

FAQ*: Exposure Category

Question: I have looked at the definition of Exposure Category in Section 5301.2.1.3 and despite having read the definition numerous times I cannot determine the exposure category of the new home I will build. Can you please add some clarity to this definition?

Answer: This definition as written is the same as the definition found in IRC 2003, and it is not easy to apply. The International Code Council (ICC), the authors of the IRC and IBC, suggest that the definition in IBC 2006 be used instead to understand and apply the concept of exposure category. The BBRs Staff has pulled together some graphic slides in Power Point that may add some clarity to the application of this definition. Some useful information before you get started is that in Massachusetts, most exposures are B, some may be C, none will be D, and probably none will be A. One should assume that the exposure is B and then determine (using the slides that follow) if the topography surrounding the structure suggest instead that it should be C.

* Answers to FAQs are opinions of the BBRs Staff and do not reflect official positions or code interpretations of the BBRs.

Which Lots are Exposure B?



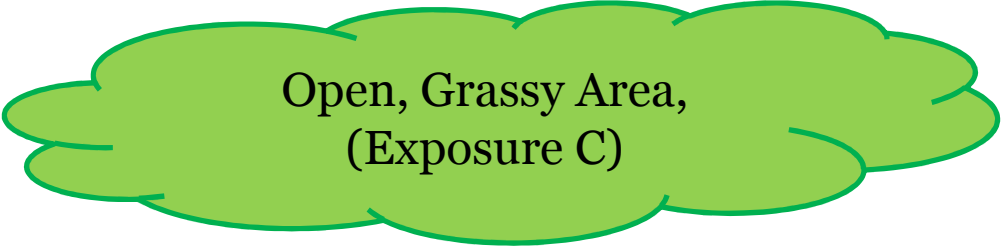
Suburban, Wooded Area,
(Exposure B)



“Surface Roughness Category B: Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger.” [ASCE 7-05]

“Exposure Category B: Exposure B shall apply where the ground surface roughness condition, as defined by Surface Roughness B, prevails in the upwind direction for a distance of 1,500 ft, for buildings whose mean roof height is less than or equal to 30 ft.” [ASCE 7-05]

Which Lots are Exposure C?



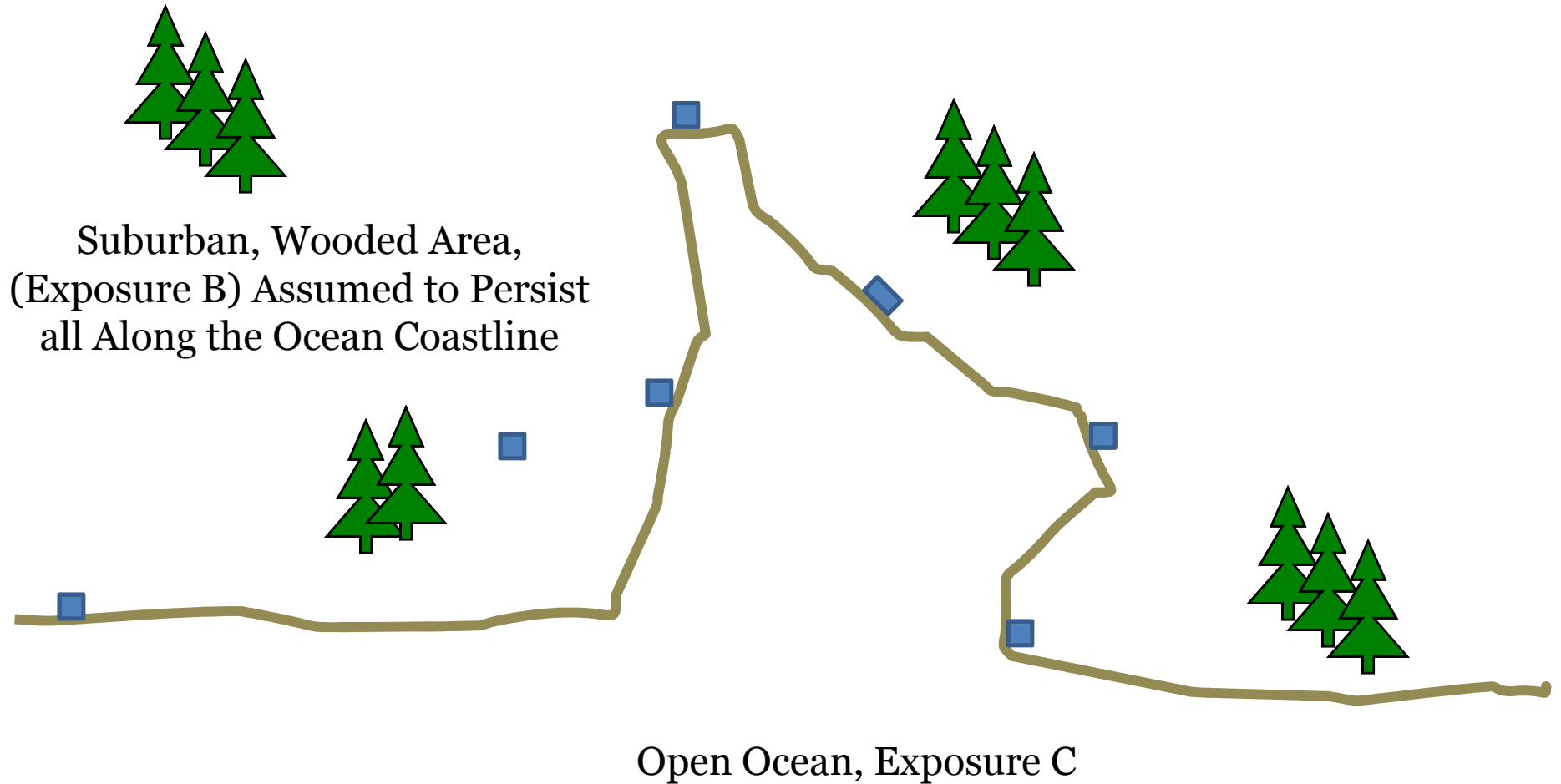
Open, Grassy Area,
(Exposure C)

“Surface Roughness Category C: Open terrain with scattered obstructions, including surface undulations or other irregularities, having heights generally less than 30 ft. This category includes flat open country, grasslands, and all water surfaces in hurricane prone regions.”
[ASCE 7-05]

“Exposure Category C: Exposure C shall apply for all cases where Exposure B or D do not apply.” [ASCE 7-05]

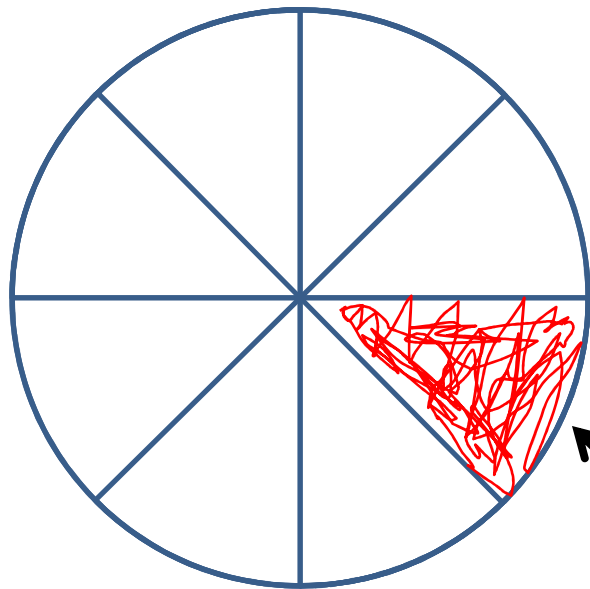
(Note: Exposure D applies to flat, unobstructed areas and water surfaces outside hurricane prone regions. This category includes smooth mud flats, salt flats, and unbroken ice.)

Which buildings are Exposure B? C?



Use Circle/Sector for Interpretation on Exposure Category

- From IBC 2006
 - 1609.4.2 Surface roughness categories. A ground surface roughness within each 45-degree sector shall be determined for a distance upwind of the site....(1500 ft for structure under 30 ft mean roof height)

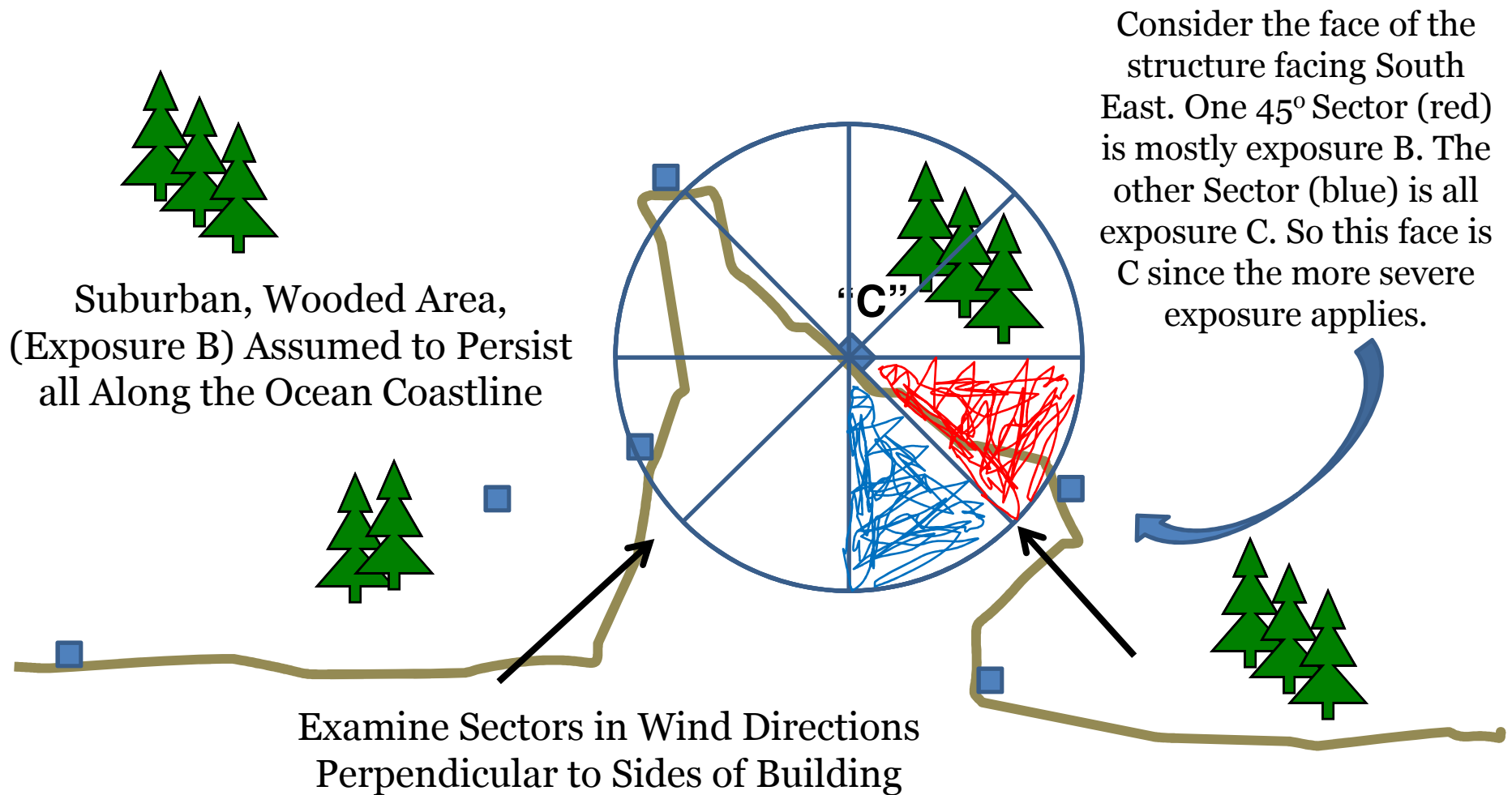


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Circle of 1500 ft radius. Use to Determine if Exposure B

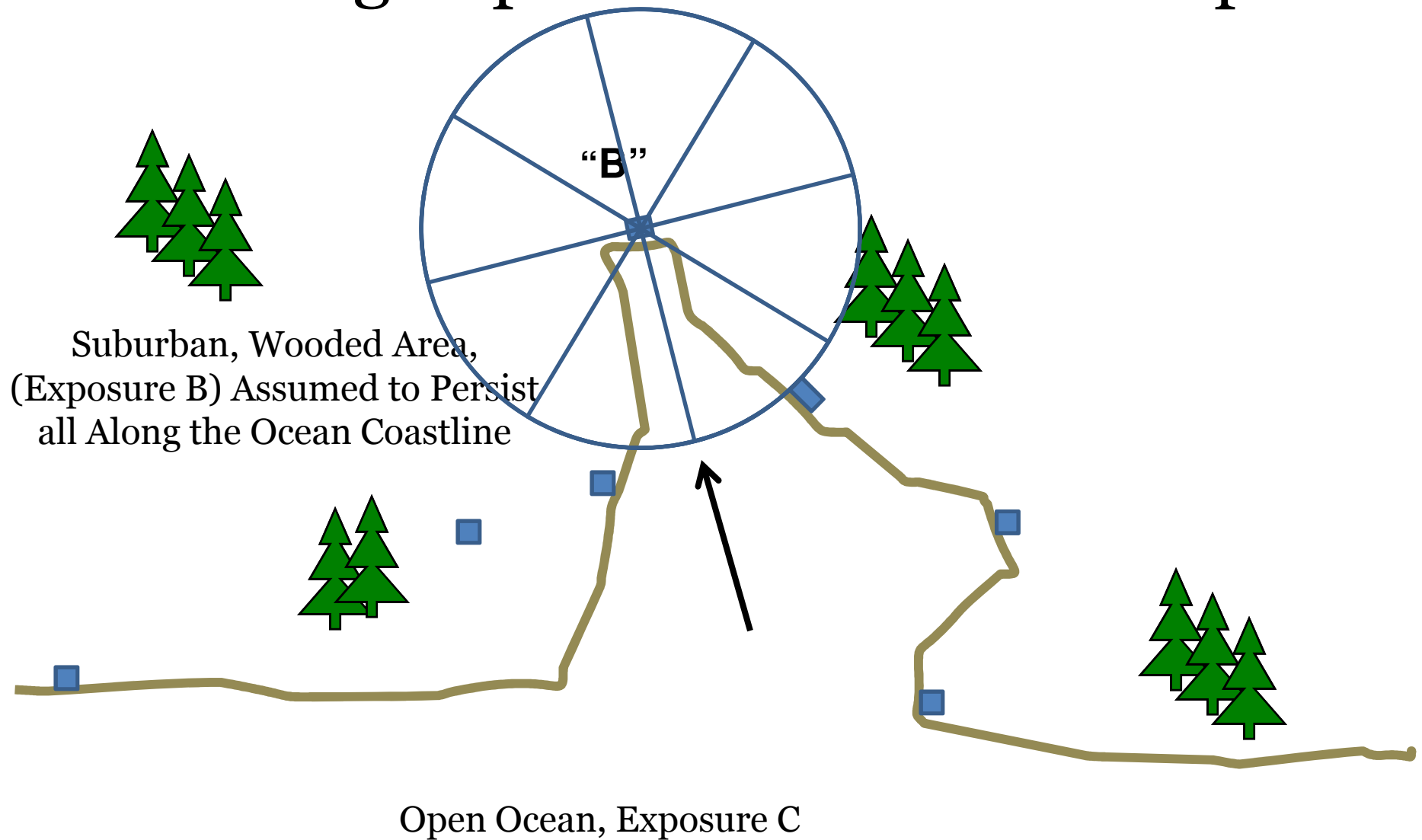
45° sector

Overlay Circle to Define Building Exposure*



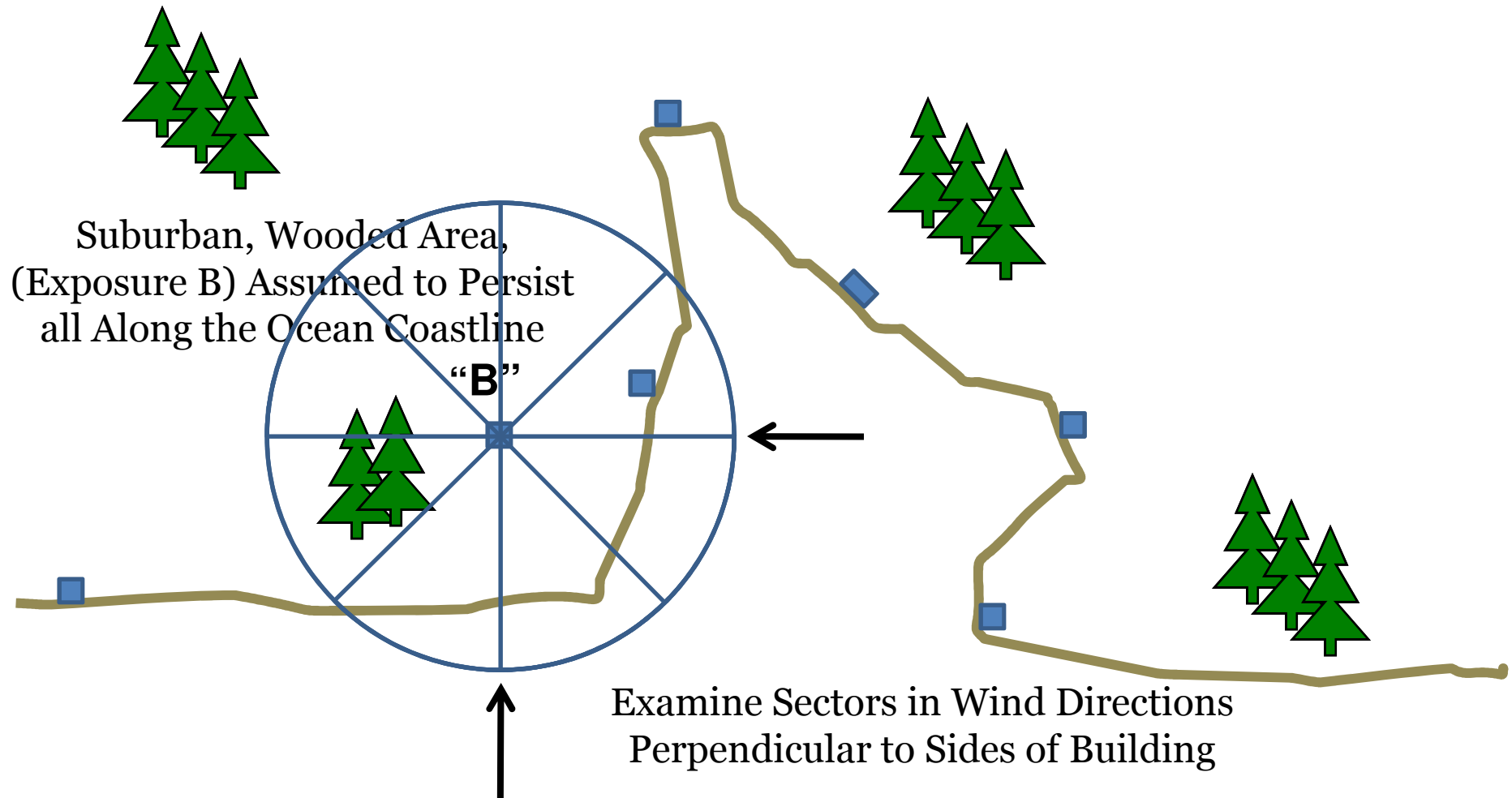
*...if One 45° Sector prevails as "C" then Exposure is "C", if not then "B"

Building Exposure...another example



*...if One 45° Sector prevails as "C" then Exposure is "C", if not then "B"

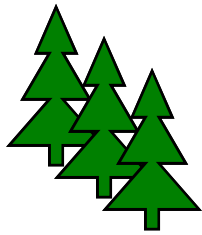
Building Exposure...another example



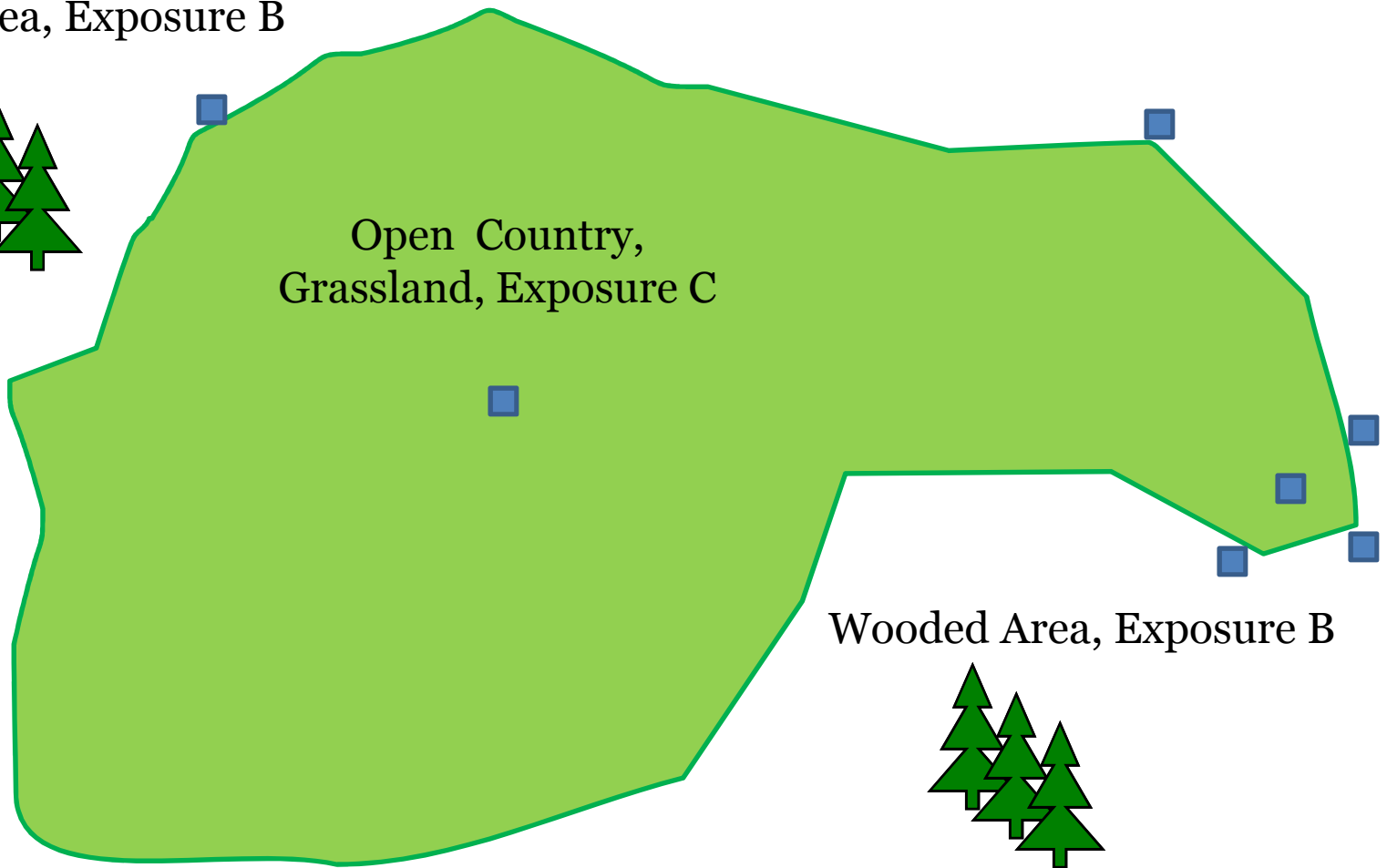
*...if One 45° Sector prevails as "C" then Exposure is "C", if not then "B"

Which Lots are Exposure B? or C?

Wooded Area, Exposure B



Open Country,
Grassland, Exposure C



Wooded Area, Exposure B

Overlay Circles...

Wooded Area, Exposure B

Open Country,
Grassland, Exposure C

