THE NOT-SO-SECRET TRUTH ABOUT EAVES

IIBEC Western Chapter

2024 Spring Conference



# RCABC UPDATE: GREEN ROOF GUARANTEE

## Includes...

- Objective Standard (nearly complete)
- Training/qualified installers and maintenance professionals
- Accepted systems and materials
- Independent observations



# EAVES-DROPPING

WORD Play



# EAVES-DROPPING

**Eaves-drop**, /'ēvz, dräp/ (verb)

To secretly listen to a conversation. The word first referred to the water that fell from the eaves of a house, and then came to mean the ground where that water fell. Eventually, an “eavesdropper” was used to describe someone who stood within the eavesdrop of the house to overhear a conversation inside.



Jess Zafarris on X

# EAVES-DROPPING

Secrets...



# EAVES-DROPPING

Shhh!!!

...membrane protection at the lower edge of an asphalt shingled roof is required by the Building Code, on most roofs...



# EAVES-DROPPING

## Recipe for disaster:

Go directly to Article 9.26.5.1. (BCBC) and Mix

- snow on roof
- inadequate or no eave protection

Gradually stir in

- heat migration into attic (air leakage works best)

Slightly warm roof deck. Allow to stand at 0°C or colder for a few days.





# EAVES-DROPPING

Best served on clear, frigid nights.

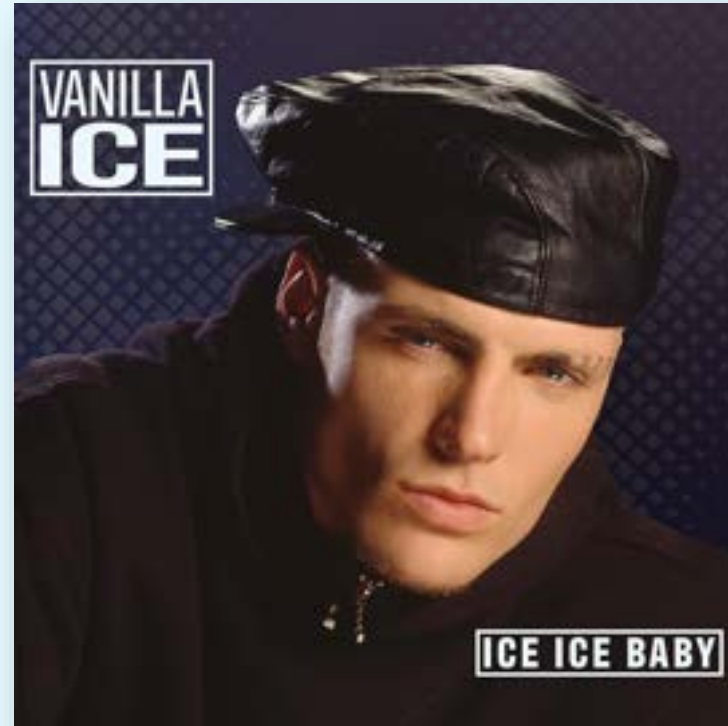
Makes one large serving of...





# EAVES-DROPPING

Ice, ice,  
baby!

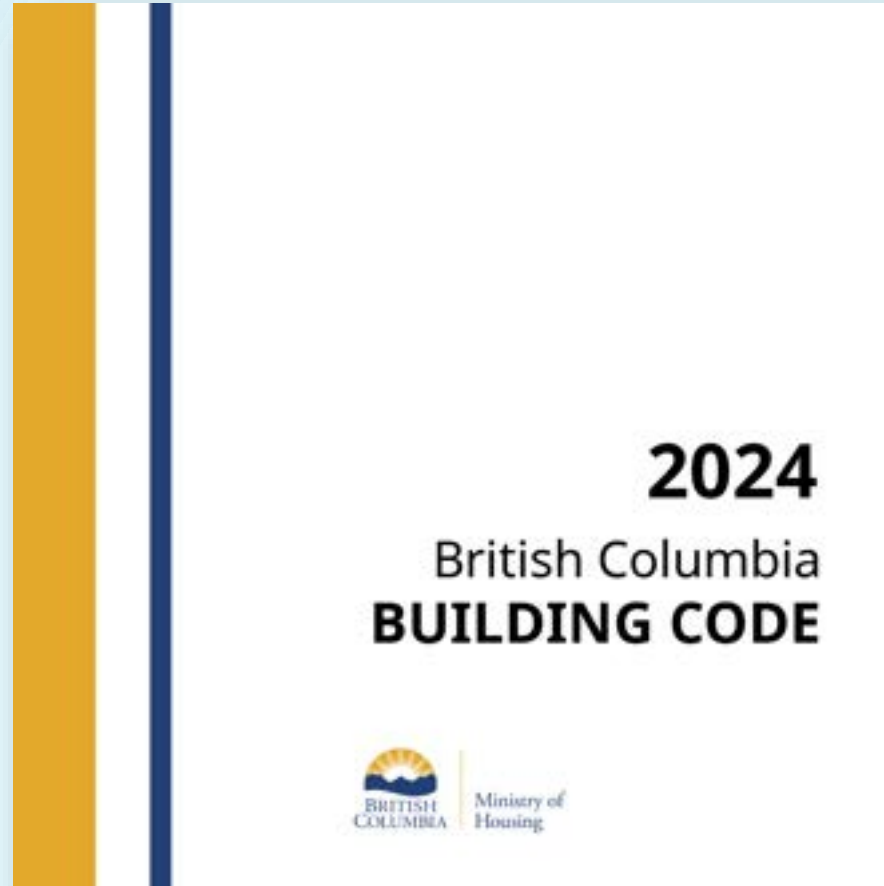


# EAVES-DROPPING

Sorry, I meant this...



# EAVES-DROPPING





# IT CAME UPON A MIDNIGHT CLEAR

## Ice damming:

- Eave protection does not prevent ice damming; it prevents interior water damage by keeping water on the outside of the structural deck.
- Can occur in just about any climate zone (more on this later)



# IT CAME UPON A MIDNIGHT CLEAR

## Ice damming:

- Eave protection does not prevent ice damming; it prevents interior water damage by keeping water on the outside of the structural deck.
- Can occur in just about any climate zone (more on this later)



# IT CAME UPON A MIDNIGHT CLEAR

## Ice damming:

- How do you know when eave protection is required by the Building Code? We'll get to that soon.



Image: Wawanesa Insurance Company



# IT CAME UPON A MIDNIGHT CLEAR



Eave protection is covered in Section 9.26. of the NBC/BCBC

Section 9.26. is about more than asphalt shingles, but asphalt shingles figure prominently in the Section.

# SPEAKING THE SAME LANGUAGE

**Alexander the Great** wasn't successful because he was a great warrior.

He was successful because he did one thing no one else before him had ever done:

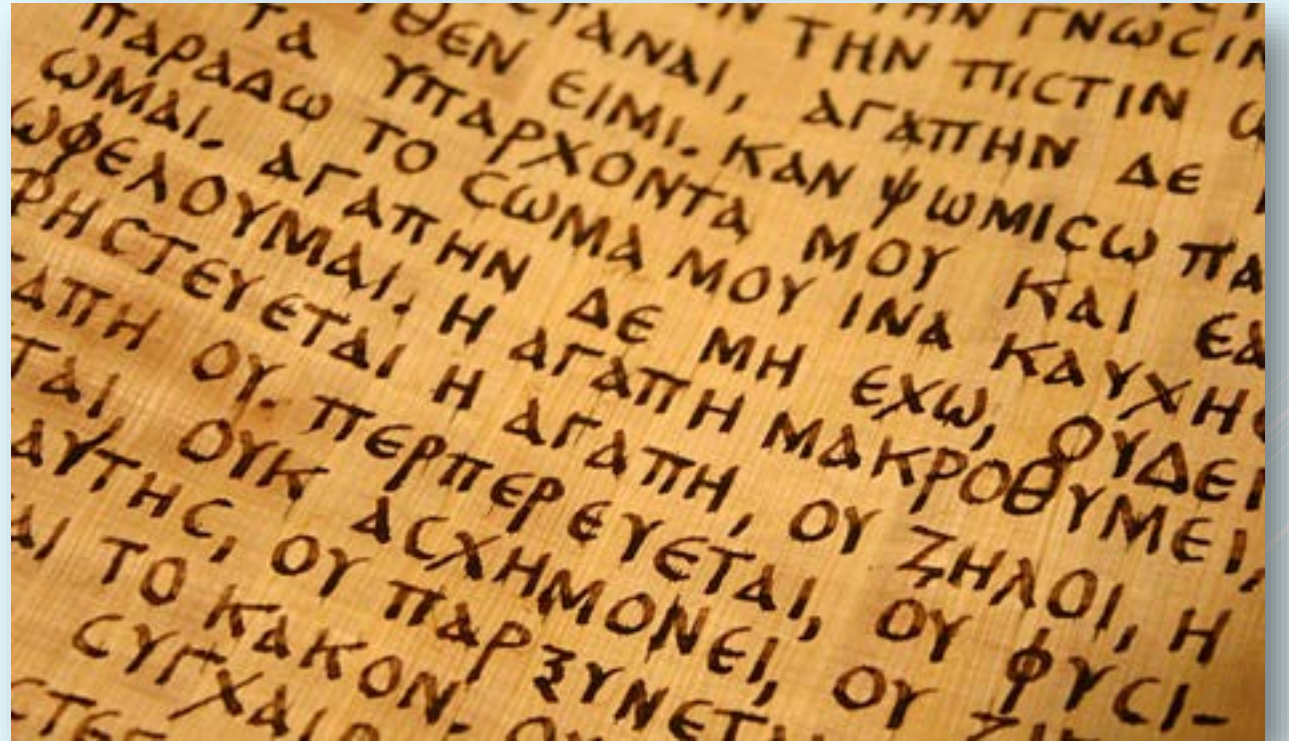




# SPEAKING THE SAME LANGUAGE

## A common language for commerce

Alexander instituted Koiné Greek as the language of empire so everyone in the marketplace would speak the same language.





# SPEAKING THE SAME LANGUAGE



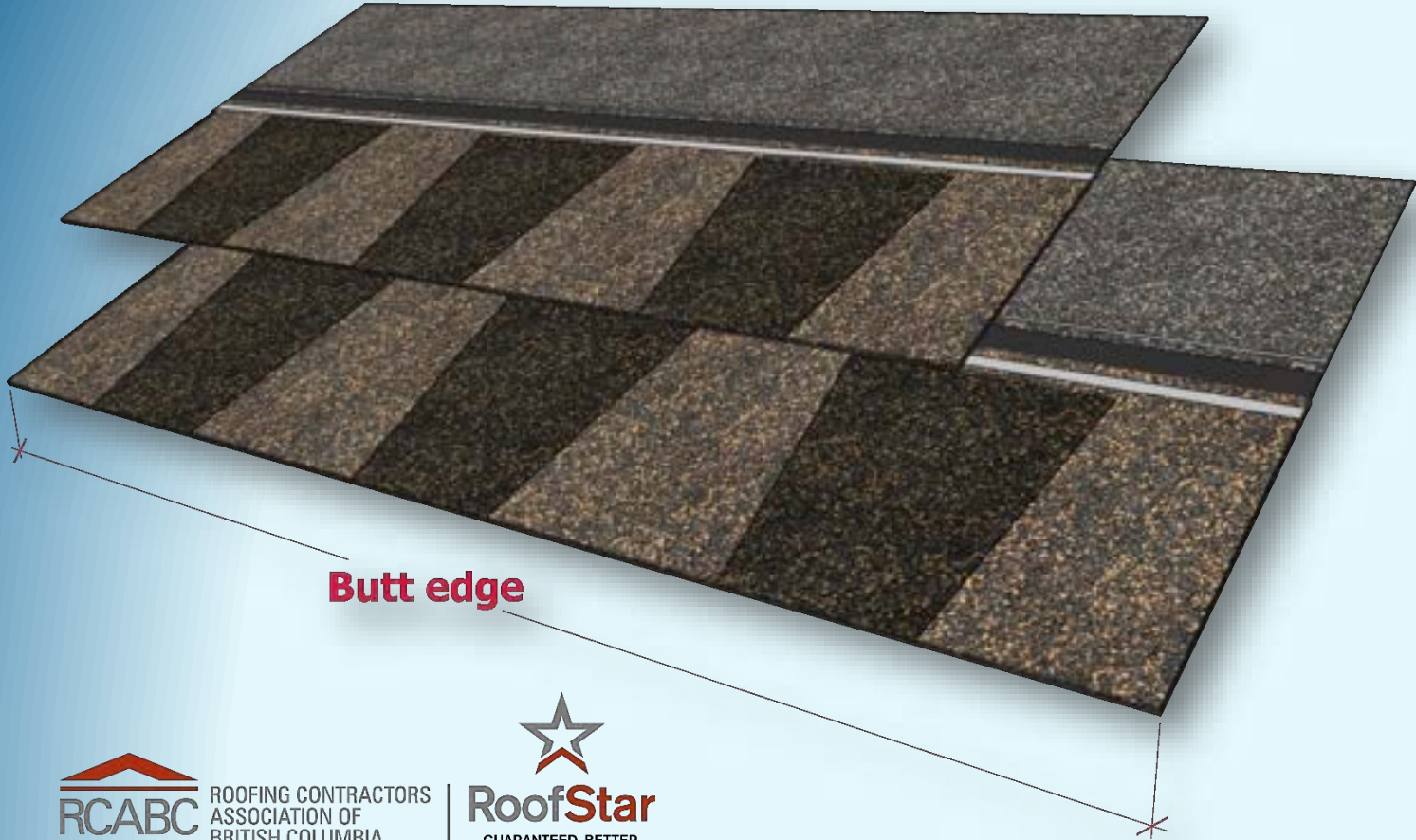
## Common terminology:

We do the same thing with technical language in Codes and standards. Because the BC Building Code uses technical terminology, we need to make sure we're all speaking the same language, as it were.

So, a review.

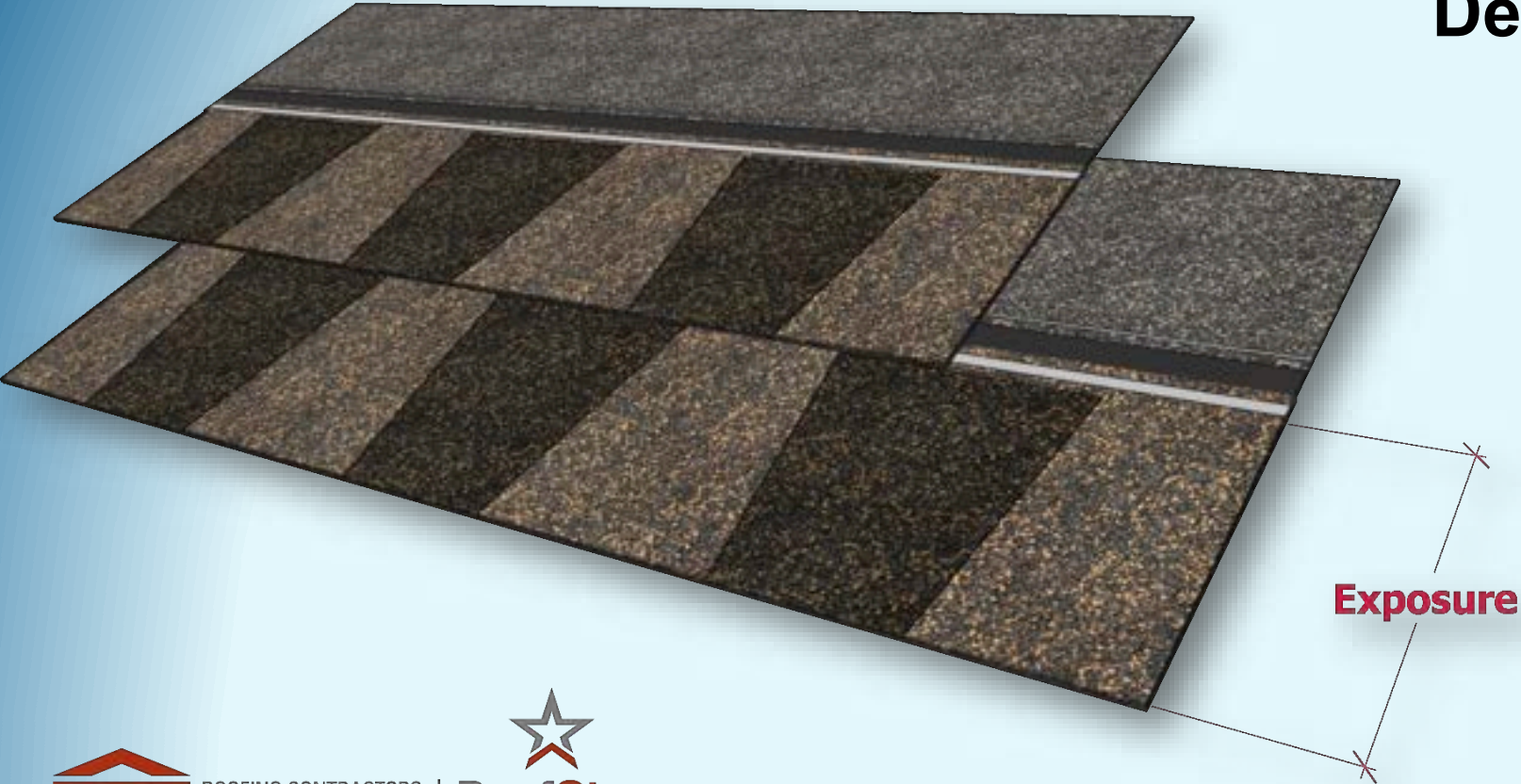
# SPEAKING THE SAME LANGUAGE

**Defined Term: butt edge**



# SPEAKING THE SAME LANGUAGE

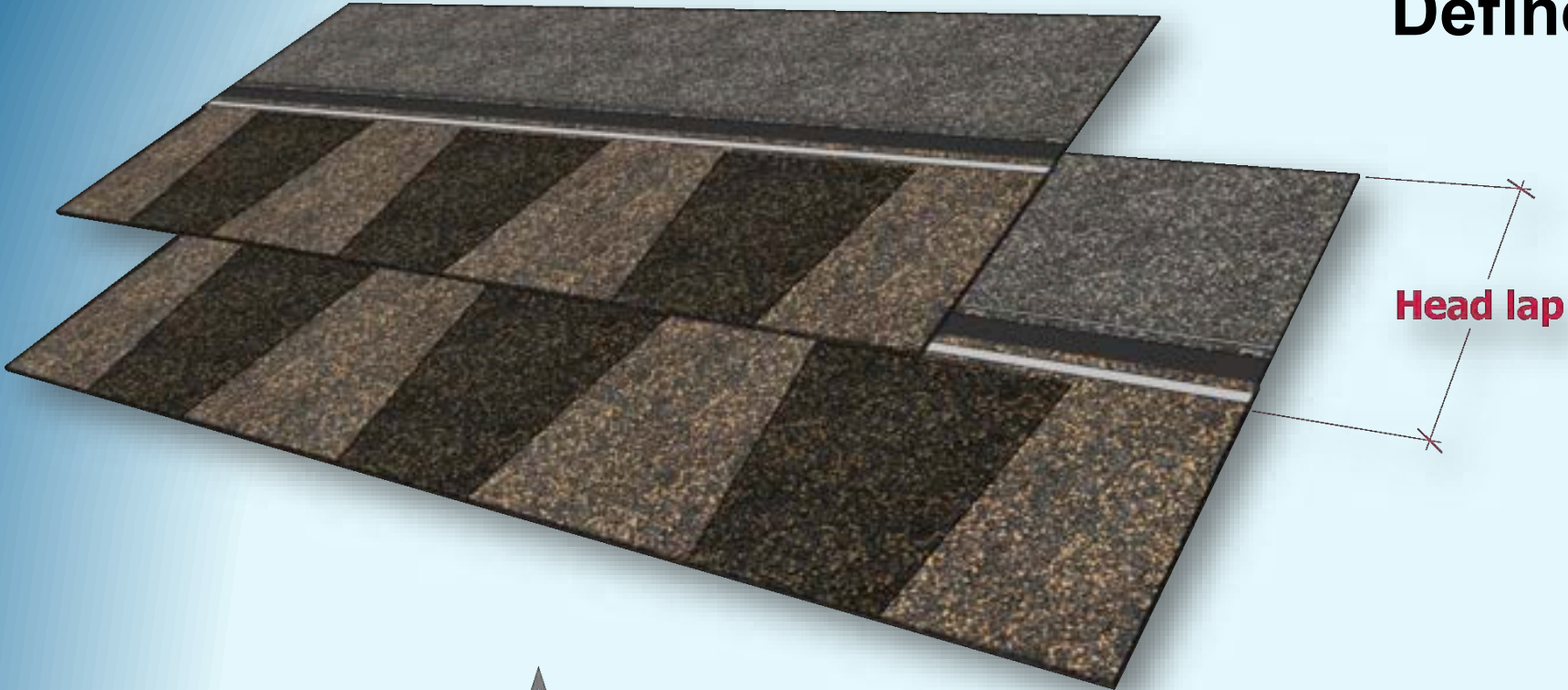
**Defined Term: exposure**



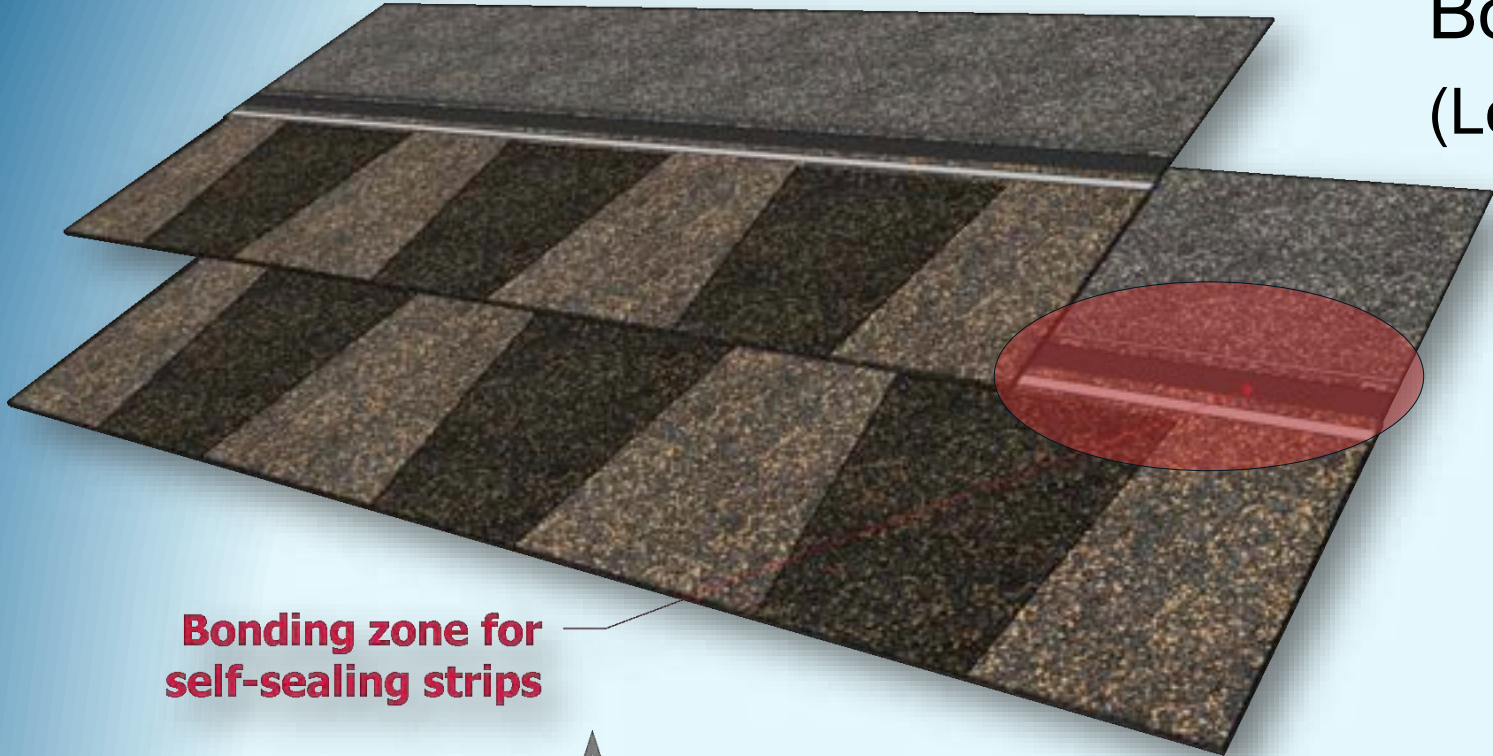


# SPEAKING THE SAME LANGUAGE

**Defined Term: head lap**



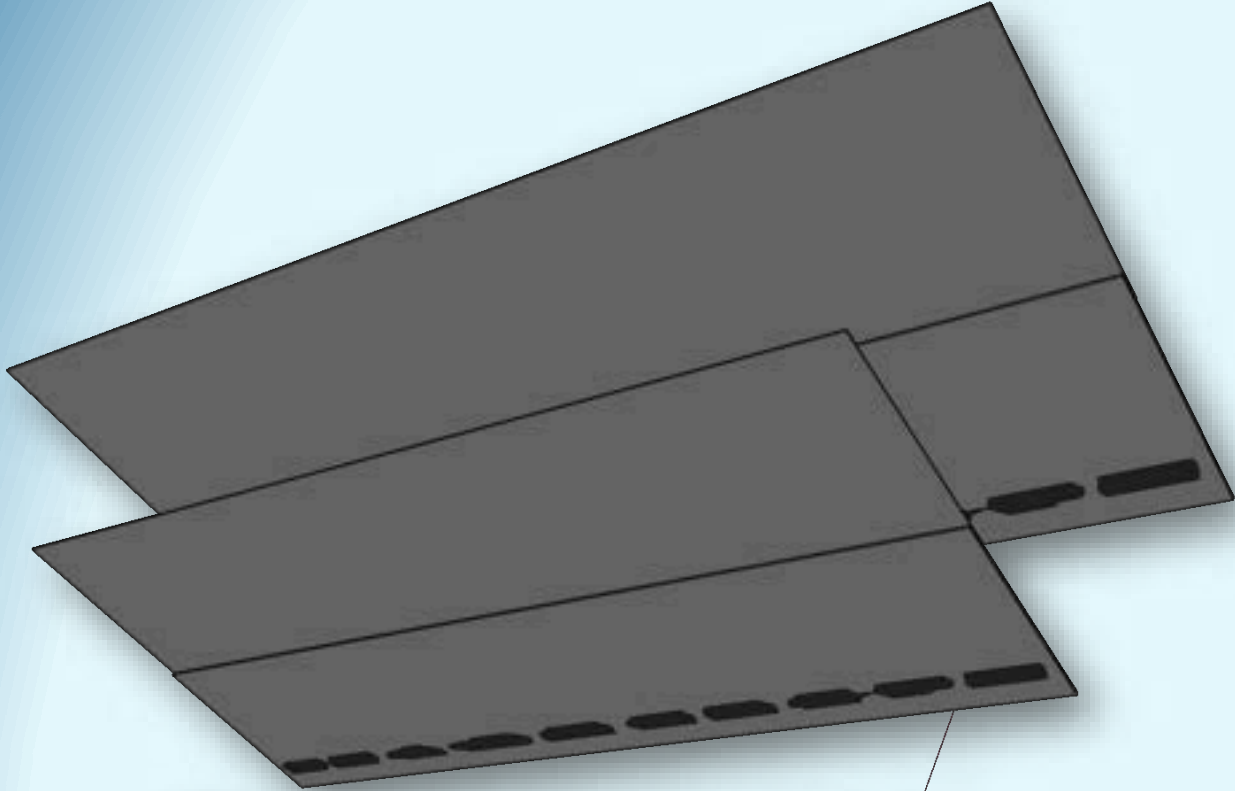
# SPEAKING THE SAME LANGUAGE



Bonding zone  
(Lower and upper courses shown)

**Bonding zone for  
self-sealing strips**

# SPEAKING THE SAME LANGUAGE



**Discontinuous self-sealing strips**

**Defined Term: self-sealing strips**



# SPEAKING THE SAME LANGUAGE

## 9.26.7.4. Fasteners

- 1) Except as provided in Sentence (2), shingles shall be fastened with at least 4 nails or staples for 1 m wide shingles so that no nails or staples are exposed.
- 2) Where staples with an 11 mm crown are used, shingles shall be fastened with at least 6 staples.
- 3) Fasteners may be reduced for narrower shingles in proportion to the width of the shingle or when shingles incorporating interlocking devices are used.
- 4) Fasteners referred to in Sentences (1) and (2) shall be located 25 mm to 40 mm from each end of each strip shingle with other fasteners equally spaced between them.
- 5) Fasteners referred to in Sentences (1) and (2) shall be located not less than 12 mm above the tops of the cutouts.

# EAVE PROTECTION AND ARTICLE 9.26.5.1 (BCBC)

## Division B

Most readers of the Code go straight to the “how to” Division B and then look for the topic that appears to best deal with their question.

(you read my article about the Building Code where I said that’s a bad idea, right?)



Image: RCABC

# EAVE PROTECTION AND ARTICLE 9.26.5.1. (BCBC)

## Eave protection materials

The Building Code permits (9.26.5.2.)

- No. 15 asphalt-saturated felt laid in two plies lapped 480 mm and cemented together with lap cement,
- Type M or S roll roofing laid with not less than 100 mm head and end laps cemented together with lap cement,
- glass fibre or polyester fibre coated base sheets, or
- self-sealing composite membranes consisting of modified bituminous coated material.





# EAVE PROTECTION AND ARTICLE 9.26.5.1. (BCBC)

## Article 9.26.5.1.

### 9.26.5. Eave Protection for Shingles and Shakes

#### 9.26.5.1. Required Eave Protection

- 1)** Except as provided in Sentence (2), eave protection shall be provided on shingle, shake or tile roofs, extending from the edge of the roof a minimum of 900 mm up the roof slope to a line not less than 300 mm inside the inner face of the exterior wall.
- 2)** Eave protection is not required
  - a) over unheated garages, carports and porches,
  - b) where the roof overhang exceeds 900 mm measured along the roof slope from the edge of the roof to the inner face of the exterior wall,
  - c) on roofs of asphalt shingles installed in accordance with Subsection 9.26.8.,
  - d) on roofs with slopes of 1 in 1.5 or greater, or
  - e) in regions with 3 500 or fewer degree-days.

# EAVE PROTECTION AND ARTICLE 9.26.5.1. (BCBC)

## Eave protection *is* required

a) when garages, carports and porches are heated,

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- c) when roofs aren't installed in accordance with Subsection 9.26.8. (which means, eave protection is required on roofs with a slope equal to or greater than 1:3),

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- d) on roofs with slopes less than 1:1.5 (i.e., 8" in 12"), or

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- d) on roofs with slopes less than 1:1.5 (i.e., 8" in 12"), or
- e) in regions with 3500 or more degree-days.



# THE “DEVIL” IS ALWAYS IN THE DETAILS

**BUT....**

The devil is always in the details, isn't it?



# THE “DEVIL” IS ALWAYS IN THE DETAILS

## 9.26.5. Eave Protection for Shingles and Shakes

### 9.26.5.1. Required Eave Protection

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  - e) in regions with 3 500 or fewer degree-days.

# THE “DEVIL” IS ALWAYS IN THE DETAILS

So, this means what?

# THE “DEVIL” IS ALWAYS IN THE DETAILS

## It means...

...that if the building is heated, eave protection is required.

This makes sense because ice damming won't occur unless there is heat coming from within the building that can warm the roof deck, shingles, and snow on the roof.



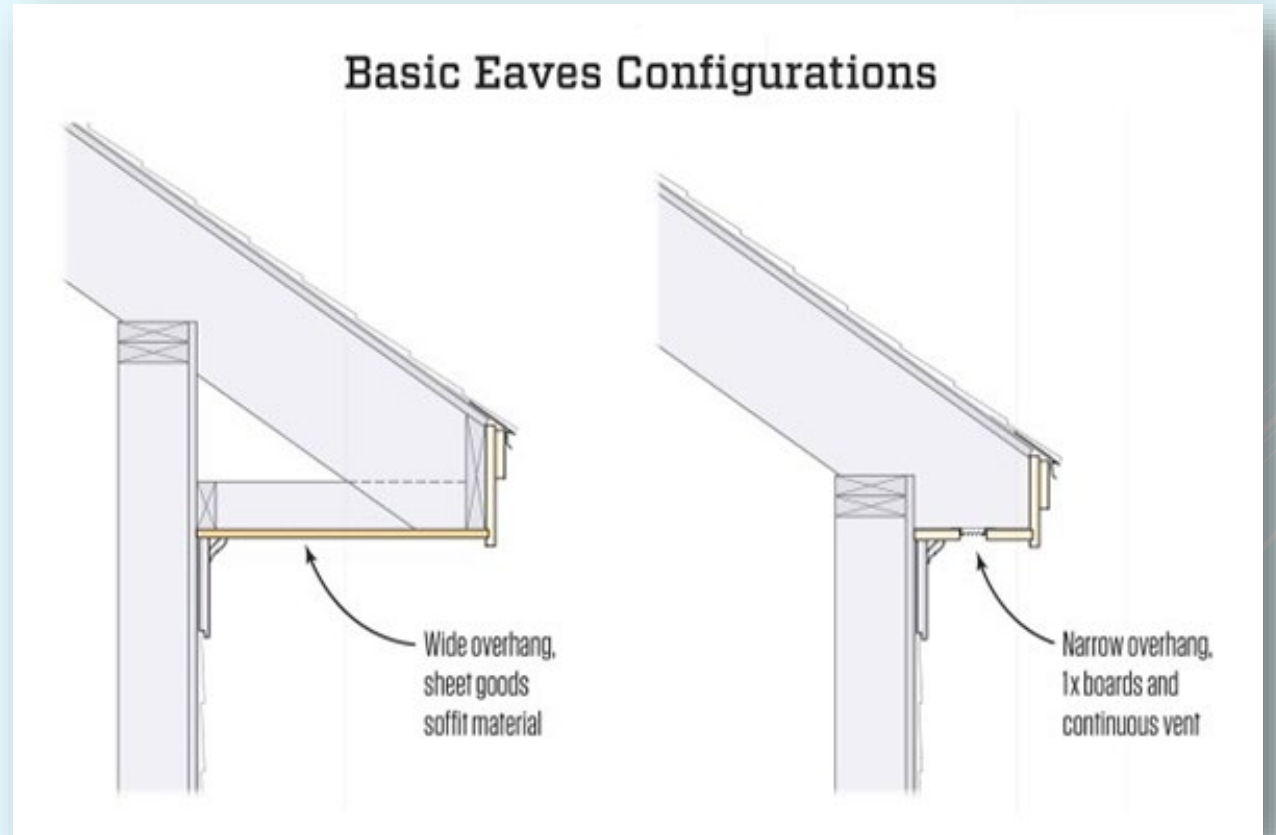


# THE “DEVIL” IS ALWAYS IN THE DETAILS

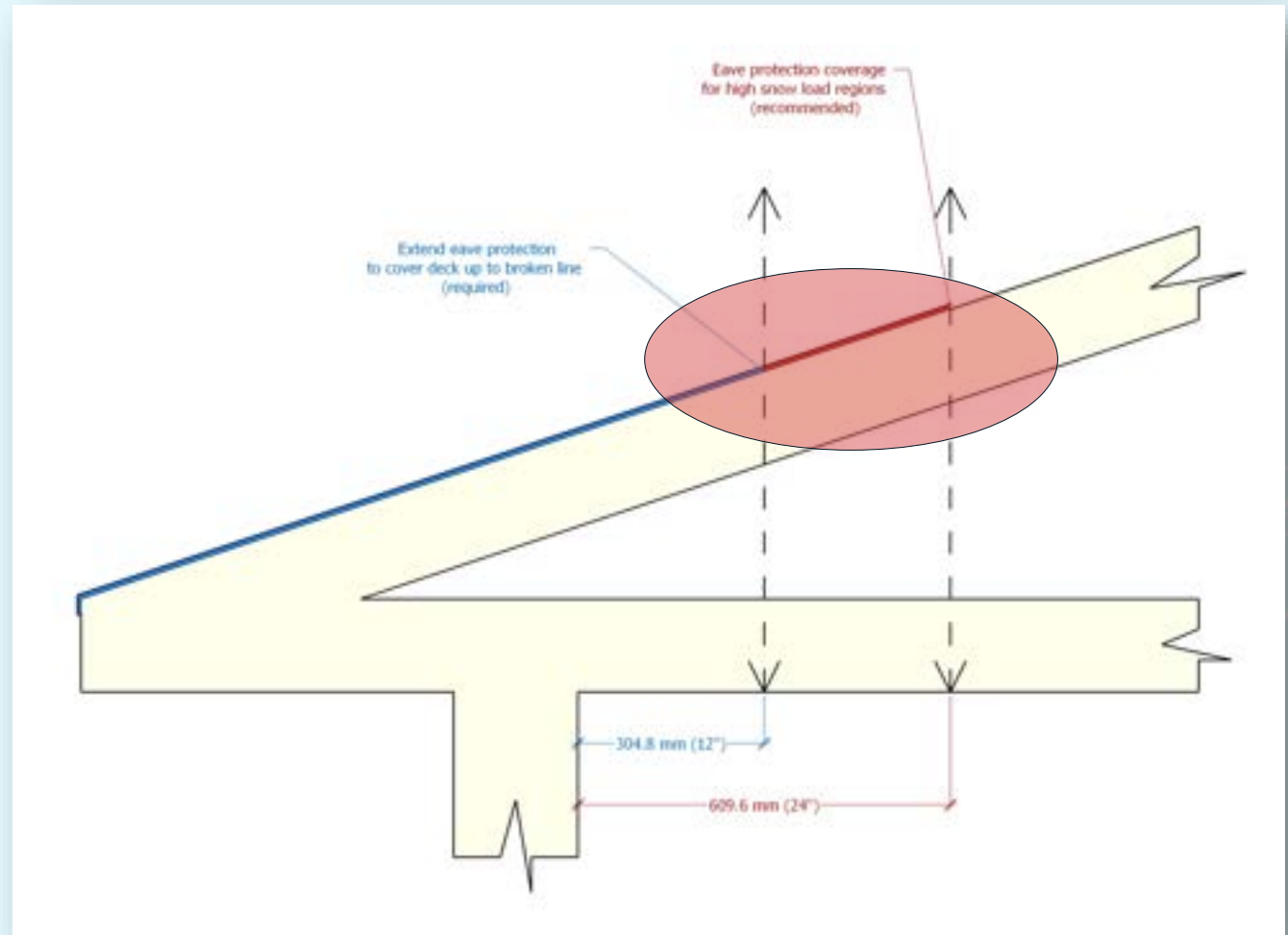
## It means...

...that if the building has shallow eaves, eave protection is required, but it isn't required if the eaves are 900 mm or greater.\*

\* Note: many homes are now designed with short eaves, because of shallow lot line setbacks and because the market demands more habitable space inside.



# THE “DEVIL” IS ALWAYS IN THE DETAILS

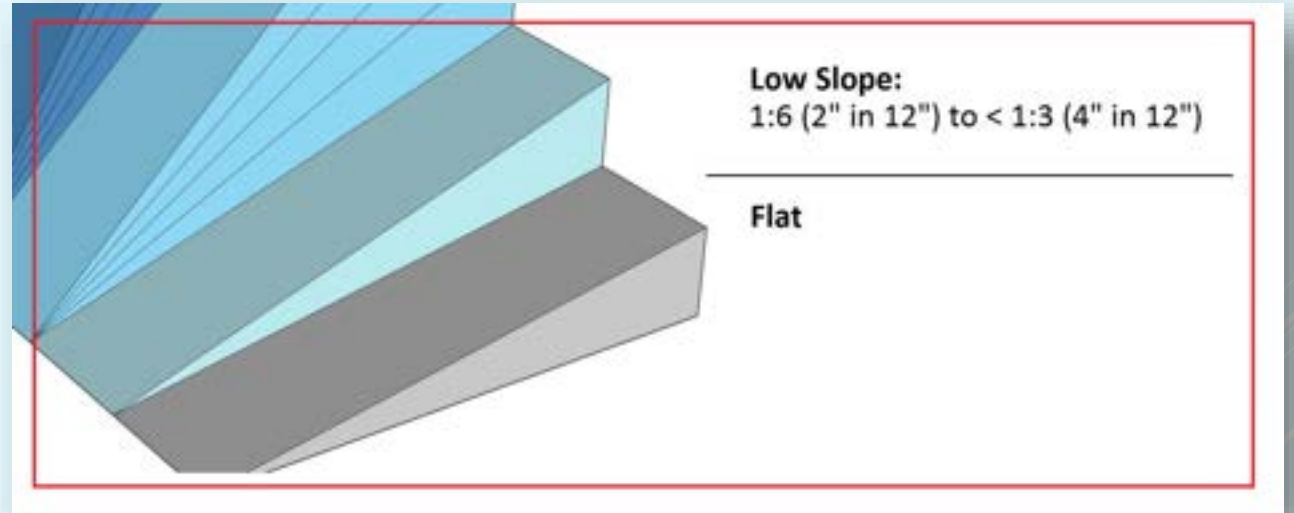


# THE “DEVIL” IS ALWAYS IN THE DETAILS

## It means...

...that if the roof has a slope greater than 1:3 (4" in 12") but less than less than 1:1.5 (8" in 12"), eave protection is required.

Conversely, a roof with a low slope (1:3, or 4" in 12") that is built according to Subsection 9.26.8. does not require eave protection.

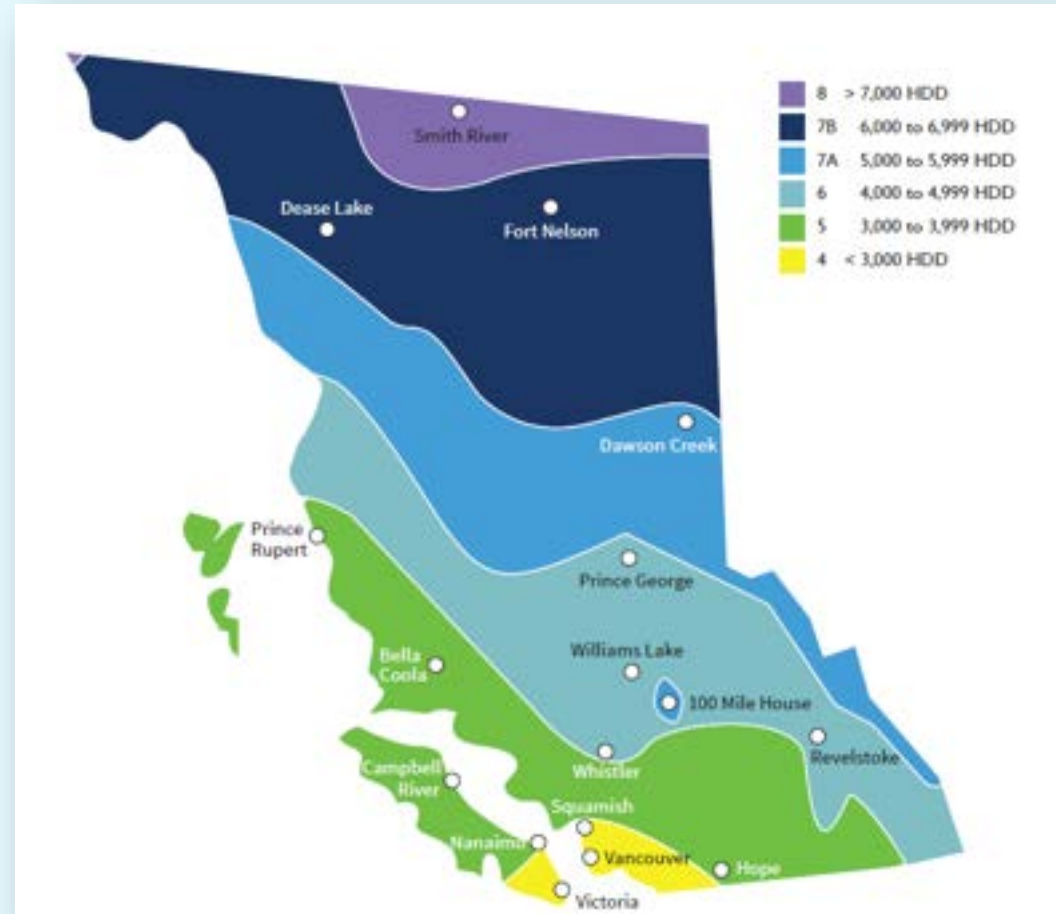


# THE “DEVIL” IS ALWAYS IN THE DETAILS

## It means...

...that if the building is located in a region with fewer than 3500 HDD, (i.e., the building is in Climate Zone 4), eave protection is not required.

On the other hand, eave protection is required if the Climate Zone has 3500 or more HDD.





# THE “DEVIL” IS ALWAYS IN THE DETAILS

Except that  
a few things  
I just said  
are not  
entirely  
true.

# THE “DEVIL” IS ALWAYS IN THE DETAILS

Why not?

I’m about to show you.

# THE “DEVIL” IS ALWAYS IN THE DETAILS

## Case study:

- Roof over heated structure
- Low-sloped (les than 1:3; see Subsection 9.26.8.)
- Built with overhangs greater than 900 mm
- Situated in Climate Zone 4 (historically fewer than 3000 HDD)

Using the checklist of Article 9.26.5.1., this building won't require eave protection.

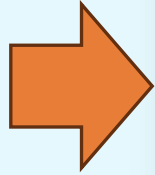
# THE “DEVIL” IS ALWAYS IN THE DETAILS

But did you read through **Subsection 9.26.8.??**



# THE “DEVIL” IS ALWAYS IN THE DETAILS

## Article 9.26.8.4. (2024 BCBC)



### 9.26.8.4. Securing of Shingle Courses

- 1)** The first course of shingles shall be secured by a continuous band of cement along the eaves applied so that the width of the band equals the shingle exposure plus 100 mm.
- 2)** The succeeding courses of shingles shall be secured by a continuous band of cement applied so that the width of the band equals the shingle exposure plus 50 mm.
- 3)** The band required in Sentence (2) shall be located not more than 50 mm above the butt of the overlying course of shingles.

# THE “DEVIL” IS ALWAYS IN THE DETAILS

Cemented. Together.

Cement must be applied in a vertical band equal to “the shingle exposure plus 50 mm”.

It is applied just above the imaginary line where the butt for the “overlying course of shingles” lies.

# THE “DEVIL” IS ALWAYS IN THE DETAILS

Table 9.26.3.1.  
(2024 BCBC)

**Table 9.26.3.1.  
Roofing Types and Slope Limits  
Forming Part of Sentence 9.26.3.1.(1)**

Type of Roofing	Minimum Slope	Maximum Slope
Asphalt Shingles		
Low slope application	1 in 6	no limit
Normal application	1 in 3	no limit
Built-up Roofing		
Asphalt base (without gravel)	1 in 25	1 in 2
Asphalt base (gravelled)	1 in 50 <sup>(1)</sup>	1 in 4
Coal-tar base (gravelled)	1 in 50 <sup>(1)</sup>	1 in 25
Cold process	1 in 25	1 in 1.33
Cedar Shakes	1 in 3	no limit

# THE “DEVIL” IS ALWAYS IN THE DETAILS

So, now what?





# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

## Start at the beginning

The Building Code can seem like a maze, and when it does, always go back to the beginning.



# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

## Article 9.26.1.2.

(near the beginning of Section 9.26.)

### 9.26.1.2.

#### Required Protection

- 1)** Roofs shall be protected with roofing, including flashing, installed so as to
  - a) effectively shed water,
  - b) prevent the ingress of water and moisture into *building* assemblies and occupied space, and
  - c) minimize the ingress of water due to ice damming into *building* assemblies.
- 2)** Compliance with Sentence (1) shall be demonstrated by conforming to
  - a) the remainder of this Section, or
  - b) Part 5.

# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

## Article 9.26.1.3.

### 9.26.1.2. Required Protection

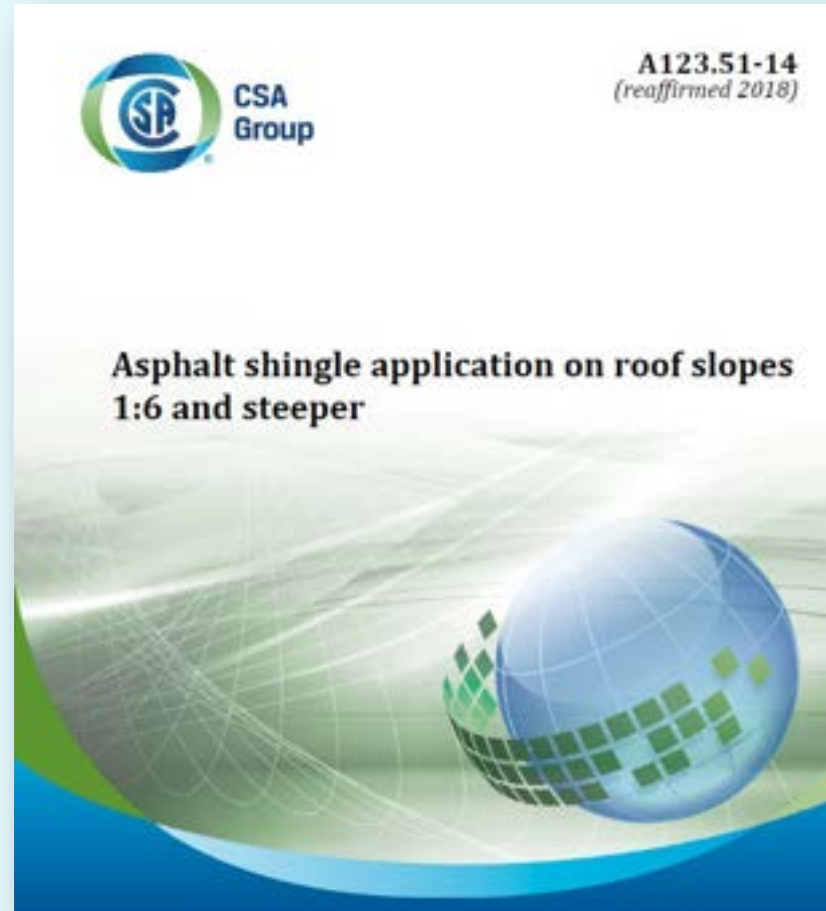
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  - a) the remainder of this Section, or
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### 9.26.1.3. Alternative Installation Methods

- 1)** Methods described in CSA A123.51, "Asphalt shingle application on roof slopes 1:6 and steeper," are permitted to be used for the installation of asphalt shingles in lieu of the methods described in this Section.

# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

**CSA A123.51(2018)**



# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

## CSA A123.51(2018)

### 6.6.4 Protection against wind

“spots of asphalt roofing cement”,  
not  
cemented together

A123.51-14

Asphalt shingle application on roof slopes 1:6 and steeper

- b) Start nailing from the end nearest the shingles just laid and proceed across the shingle, ensuring that all shingle cut-outs or end joints are at least 50 mm from any nail in any underlying course.
- c) Drive nails straight and flush. (See Figure 13)

#### 6.6.3 Special nailing

Special nailing shall be conducted as per the manufacturer's instructions, typically as follows:

- a) For slopes exceeding 1.75:1, six nails are installed per shingle: one at each end and double nailed (25-40 mm apart) at each third point. (See Figure 14.)
- b) Immediately upon installation, cement each shingle down with spots of asphalt roofing cement approximately 25 mm in diameter, located as per the shingle manufacturer's application instructions.

#### 6.6.4 Protection against wind

When the climate, weather, or job conditions are such that the factory applied adhesive on shingles might not be immediately effective, (e.g., in cold weather) the shingles shall be sealed down with 25 mm spots of asphalt roofing cement, located as per the shingle manufacturer's application instructions.



# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

## 9.26.5. Eave Protection for Shingles and Shakes

### 9.26.5.1. Required Eave Protection

- 1)** Except as provided in Sentence (2), eave protection shall be provided on shingle, shake or tile roofs, extending from the edge of the roof a minimum of 900 mm up the roof slope to a line not less than 300 mm inside the inner face of the exterior wall.
- 2)** Eave protection is not required
  - a) over unheated garages, carports and porches,
  - b) where the roof overhang exceeds 900 mm measured along the roof slope from the edge of the roof to the inner face of the exterior wall,
  - c) on roofs of asphalt shingles installed in accordance with Subsection 9.26.8.,
  - d) on roofs with slopes of 1 in 1.5 or greater, or
  - e) in regions with 3 500 or fewer degree-days.

# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

## CSA A123.51(2018)

### 5.2 Ice Dam/eaves protection

“Potential for leakage”

#### 5.2 Ice dam/eaves protection

##### 5.2.1

Where the potential for leakage into the interior of heated structures from ice damming exists, eaves protection shall be installed.

*Note: Water run-off from melting snow can be impeded at roof eaves by the formation of ice dams and can result in water run-off backing-up between shingles courses and leaking into the interior. Controlling heat transfer to the roof through a combination of insulation, continuous air/vapour barriers to prevent air leakage (from the interior) and venting of the roof space can limit formation of ice dams.*

##### 5.2.2

Where dormers or curbs are located within the area where eave protection is required, the eave protection shall continue and turn up the vertical face of the dormer and/or curb a minimum of 100 mm. Eave protection shall extend from the edge of a roof a minimum of 900 mm up the roof slope to a line not less than 600 mm inside the inner face of the exterior wall. (See Figure 3.)

##### 5.2.3

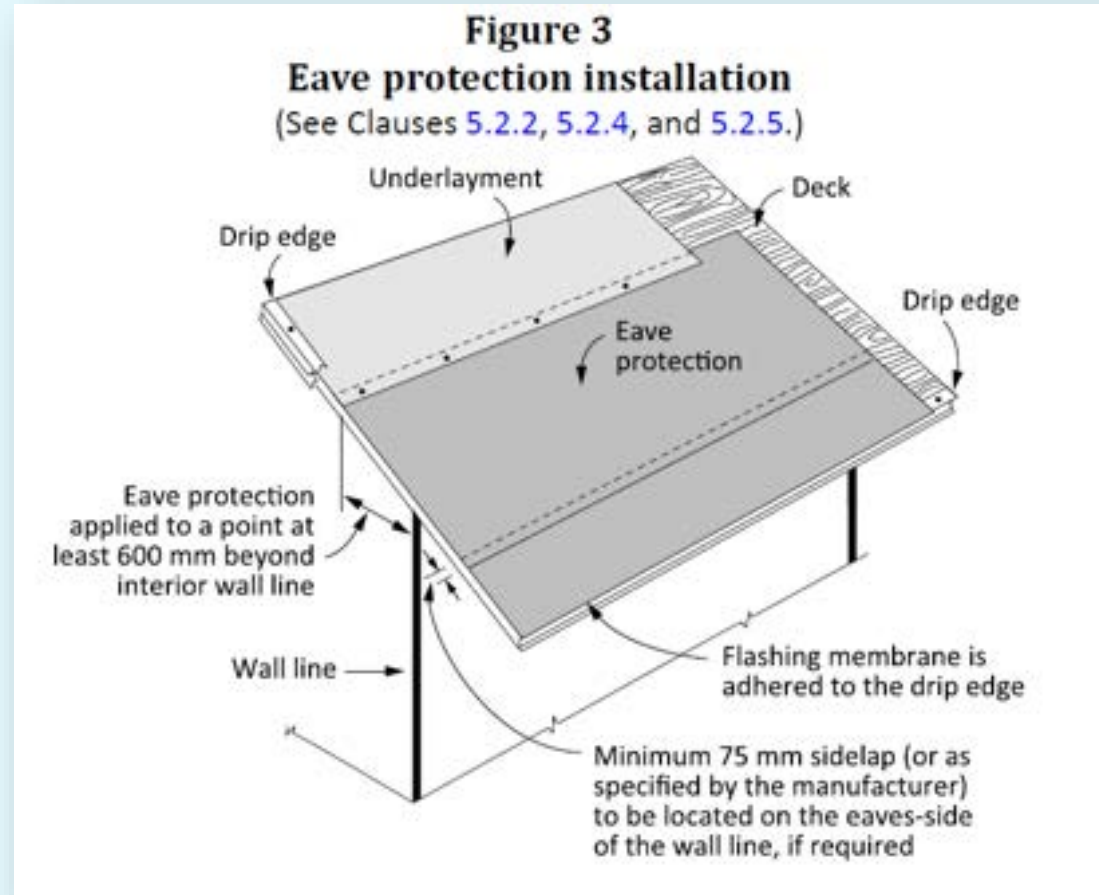
Ice dam/eaves protection may not be required for:

- a) roofs over unheated structures;
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# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

CSA A123.51(2018)

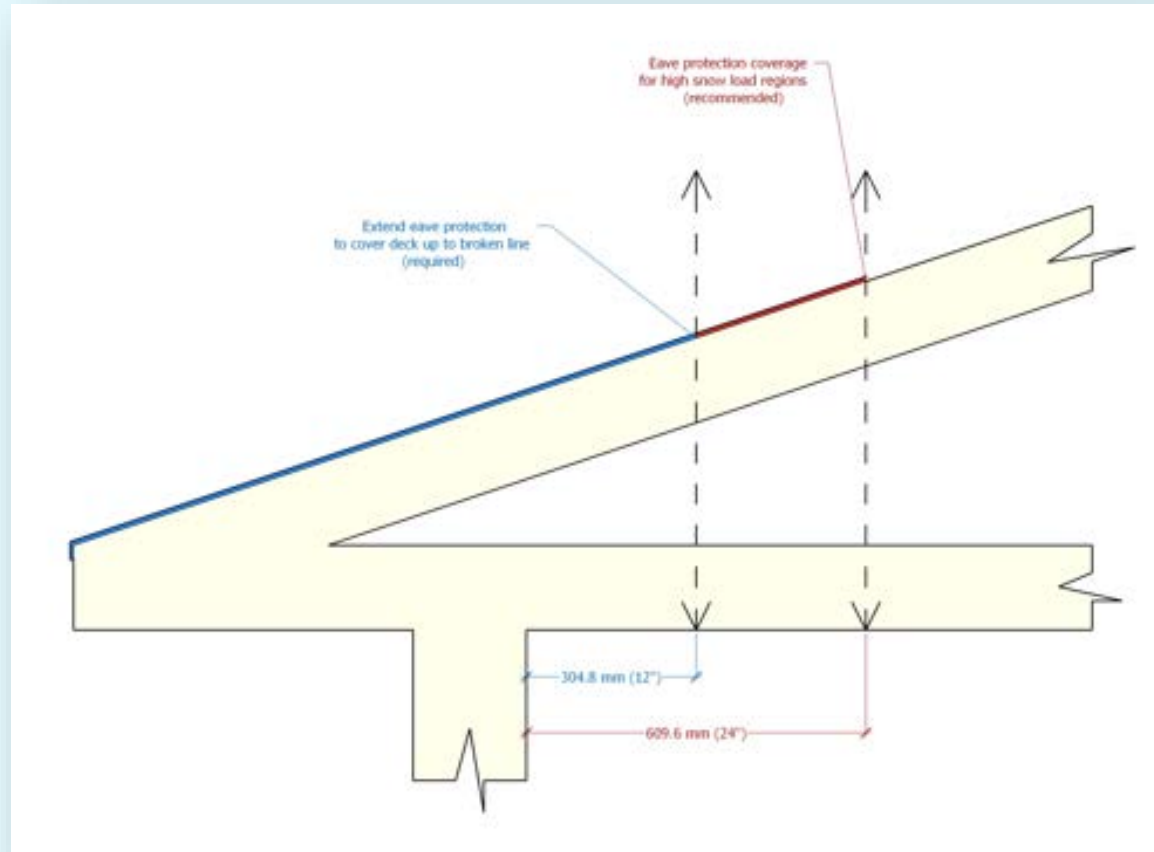
Figure 3



# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

## RCABC Standard

Figure 8.3.2.-A



# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

## CSA A123.51(2018)

Does “potential” include this?



Greater Vancouver, December 24, 2022  
(Credit: i3 Building Science & Consulting Inc.)



# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

## CSA A123.51(2018)

### 5.2 Ice Dam/eaves protection

“ice dam/eaves protection may no be required...”

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*Note: Water run-off from melting snow can be impeded at roof eaves by the formation of ice dams and can result in water run-off backing-up between shingles courses and leaking into the interior. Controlling heat transfer to the roof through a combination of insulation, continuous air/vapour barriers to prevent air leakage (from the interior) and venting of the roof space can limit formation of ice dams.*

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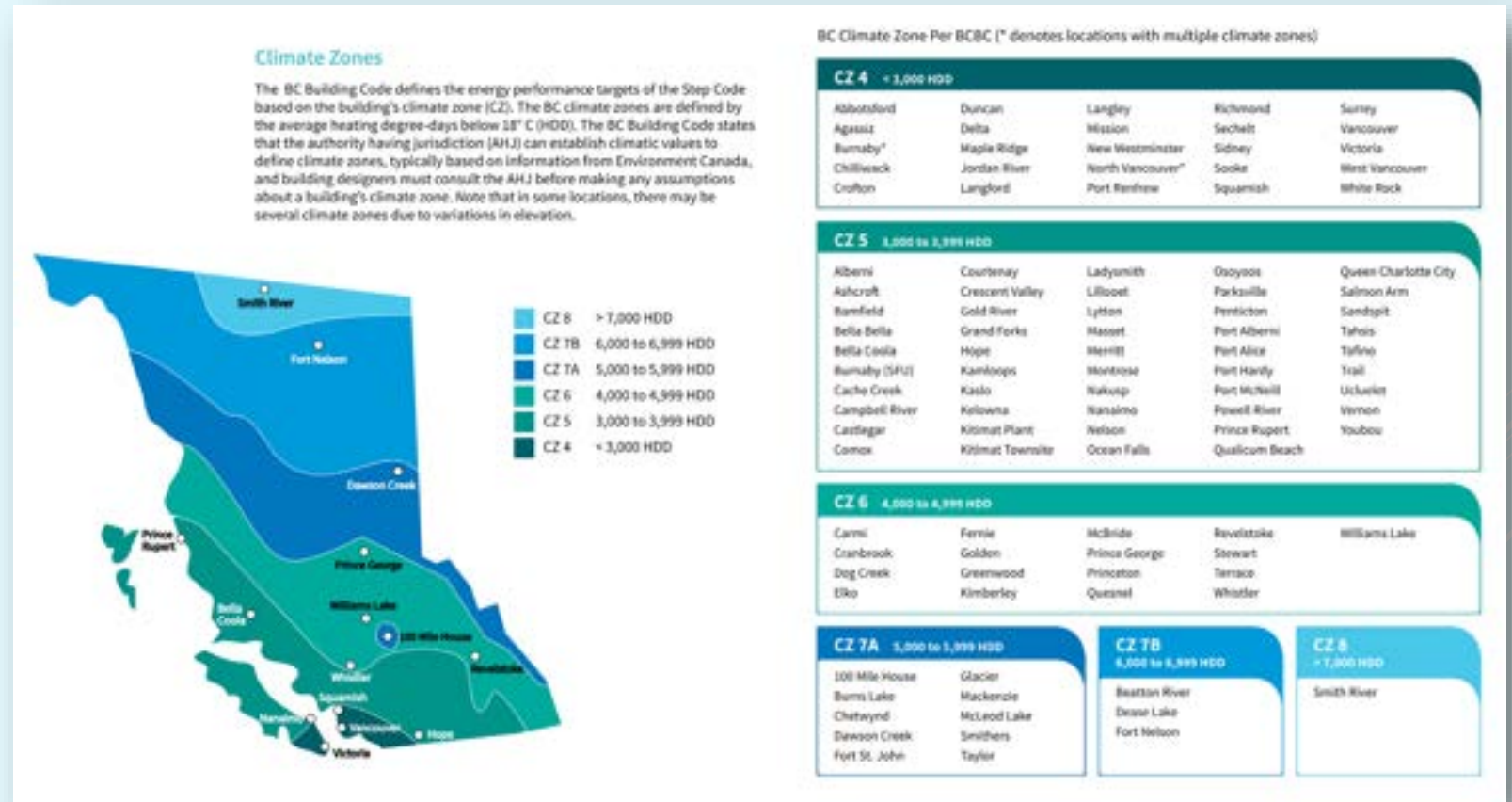
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# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

## CSA A123.51(2018)

What if Climate Zone 4 isn't always Climate Zone 4?



# LAMINATED SHINGLES AND LOW SLOPES (<1:3)

## CSA A123.51(2018)

The “why” behind “may”



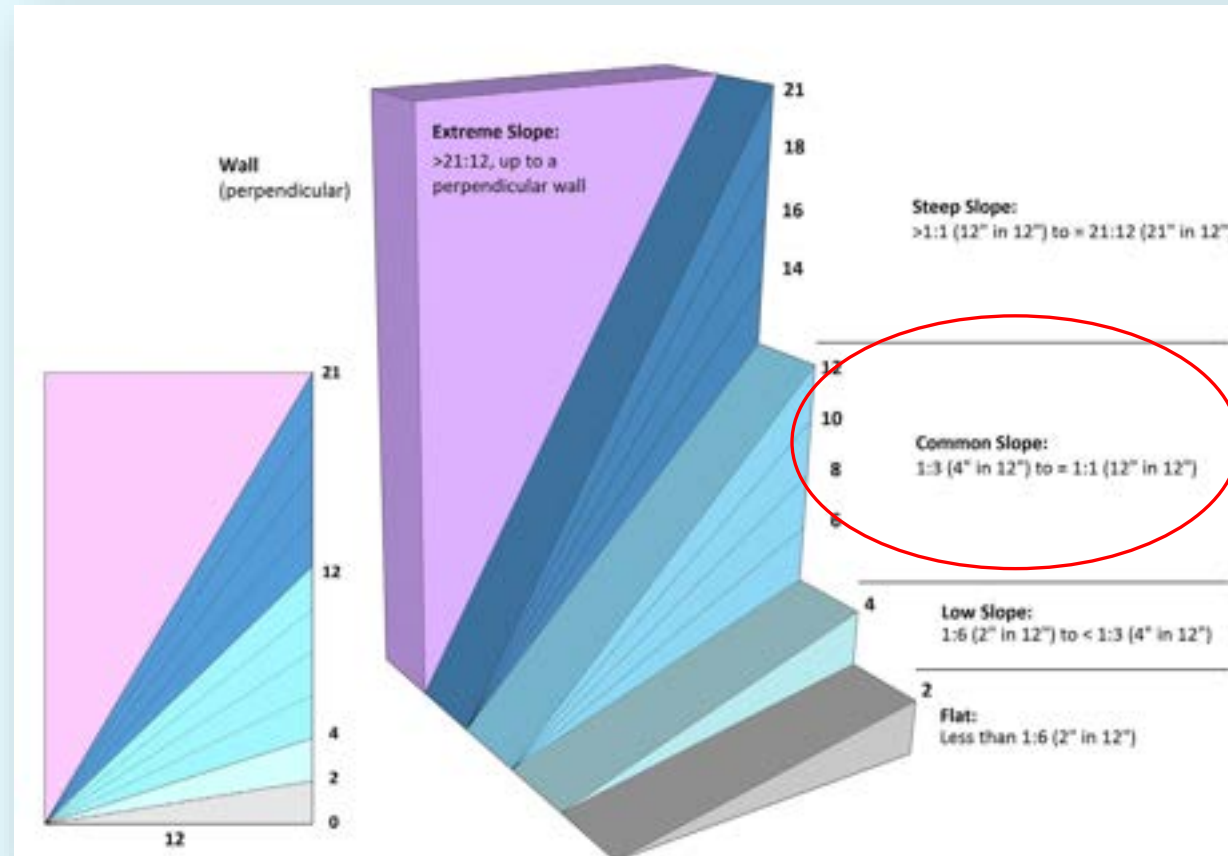
BC Climate Zone Per B.C.B.C. (\* denotes locations with multiple climate zones)

CZ 4 < 3,000 HDD				
Abbotsford	Duncan	Langley	Richmond	Surrey
Agassiz	Delta	Mission	Sechelt	Vancouver
<b>Burnaby*</b>	Maple Ridge	New Westminster	Sidney	Victoria
Chilliwack	Jordan River	<b>North Vancouver*</b>	Sooke	West Vancouver
Crofton	Langford	Port Renfrew	Squamish	White Rock

# “COMMON SLOPES” AND EAVE PROTECTION

**RCABC definitions**  
slopes on roofs.

Common Slope  
means  
1:3 (4" in 12")  
up to  
1:1 (12" in 12")



# “COMMON SLOPES” AND EAVE PROTECTION

## 9.26.5. Eave Protection for Shingles and Shakes

### 9.26.5.1. Required Eave Protection

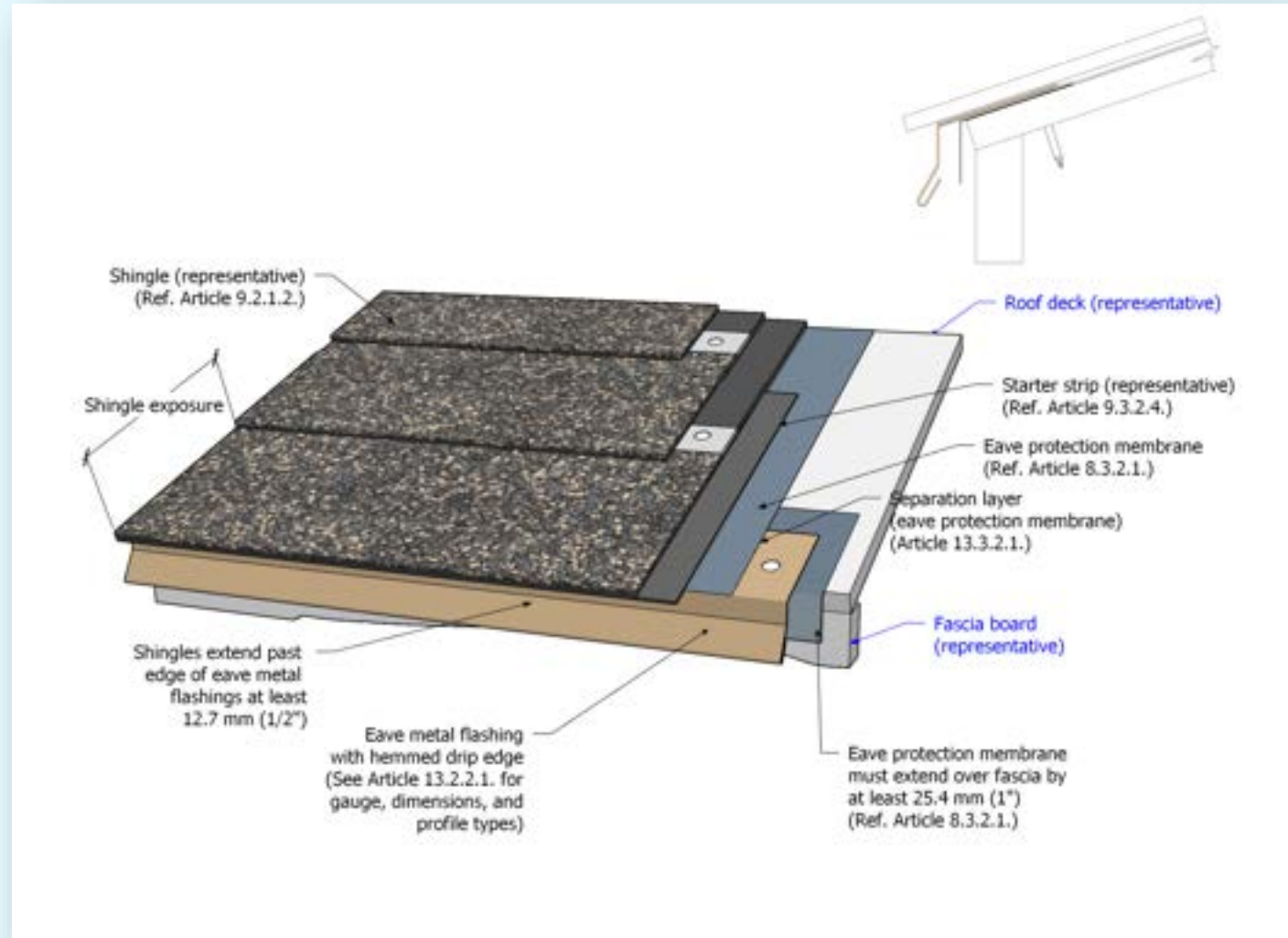
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**2)** Eave protection is not required

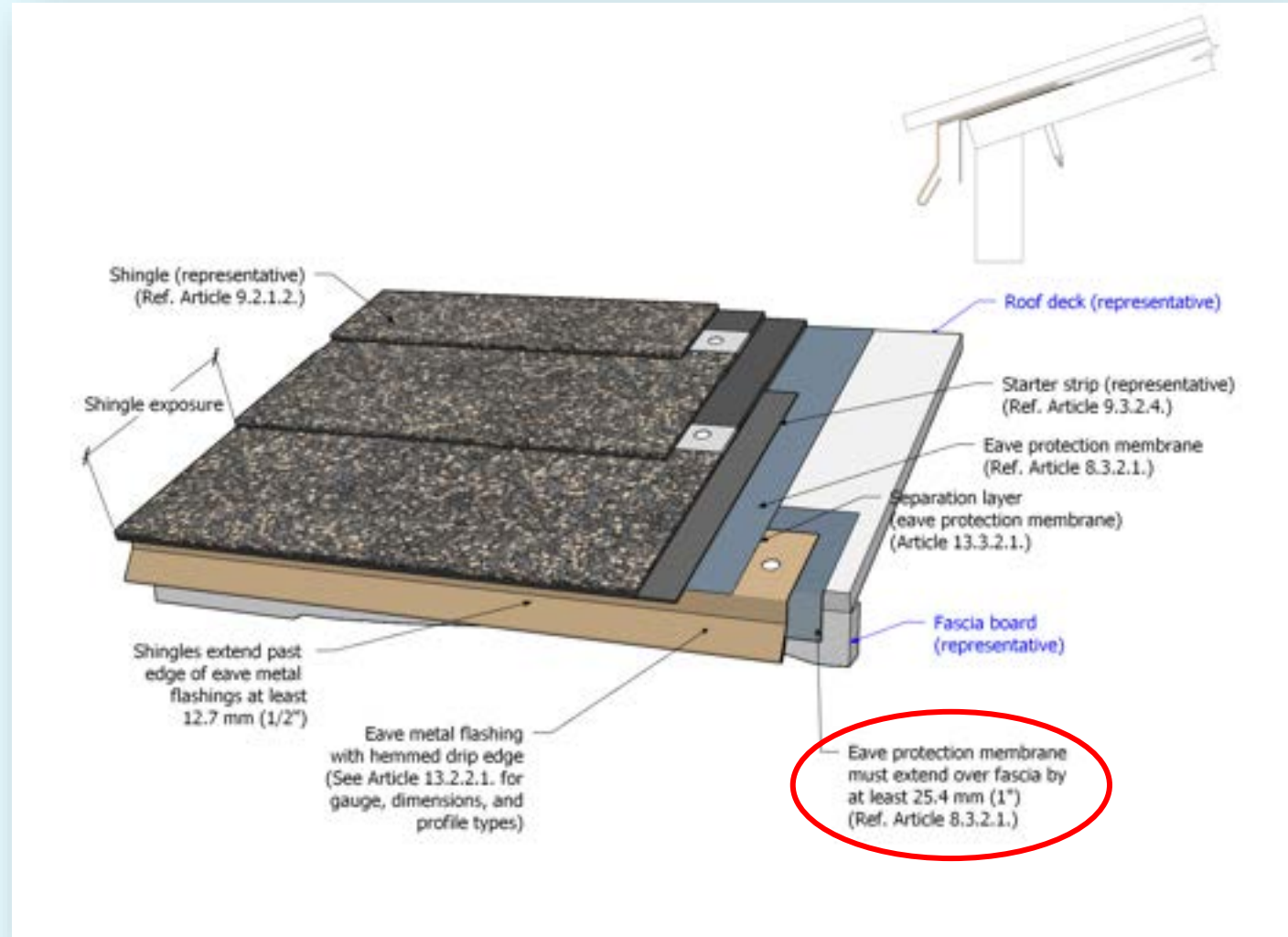
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# IT'S THE LITTLE THINGS THAT MATTER



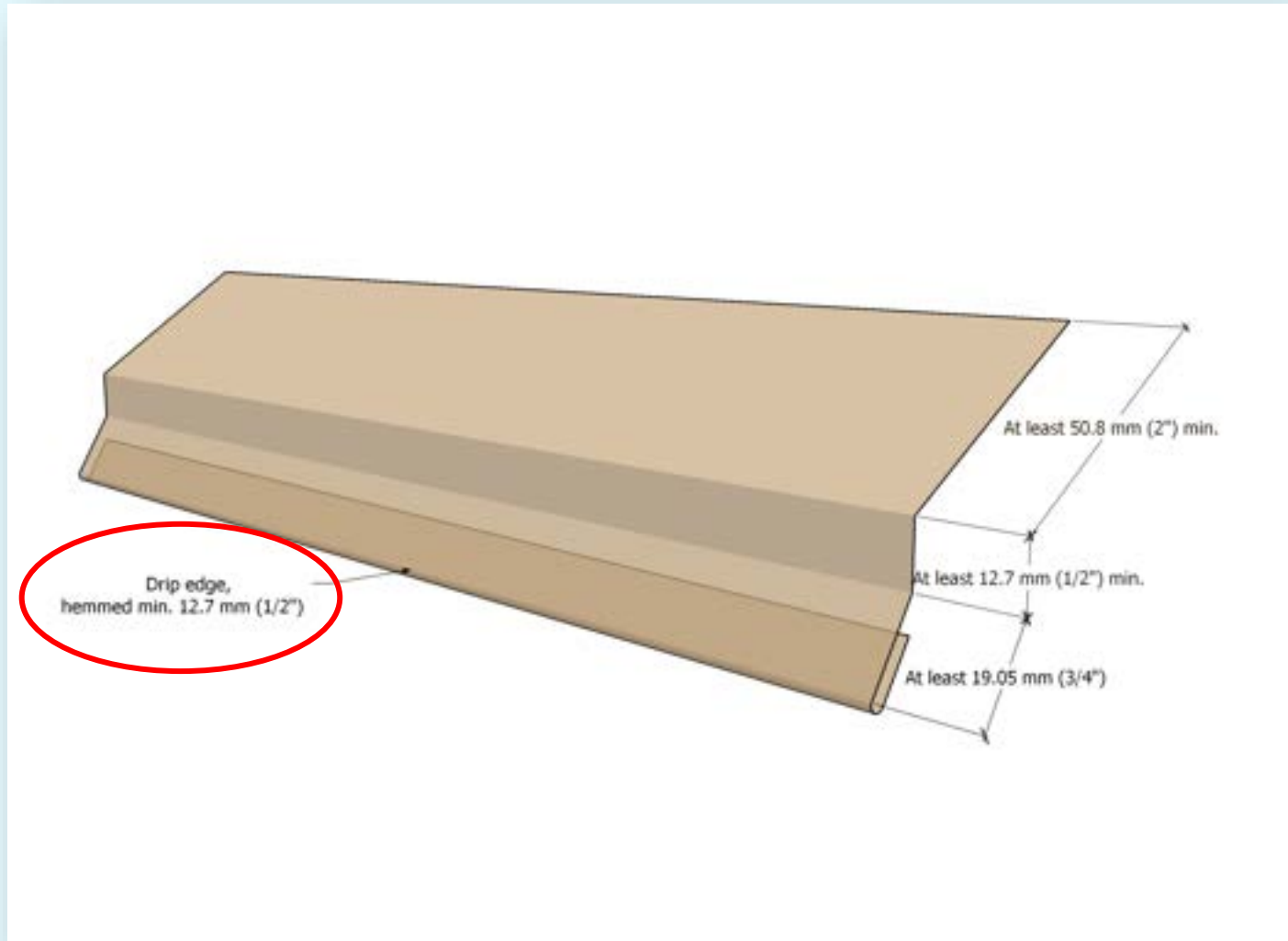
# IT'S THE LITTLE THINGS THAT MATTER



# IT'S THE LITTLE THINGS THAT MATTER

**RCABC Standard**  
requirements for eave  
metal flashing.

A “drip edge” is not  
the entire flashing;  
It is the kicked-out  
edge of the flashing.



# IT'S THE LITTLE THINGS THAT MATTER

## Self-adhering eave protection

CSA A123.22

ASTM D1970/D1970M



# SOME FINAL WORDS

## The British Columbia Building Code

### Minimum requirements

for

durable,

comfortable,

accessible,

climate-resilient,

and

safe buildings.



# SOME FINAL WORDS

There is always room to do more.

# SOME FINAL WORDS

**DO  
THE  
RIGHT  
THING**

Whether you are  
  
a consultant,  
an observer,  
a roofing contractor,  
a supplier, or  
a technical advisor,  
we are all doing one thing:

# SOME FINAL WORDS

**Building the future.**

# THANK YOU

James Klassen,  
RoofStar Technical Advisor  
(RCABC)

[jklassen@rcabc.org](mailto:jklassen@rcabc.org)

