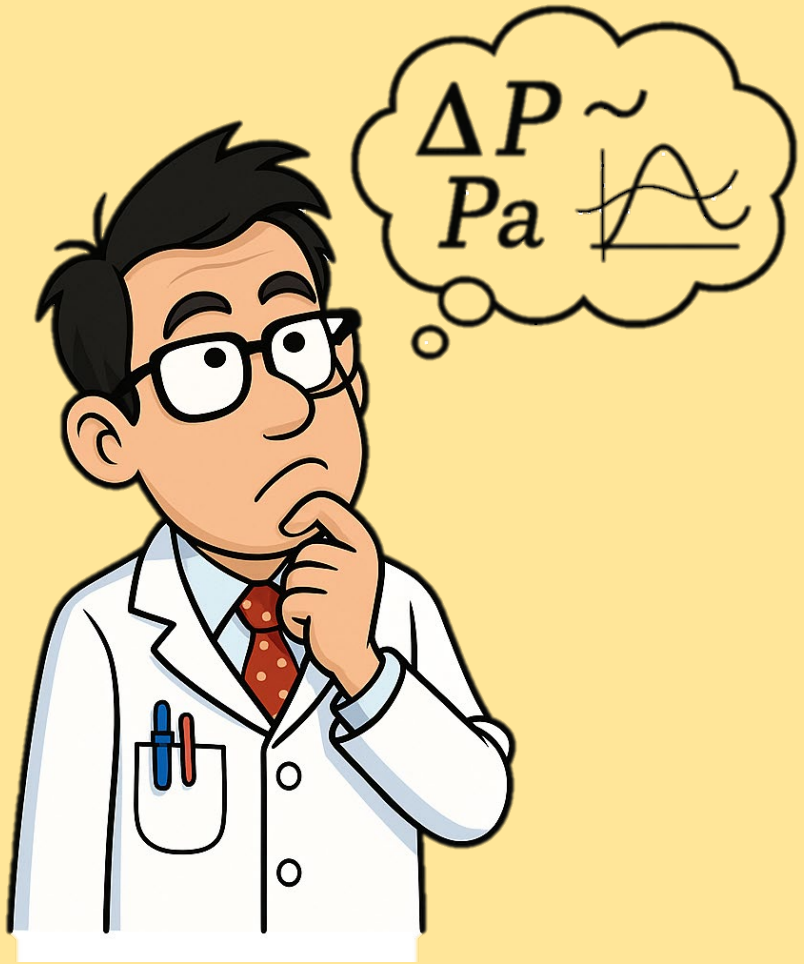
How to Determine Ideal Slab Pressure

For a Quiet, Effective and Efficient Mitigation System

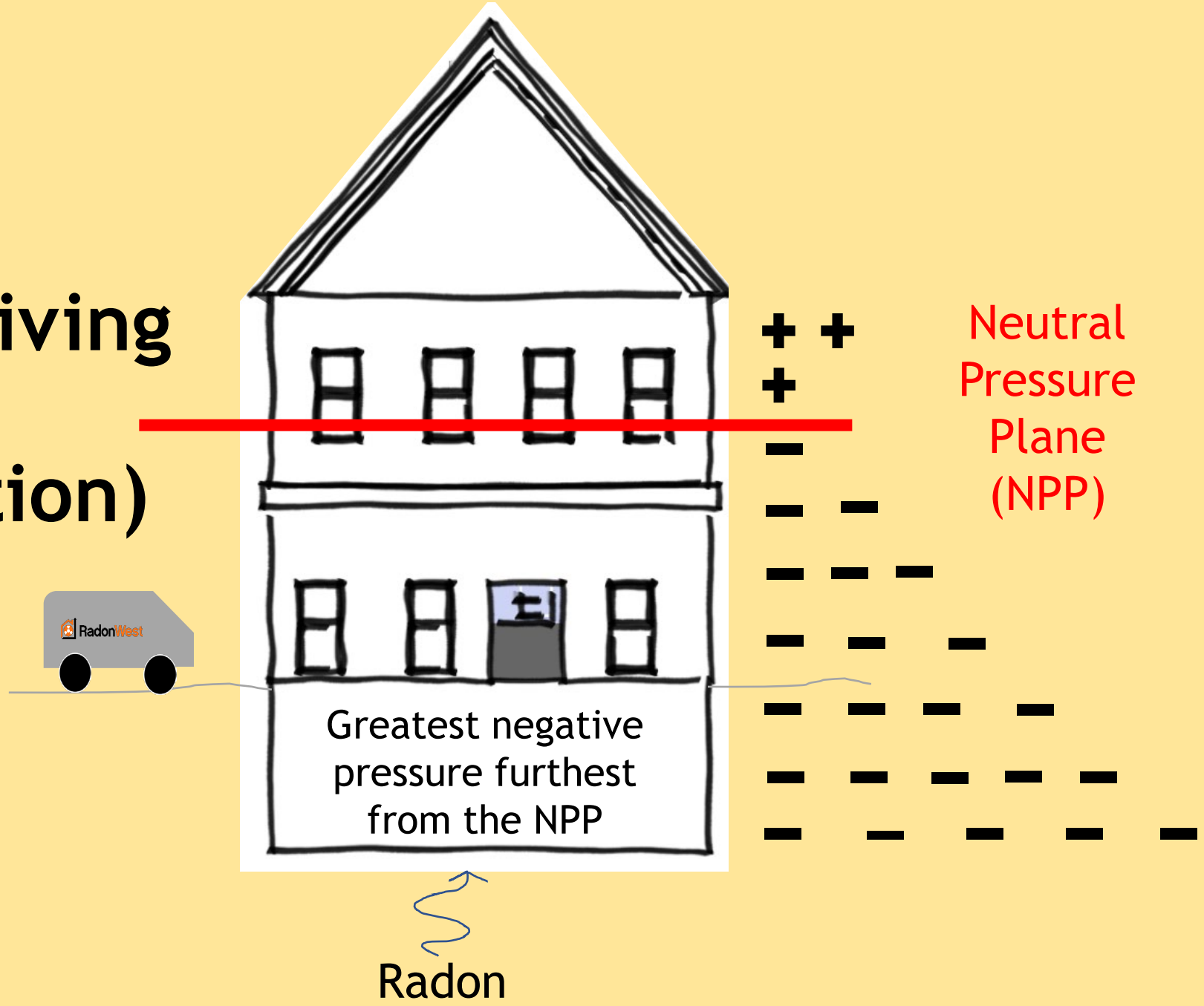
Colin Dumais, **RadonWest**

What Pressure Do I Need To Achieve at the Far End?



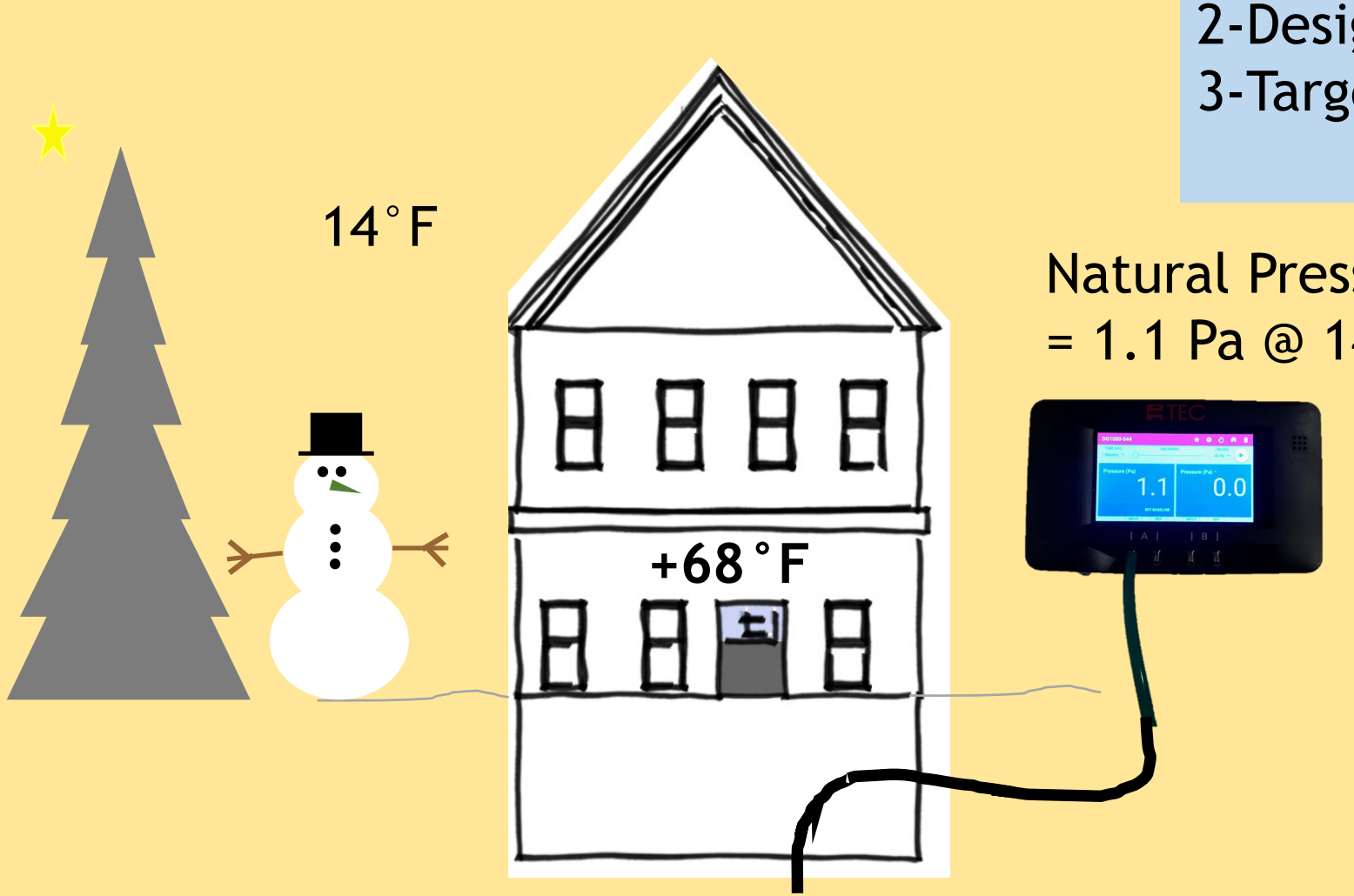
- Do I Just need to “tickle” the pressure at the far test hole?
- Just barely negative?
- Fixed pressure e.g. -1 Pa(-.004”), -3 Pa(-.012”)
- Does your target pressure change depending on season?
- Does the house change your target? Height? Size?
- Does the radon level inform your target pressure?

Thermal Stack: Major Driving Factor (Convection)

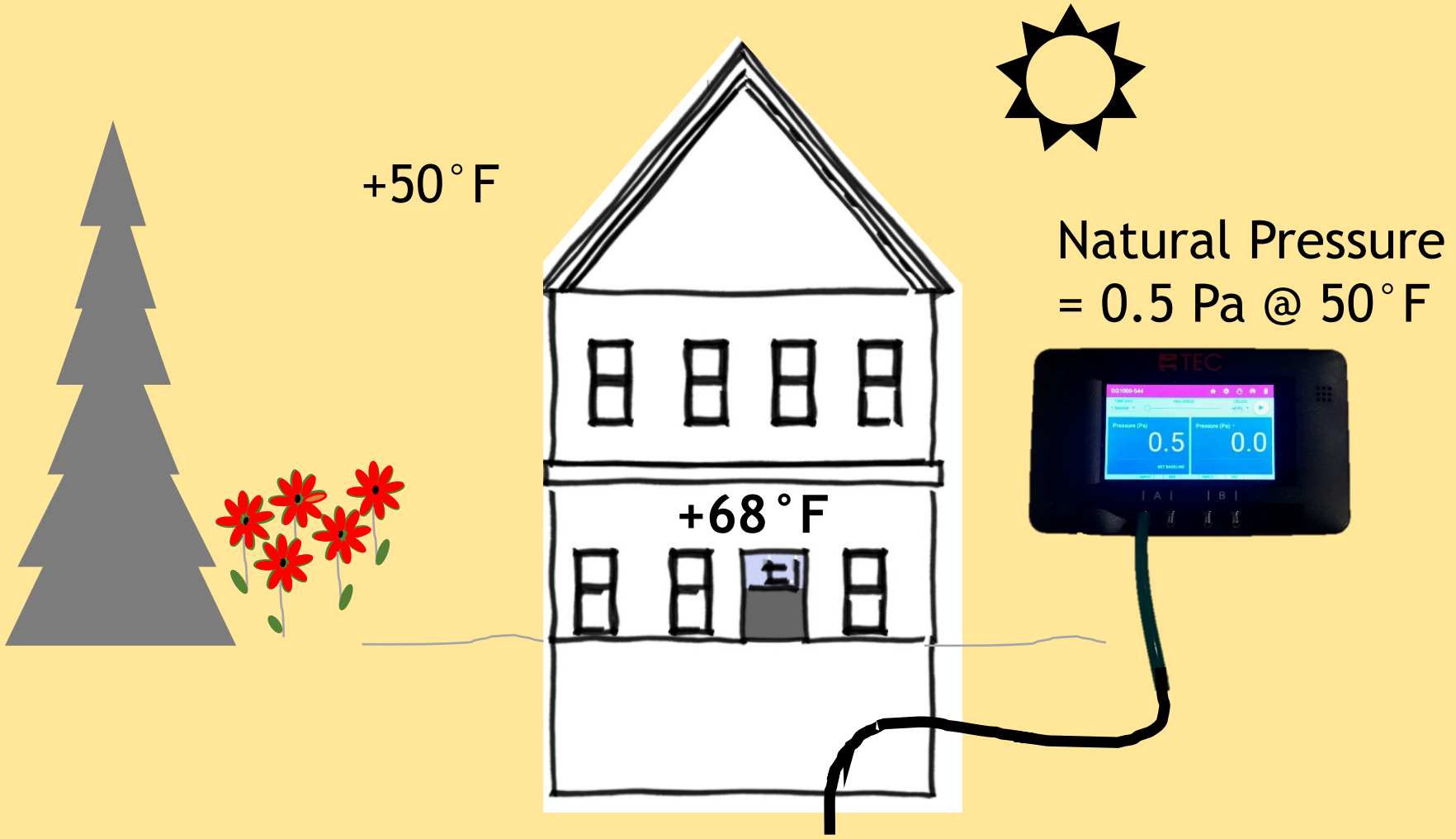


Natural Pressure (Winter)

Define
1-Natural Pressure
2-Design Pressure
3-Target Pressure

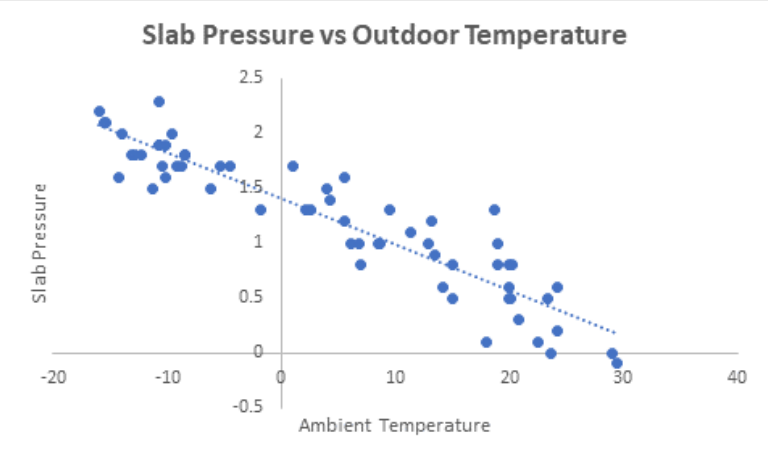


Natural Pressure (Spring)

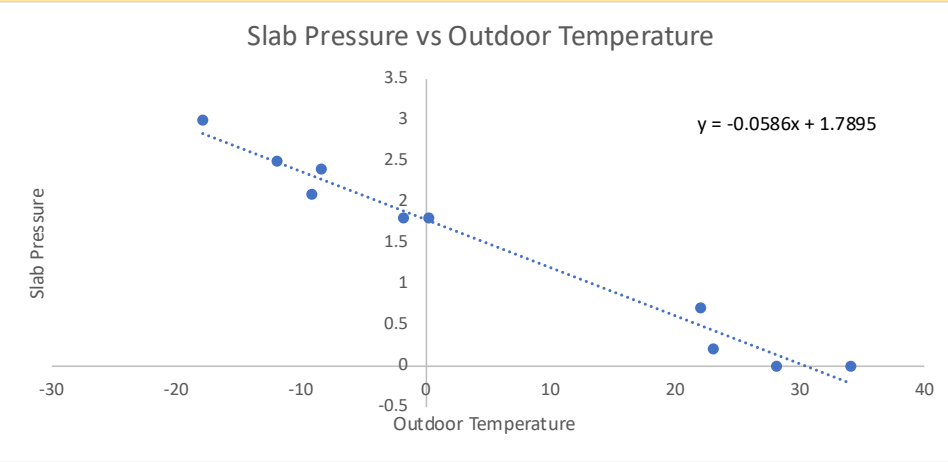


Can We Predict Winter Stack Effect When its Not Winter?

House A



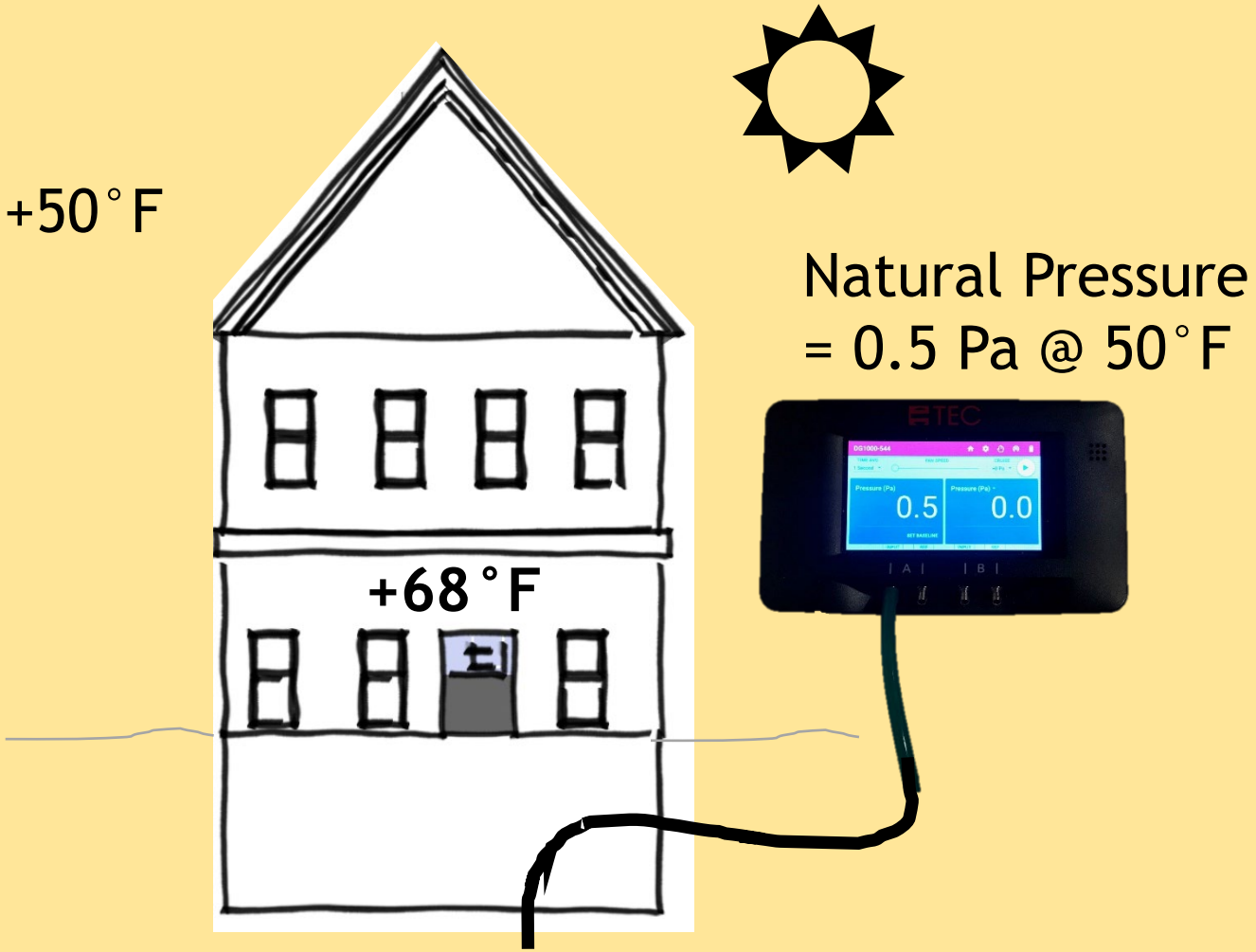
House B



The natural slab pressure is a linear function of outdoor air temperature so if we know the pressure at any given temperature, we can estimate the slab pressure at design conditions (i.e. winter)

Natural Pressure (Spring)

How much pressure change do I need to create under the slab to fix this problem for today? For the whole year?



Multiply Natural Pressure by Temperature Correction Factor

Design Suction Versus Exterior Temperature			
Exterior Temperature During Test	Winter Heating Degree Days (HDD)		
	Mild < 6000 HDDs	Moderate 6000- 7999 HDDs	Severe > 8000 HDDs
> 32 F	2.0	2.2	2.5
32 F to 14 F	1.4	1.5	1.6
14 F to -4 F	1.0	1.0	1.2
<-4 F	1.0	1.0	1.0

Source: CGSB- Existing Low Rise Residential - P29-149-012-2017

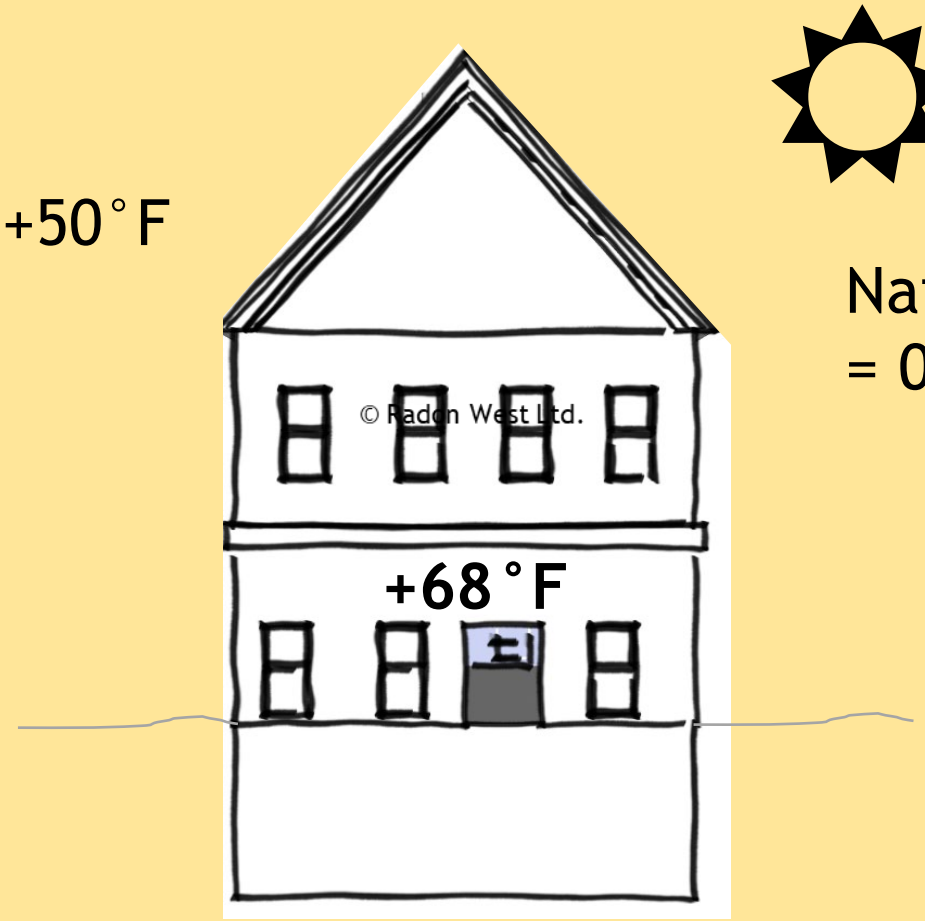
Example:

Natural pressure @ 50°F = 0.5 Pa

Multiply by the temperature correction factor 0.5 Pa X 2.2 = 1.1 Pa

Natural Pressure (Spring)

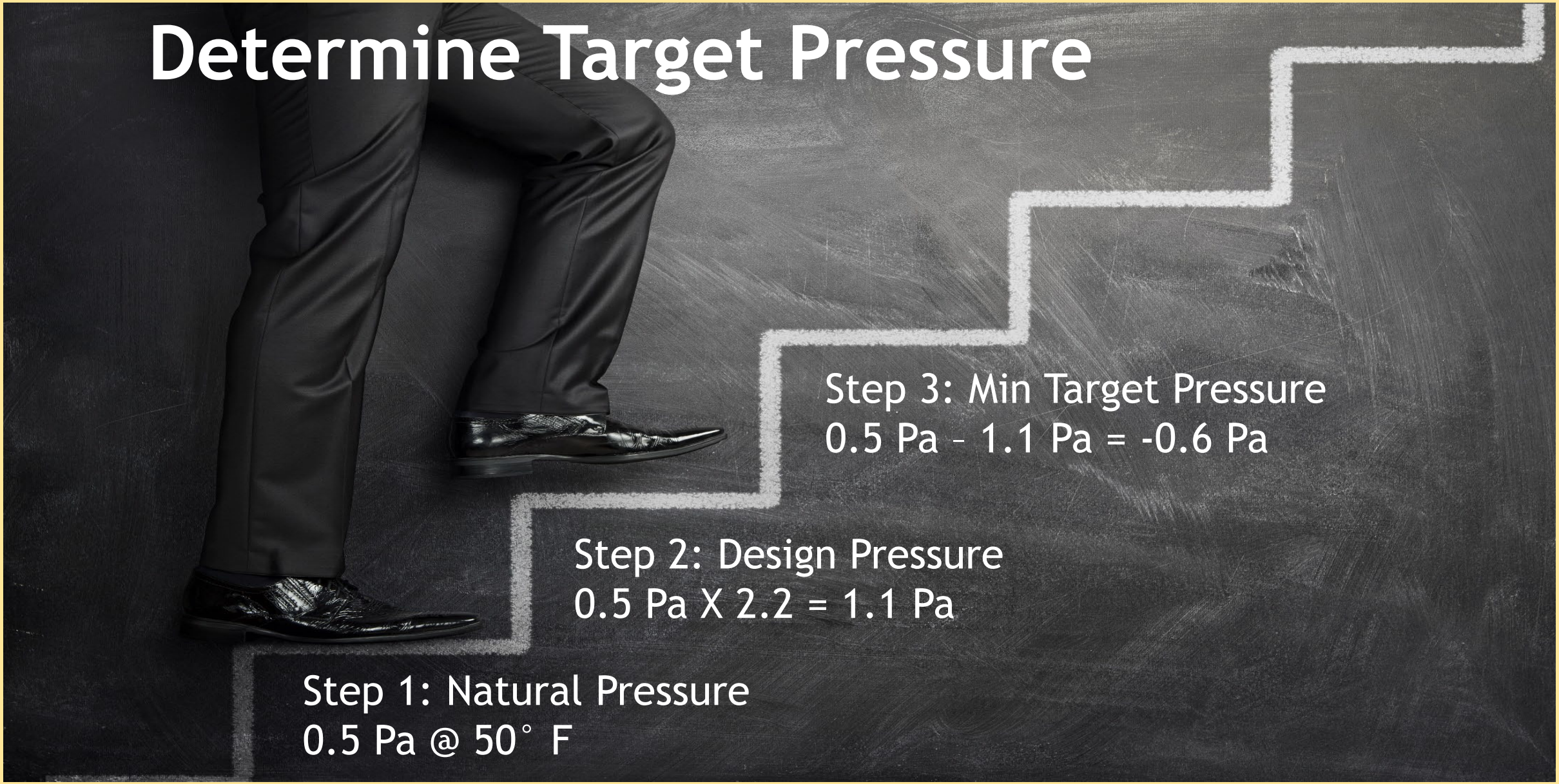
If we change the pressure by 1.1 Pa then the slab pressure will be 0.5 Pa-1.1 Pa = -0.6 Pa



Natural Pressure = 0.5 Pa @ 50°F

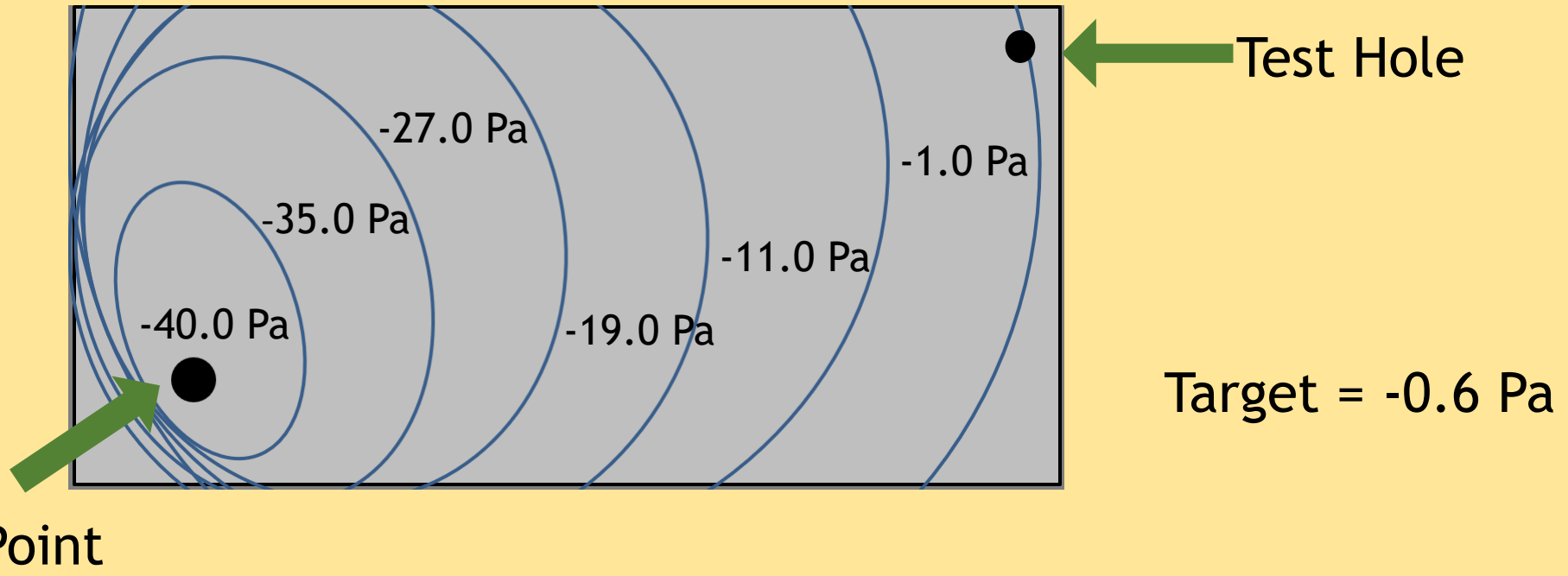
-0.6 Pa

Determine Target Pressure



Protect Entire Footprint

- Need to demonstrate target pressure across entire footprint to protect all year around
- Protect entire footprint because we don't know where the radon is coming from



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