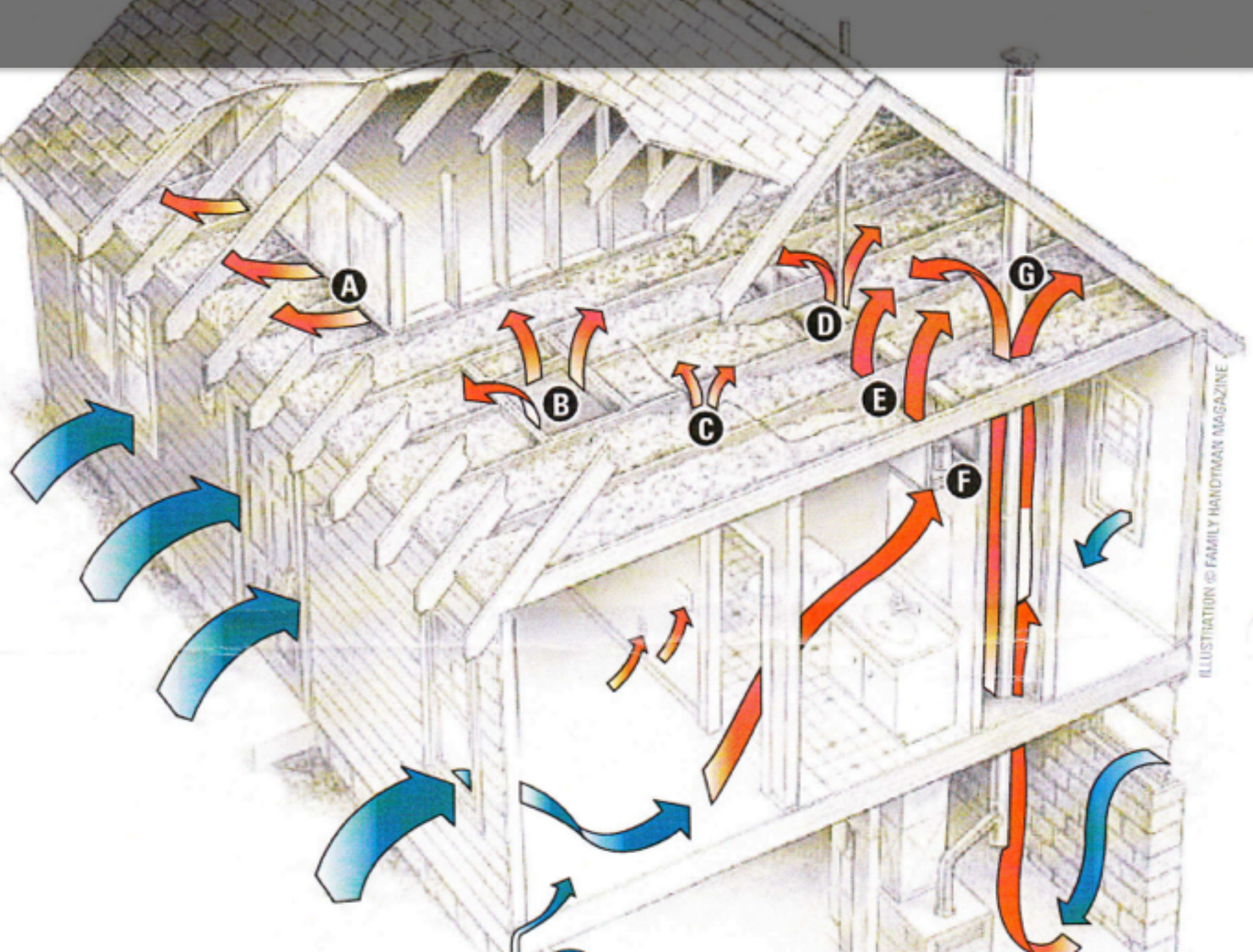
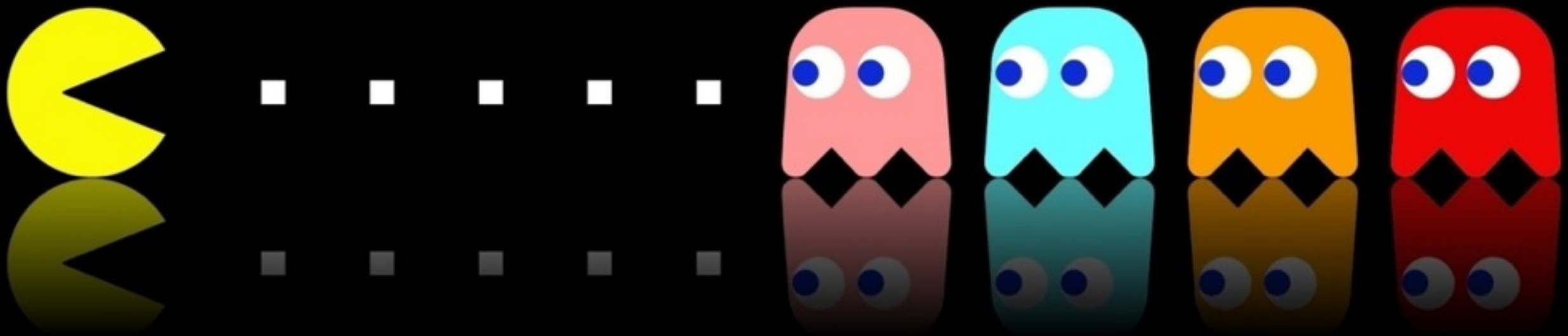
SimBuilding:

An Engaging Way to Learn Building Science



Who Are You?

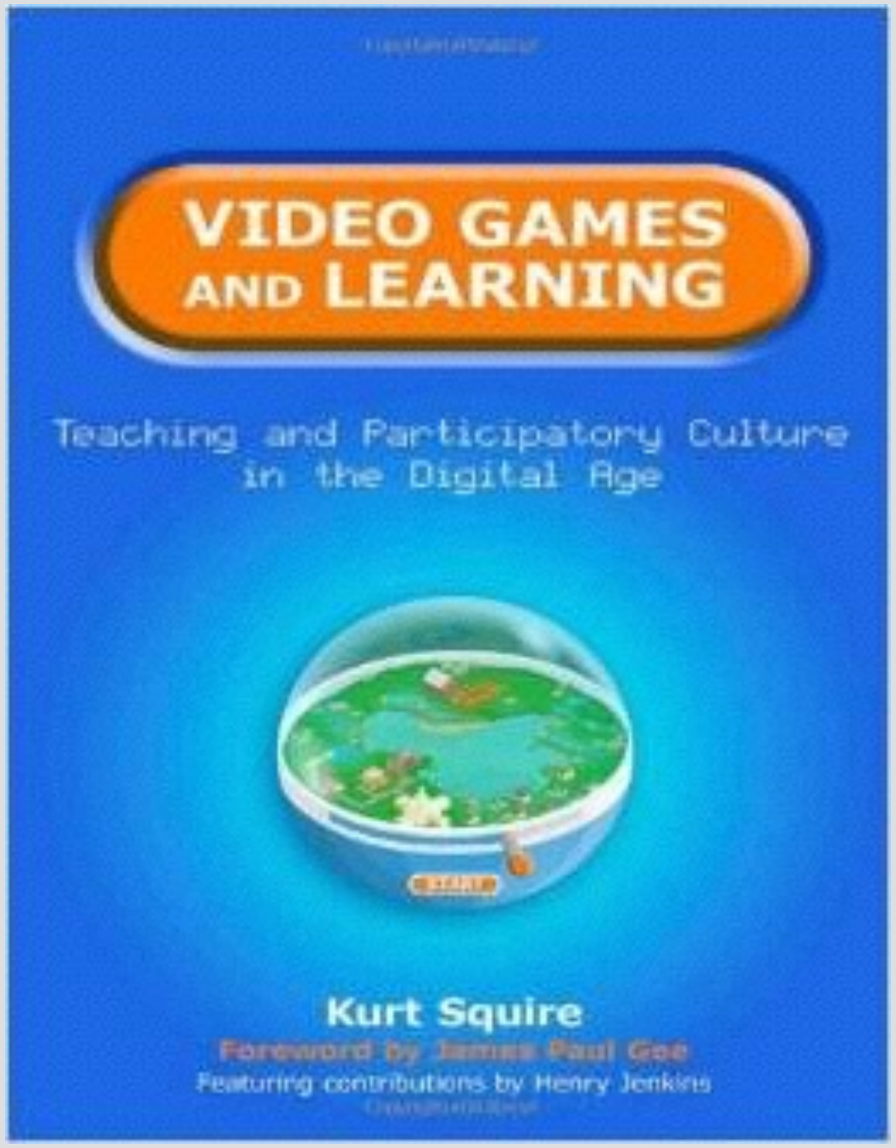
What Games Do You Play?

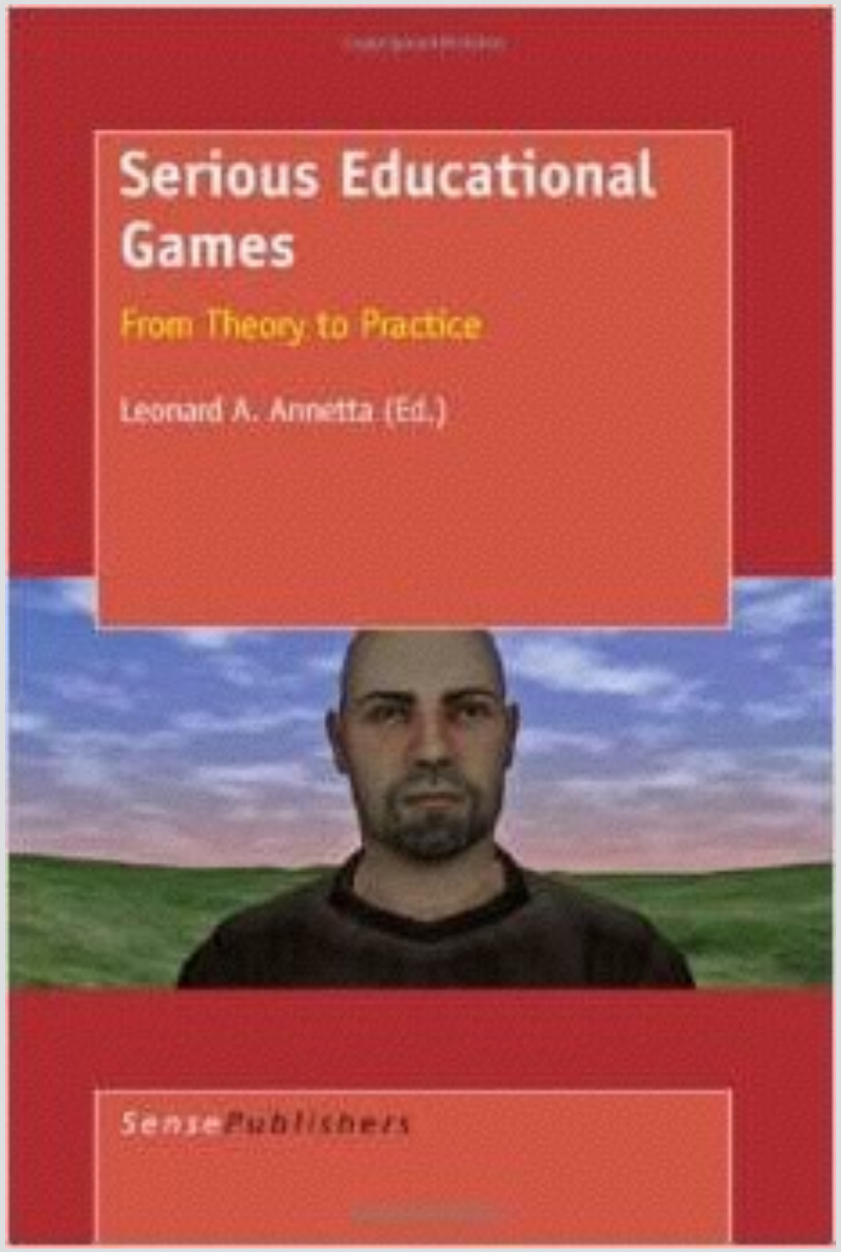


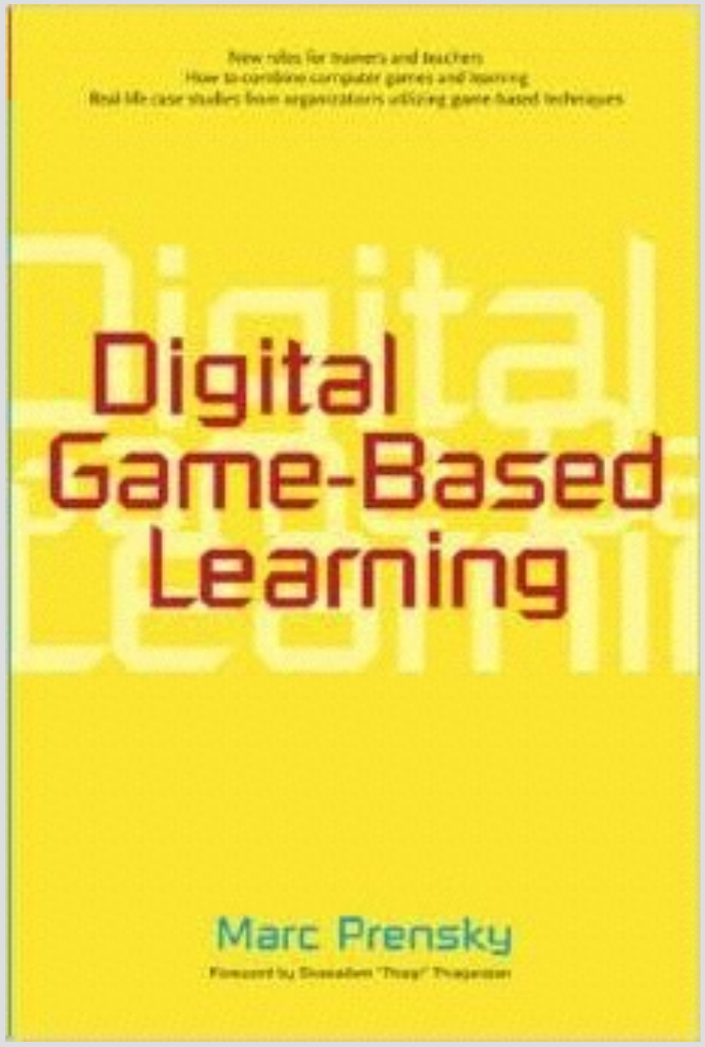
FARMVILLE

ANGRY BIRDS
ROVIO
#1 APP OF ALL TIME

Why Play Games?







Educational Game Theory

Jeopardy

Jeopardy

Air Sealing and Pressure Diagnostics	Energy	Insulation	Energy and the Building	Building Envelope
Q $100	Q $100	Q $100	Q $100	Q $100
Q $200	Q $200	Q $200	Q $200	Q $200
Q $300	Q $300	Q $300	Q $300	Q $300
Q $400	Q $400	Q $400	Q $400	Q $400
Q $500	Q $500	Q $500	Q $500	Q $500

THE INSPECTOR

zoom:

6 items left to find.

Insulation Frustration

The inspector was called to approve framing and was surprised to see how poorly the insulation was installed. Spot 6 problems with this picture. You earn 200 points for each correct answer. Click the Hint button for clues, but each hint will cost you 10 points.

Hint

Score: 0

Simulations

Euro
Goodies
Euro
Goodies

RESNET
RESIDENTIAL ENERGY SERVICES NETWORK

1: Introduction
2: Tutorials
3: Training Modules
4: Full CAZ Simulation

Full CAZ Simulation

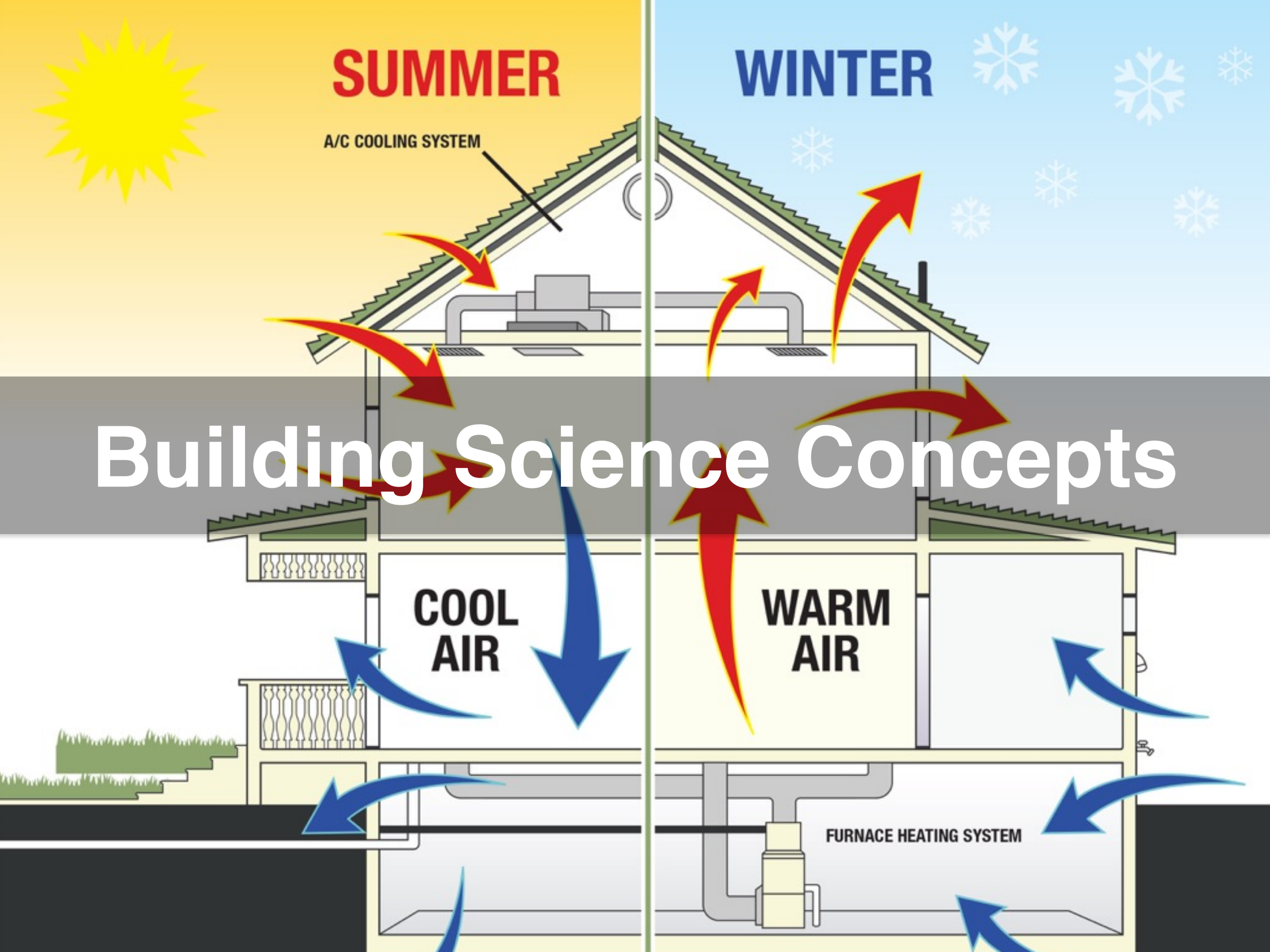
Perform a full CAZ analysis to test your full understanding of the CAZ procedure. Click below image to begin practice.

Full CAZ Sim: Do a full simulated CAZ field test

Video 1 | Lesson 1 | Lesson 2 | Video 2

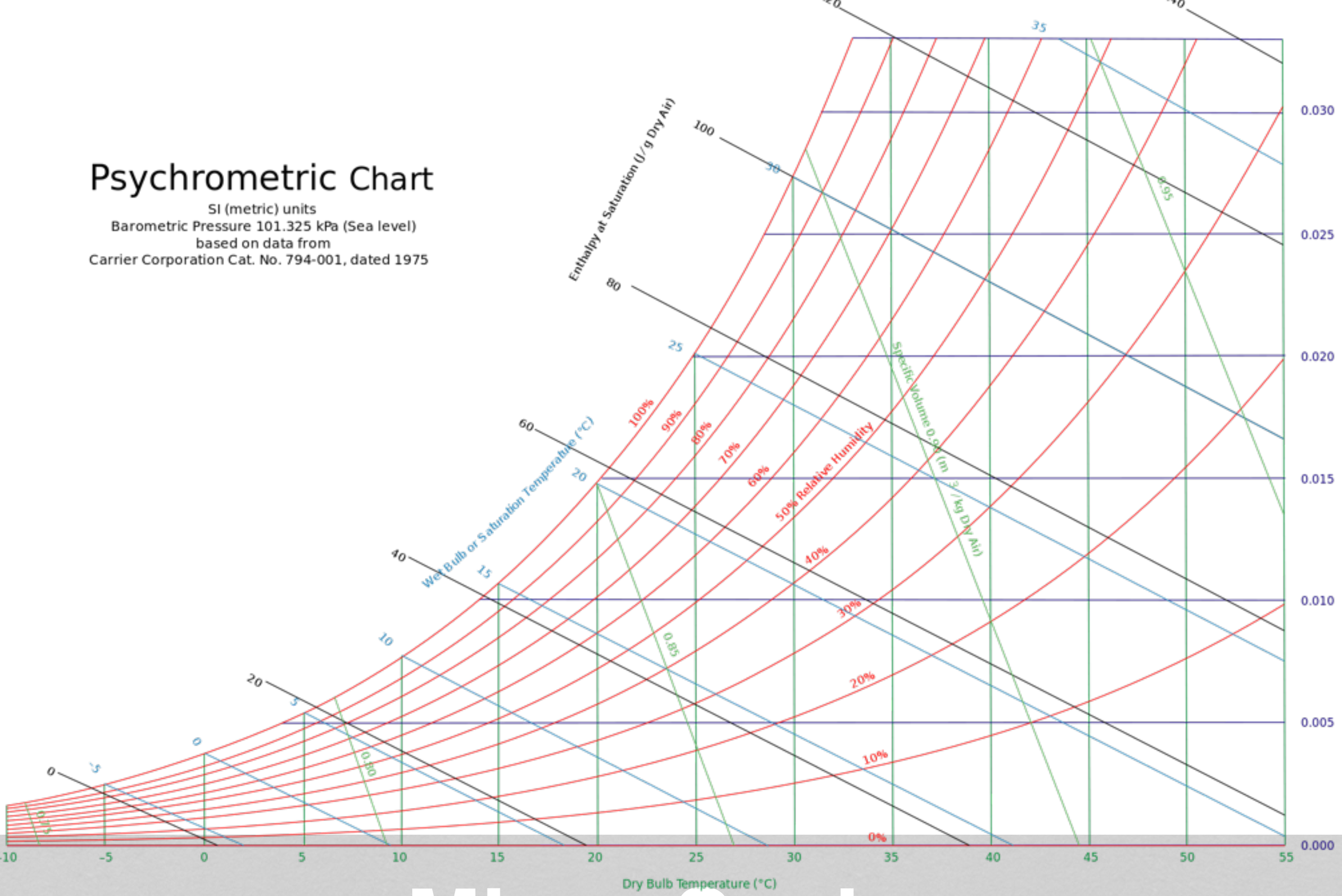
Exam | Instructor | Students | Help | Standards

Building Science Concepts



Psychrometric Chart

SI (metric) units
Barometric Pressure 101.325 kPa (Sea level)
based on data from
Carrier Corporation Cat. No. 794-001, dated 1975



Micro Scale

Macro Scale

I don’t know what you’re talking about

SFCC

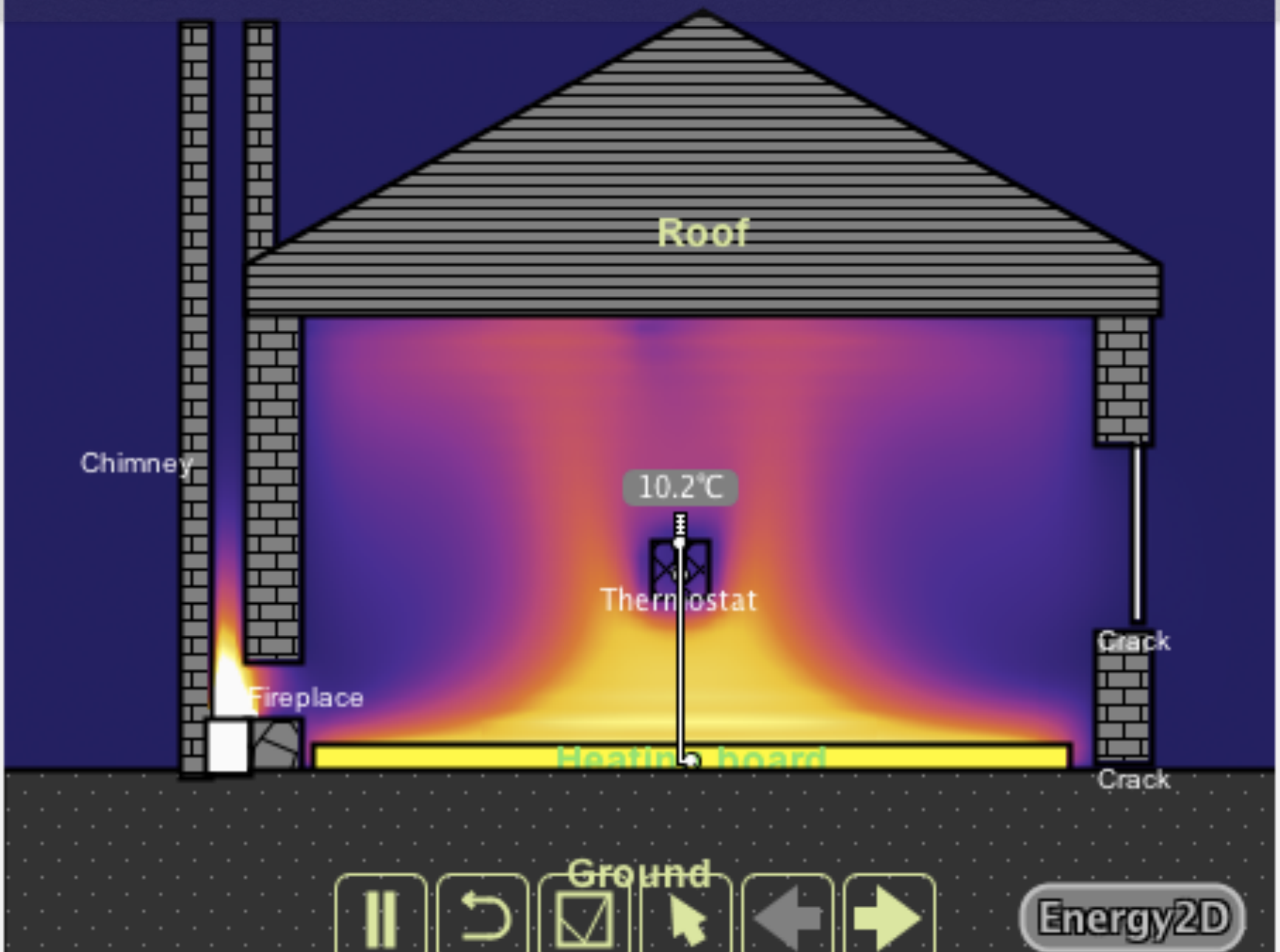
SANTA FE COMMUNITY COLLEGE

CENTER OF EXCELLENCE
GREEN BUILDING/
ENERGY EFFICIENCY

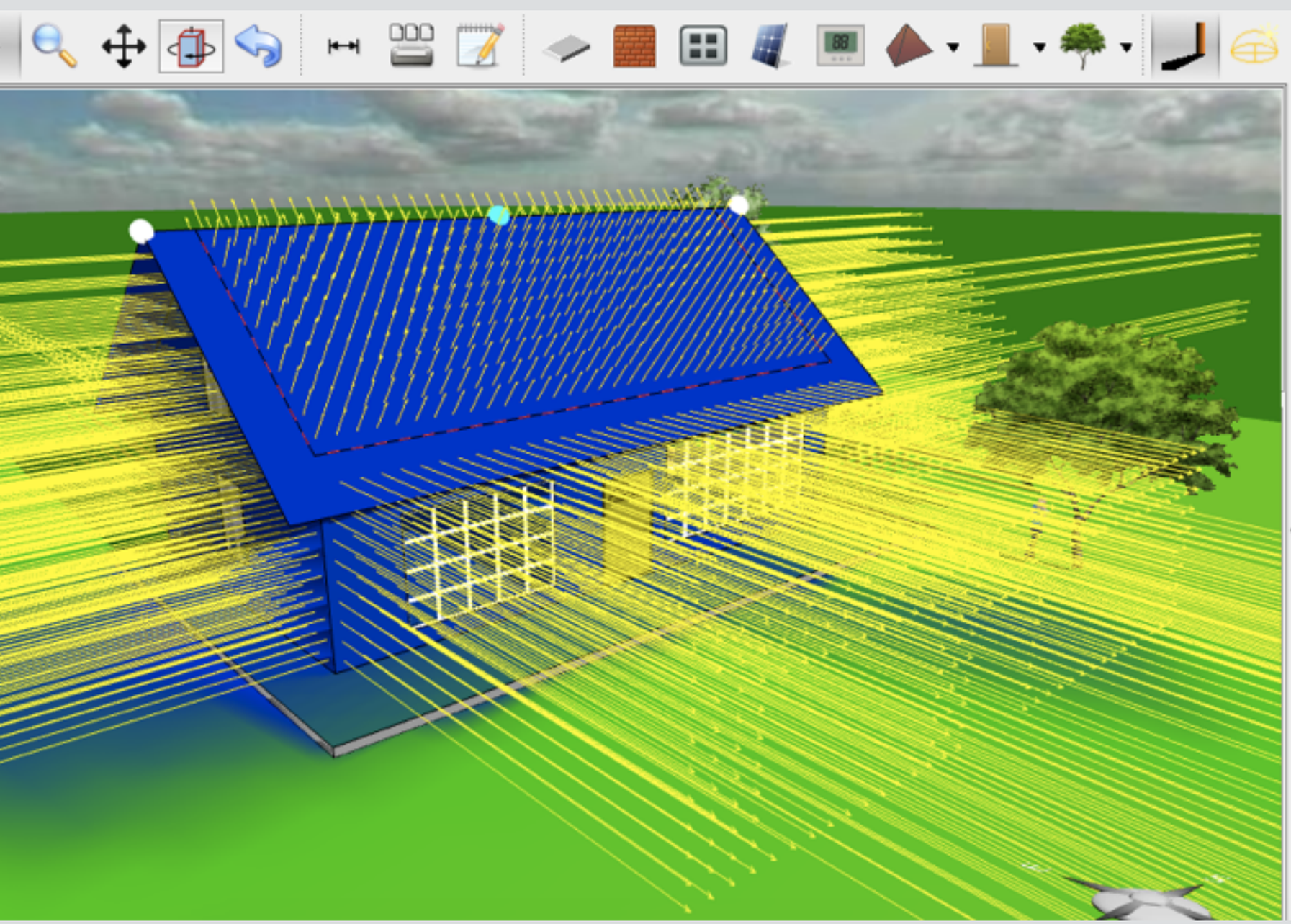
NSF

The Concord Consortium

Energy2D


Roof
Chimney
10.2°C
Thermostat
Crack
Fireplace
Heating board
Crack
Ground
Energy2D

Energy3D



Date: November 01 Santa Fe, NM

Time: 17:00 Latitude: 35

Conditions

Room °C: 20 Outside: 8°C Sunshine: 8hrs

U-Factor W/(m².°C)

Walls: 1.42 (16" Roofs: 0.11 (R5C

Windows: 5.91 (sing Doors: 0.35 (insu

Solar Conversion (%)

Window (SHGC): 25.0 Solar Panel: 20.0

Heat Map Contrast

Part - HipRoof(47)

Width: Height: Insolation: 0

Building

Area (㎡) 123

Height (m) 7.8

Cost ($) $31,326

Energy Today (kWh)

Windows	Solar Panels	Heater	AC	Ne
14.44	0	102.55	0	102.5

Thermal Bypass Game

platform
wall
window
roof
Close Contr

platform

wall

window

roof

Close Contr

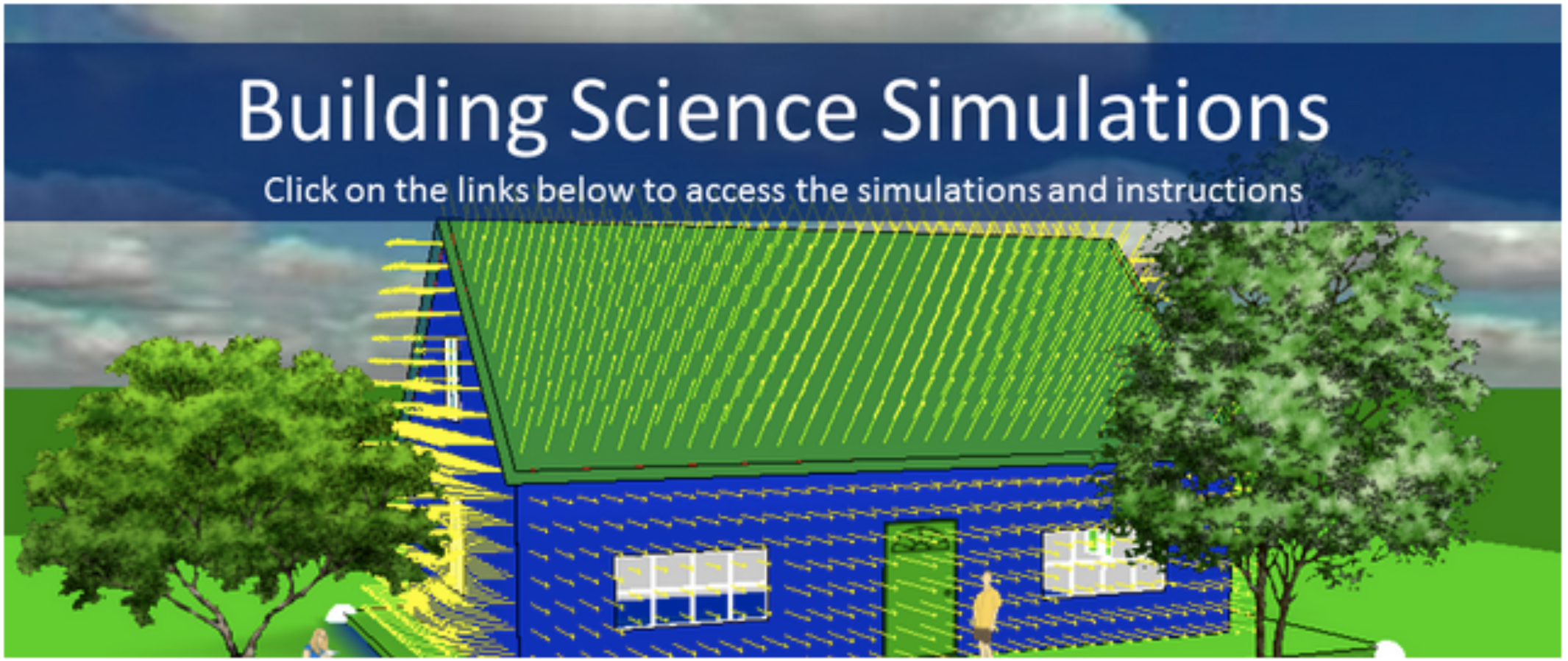
Investigate

Do you see a problem here?

Yes No

FLIR

SIMBUILDING



Insulation

Windows

Cooling

Solar Design

Bypass Game

Insulation Simulation

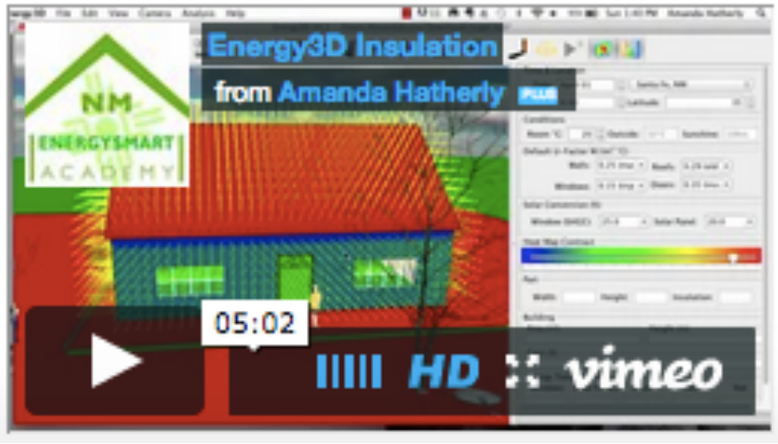
In this simulation you will experiment with adding different types of insulation to the walls and attic of a house and see how this affects the energy use of the home using a simulation called Energy3D.

1. First you will need to download and open up Energy3D. Go to this page to do so.

2. Now you need to download this file and open it up.

cape.ng3
Download File

3. You are going to modify the insulation in the house and check each modification against the energy use of the house. Watch the video below.



Learn by doing, that’s all that needs to be said

I loved the experiential component to learning. I find that I learn best, when I can experiment with things myself and get the answer wrong many different ways before arriving with the best answer.

It is entertaining, insightful and just plain wonderful.

I really enjoyed using the program. Having a visual representation is always a plus. Its cool being able to calculate the energy usage and to play around with the different values of insulation.

I think this a great tool to get a quick idea on how a house will perform. It's strength is that it’s user-friendly, fast, and can run many different scenarios.

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Thank You

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