

BuildSmart Amendments

2009 International Energy Conservation Code (IECC)

American Institute of Architects – Idaho Mountain Chapter
March 9, Workshop

BuildSmart Regulations

General Info

- Mandatory energy regulations that are beyond what is outlined in the 2009 IECC
- Affect the following:
 - New Construction, Additions, Remodels, Renovations and Exterior Energy Usage
- Eliminate ResCheck as a tool for identifying compliance for majority of projects.
- 2009 IECC and BuildSmart Regulations go into effect May 1, 2009.

New Construction

Size Matters

2500 sq ft smaller – Three Paths

1. Prescriptive

- » 2009 IECC prescriptive requirements
- » High efficiency HVAC and hot water system
- » 5 ACH

2. Simulated Performance

- » 70 HERS

3. Alternative Standard

- » LEED Certified
- » National Green Building Standard (NGBS) - Bronze

New Construction

Size Matters

2501 sq. ft. and larger - Two Paths

1. Simulated Performance

- Sliding Performance Scale based on conditioned space

2. Alternative Standards – LEED and NAHB

- Sliding Scale based on conditioned space

ALTERNATIVE STANDARD:

Section 401.2.1.3

LEED (Leadership Energy and Environmental Design)

- 2500 sq.ft. or smaller; LEED Certified
- 2501 sq.ft. - 6500 sq.ft.; LEED Certified Silver
- 6501 sq.ft. – or larger; LEED Certified Gold

NGBS (National Green Building Standard)

- 2500 sq.ft. or smaller Bronze NGBS Certified
- 2501 sq.ft. - 4000 sq.ft. shall be Silver NGBS Certified
- 4001 sq.ft. – 6500 sq.ft. shall be Gold NGBS Certified
- 6501 sq.ft. or larger shall be Emerald NGBS Certified

New Construction

Testing/Third Party Verification/Submittals

- Prescriptive path requires blower-door tests, “visual inspection” to verify caulking and sealing not allowed
- Simulated performance path requires a pre-construction HERS rating. To verify the HERS rating blower-door test, duct blaster, and on-site inspection occur through third party verifier i.e. HERS rater
- Manual J, S, & D calculations (design calculations for heating/cooling duct system and runs) submitted prior to subfloor inspection - currently code doesn't define when calculations need to be submitted.

Additions

301 sq. ft. or larger – Two Paths

1. Performance - simulated

- 30 point HERS improvement, up to a 100 HERS, for the entire structure

2. Prescriptive

- Tier I Energy Star Improvements on the existing structure

Remodels and Renovations

- Remodel requires an Energy Audit conducted by a certified energy auditor prior to building permit issuance.

“Work on an existing structure that does not add conditioned floor area but requires a building permit and involves the removal of the interior finished membrane and/or exterior wall sheathing on more than 25% of the area of the existing exterior wall.”

- Renovation require completion of self- conducted energy audit prior to building permit issuance
 - Building dept. will provide energy audit packet

Exterior Renewable Energy Mitigation Program

Snowmelt, heated pools > 200 sq. ft, and spas > 64 sq. ft.

- Offset 50% of energy use through on-site energy creation (solar pv, solar thermal, hydro, or ground source heat pump) or pay in-lieu fee.
- Existing systems are grandfathered
- Modeled after Aspen program; BuildSmart program requires only 50% offset
- Software to calculate renewable credit and payment options

Scenario #1

I am building a 2450 sq. ft. residence in the unincorporated county.

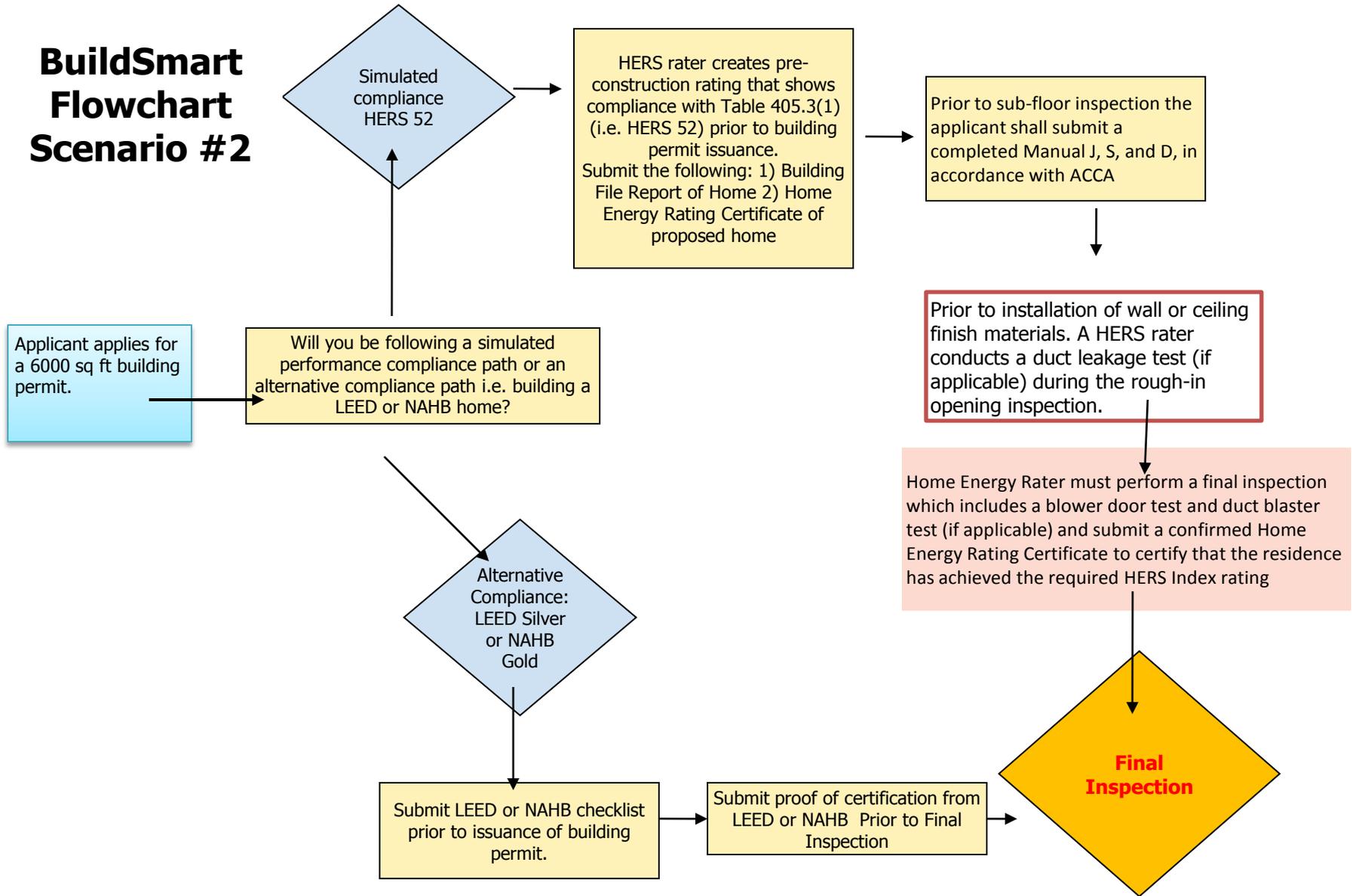
- What compliance paths are available?
- What new submittal requirements accompany the various compliance paths?

Scenario #2

I am building a 6000 sq. ft. home in the unincorporated county.

- What compliance paths are available for a project this size?
- What performance goal i.e. HERS score, will the project be required to meet?
- What level of LEED would be required?
- How will an applicant show and prove intent to build to the LEED standard?
- Will the Building Department require LEED certification prior to issuance of the CO?

BuildSmart Flowchart Scenario #2

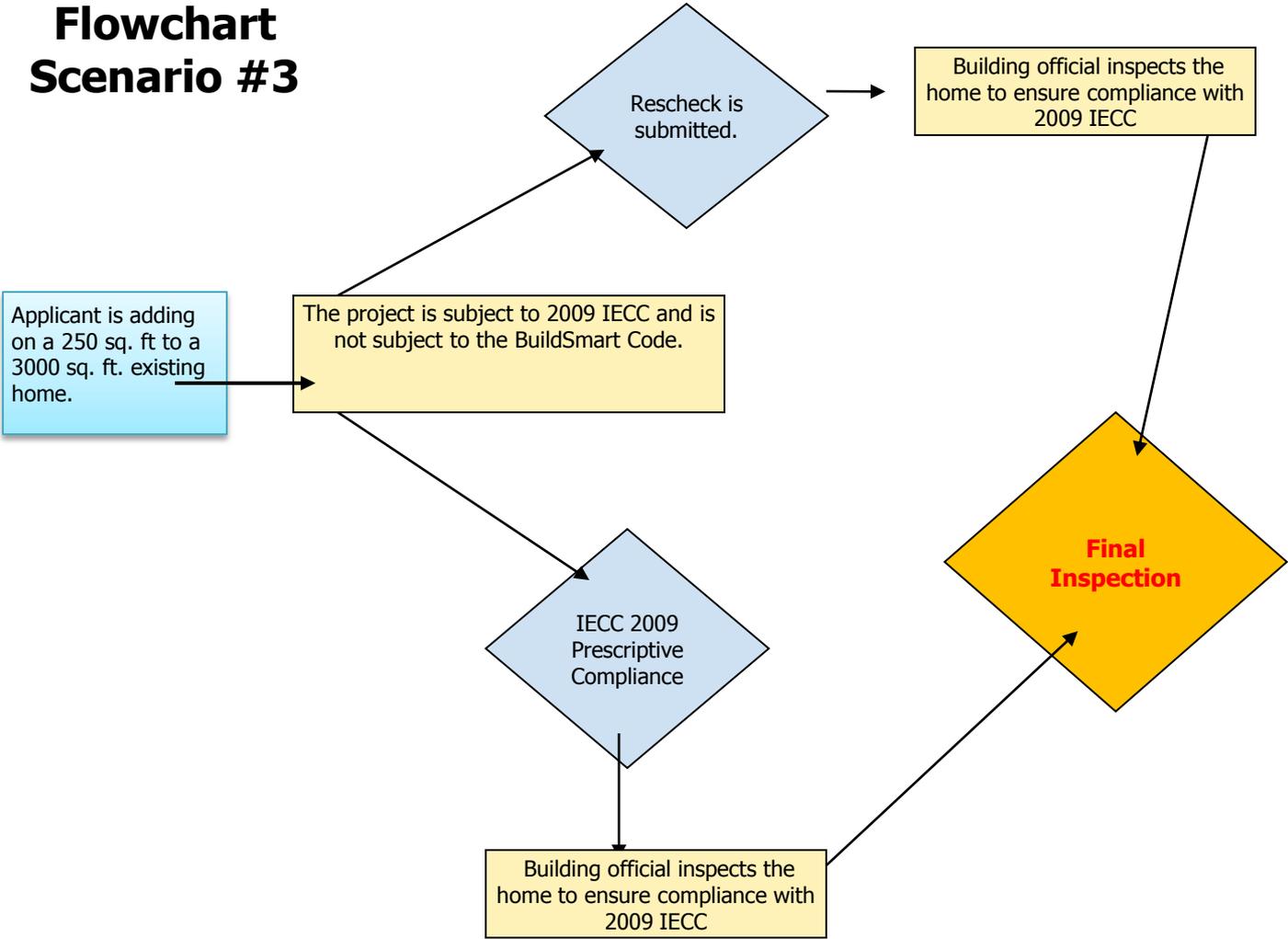


Scenario #3

I will be adding a 250 sq. ft. bathroom addition to my 3000 sq. ft. home.

- Is this project subject to BuildSmart requirements?
- What does the IECC require?
- Can ReCheck be used to show compliance?

BuildSmart Flowchart Scenario #3



Scenario #4

I am remodeling over 30% of my 6000 sq. ft. home.

- Will I be required to improve my existing home?
- What compliance paths are available?
- What need to be submitted to show compliance?

BuildSmart Flowchart Scenario #4

Applicant is "remodeling:"
over 30% of the home.
Remodeling is defined
removing more than 25% of
the exterior wall sheathing or
interior finish membrane.

Conduct an *energy audit* by a
certified energy auditor prior to
building permit issuance. Requires
a blower door test and duct blaster
test (if applicable) . See definition of
Energy Audit

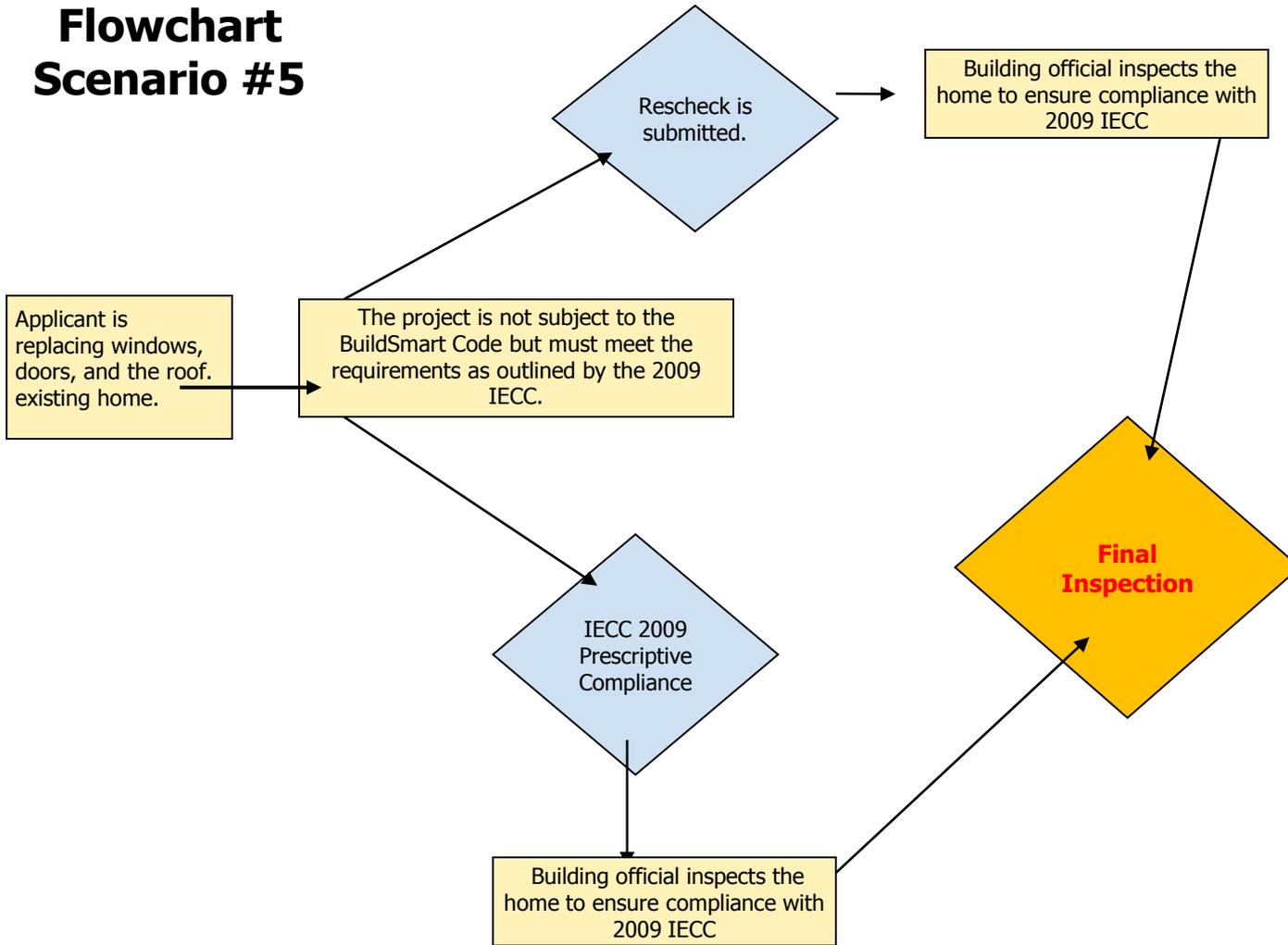
Submit
energy audit
report prior
to building
permit
issuance.

Scenario #5

I am replacing all the windows, doors, and the roof in my Chocolate Gulch home.

- Does the BuildSmart code require a energy audit?

BuildSmart Flowchart Scenario #5

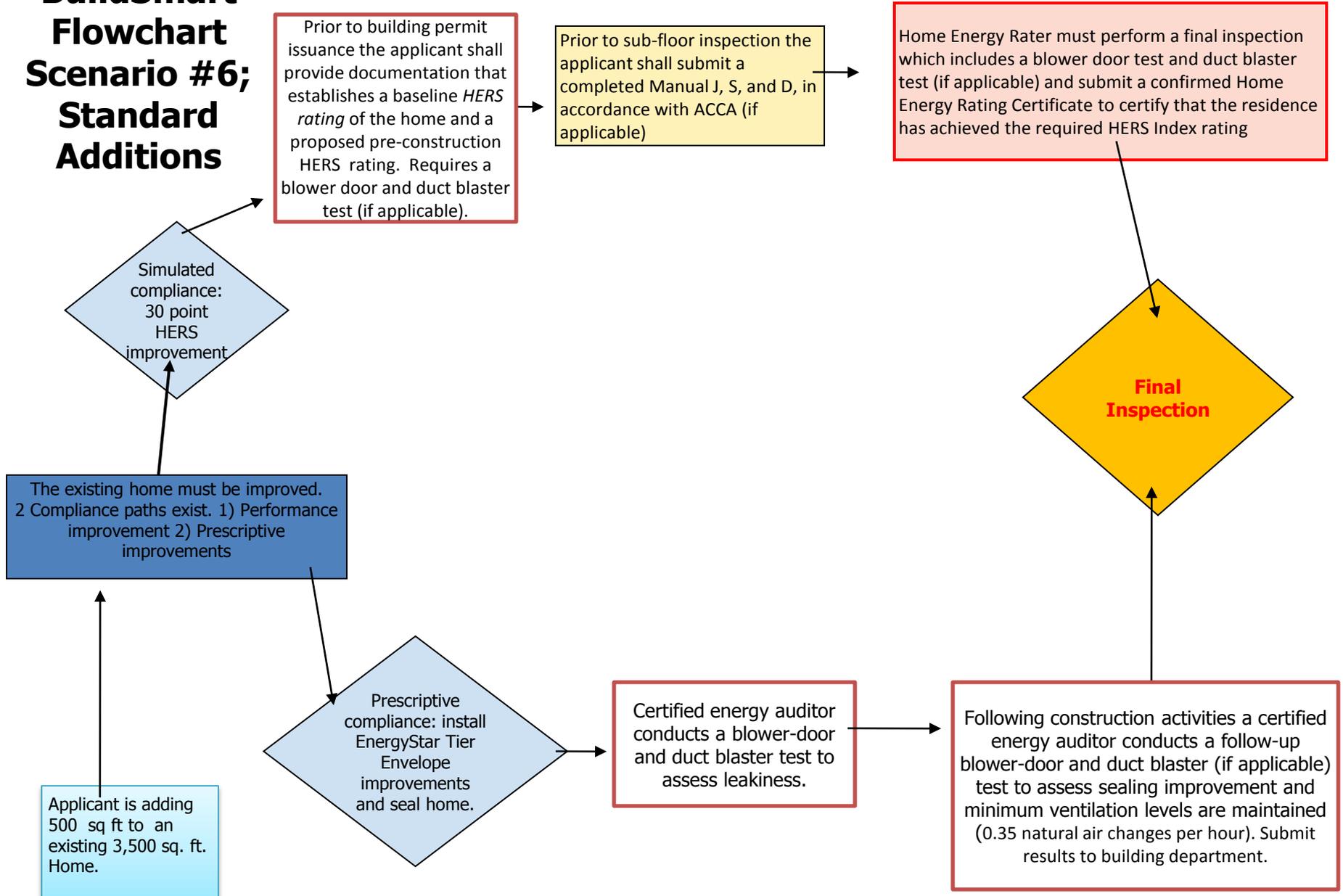


Scenario #6

I am adding 500 sq. ft. to my existing 3,500 sq. ft. home?

- Will I be required to improve the existing home?
- Does the addition have to be built to above the 2009 IECC?
- What are the compliance paths available to improve the existing home?
- What and when will I need to submit materials to the building department?

BuildSmart Flowchart Scenario #6; Standard Additions

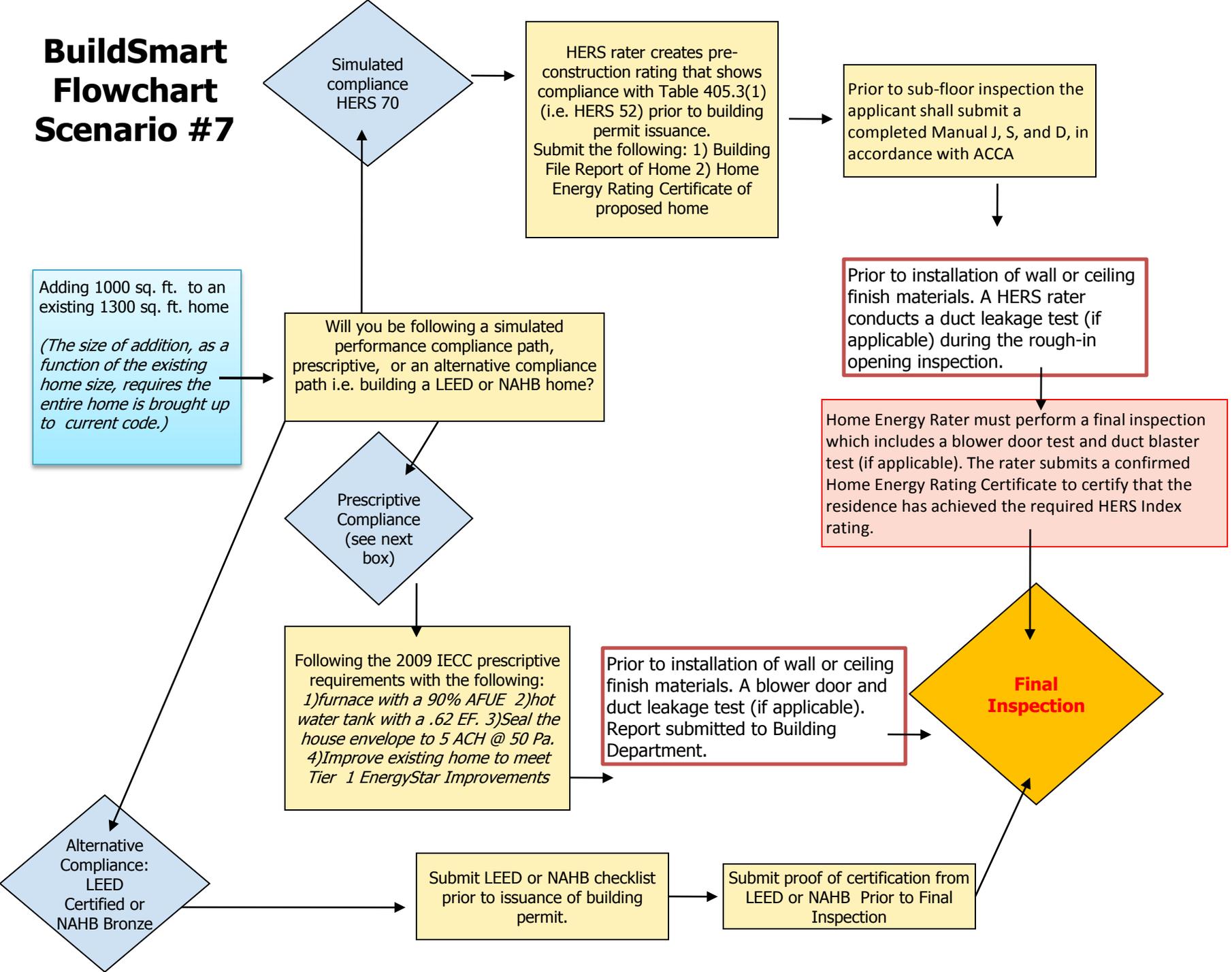


Scenario #7

I am adding a 1,000 sq. ft. onto my 1,300 sq. ft. existing home.

- Does the BuildSmart code regulate this size of an addition as a “standard addition” or a new structure?
- What compliance paths are available?

BuildSmart Flowchart Scenario #7



Scenario #8

I am building a 500 sq. ft. pool.

- Is the pool subject to the Exterior Renewable Energy Mitigation Program (EREMP)?
- What compliance paths are available to meet the EREMP requirements?

BuildSmart Flowchart Scenario #8

EREMP Renewable Calculations: **Photovoltaic**

Payment Option: 500 sq. ft/2 @ \$136 per square foot/.91 (efficiency rating of boiler) = \$37,362

Credit: 6 KW photovoltaic system @ \$6241.20 per kilowatt = \$37,447

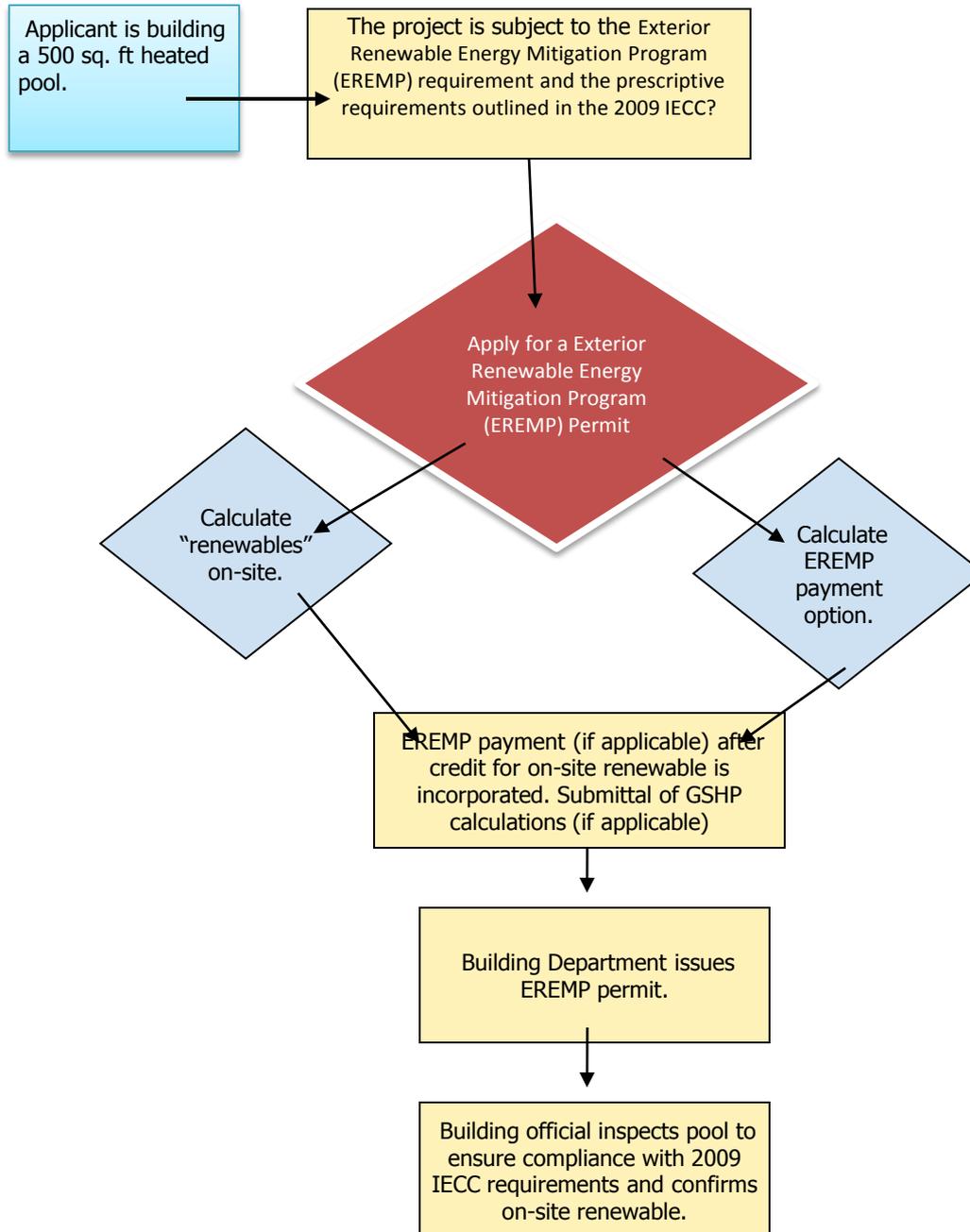
EREMP payment option will be \$0

EREMP Renewable Calculations: **Solar Thermal**

Payment Option: 500 sq. ft/2 @ \$136 per square foot/.91 (efficiency rating of boiler) = \$37,362

Credit: 120 sq. ft of Solar Thermal Installed @ \$224.65 per square foot = \$26,958

EREMP payment option will be \$10,404



Scenario #9

I am replacing the boilers for my heated drive and adding an additional 100 sq. ft. of heated drive.

- What prescriptive requirements are outlined Exterior Renewable Energy Mitigation Program (EREMP) for heated drives?
- What compliance paths are available to meet the EREMP requirements?

BuildSmart Flowchart Scenario #9

EREMP Renewable Calculations: Photovoltaic

Payment Option: 100 sq. ft/2 @ \$34 per square foot/.91 (furnace efficiency) = \$1,868

Credit: 2 KW photovoltaic system @ \$6241.20 per kilowatt = \$12,482

EREMP payment option will be \$0

EREMP Renewable Calculations: Solar Thermal

Payment Option: 100 sq. ft/2 @ \$34 per square foot/.91 (furnace efficiency) = \$1,868

Credit: 40 sq. ft of Solar Thermal Installed @ \$224.65 per square foot = \$8986

EREMP payment option will be \$0

Applicant is adding 100 additional feet of heated drive and replacing the existing furnace.

The project is subject to the Exterior Renewable Energy Mitigation Program (EREMP) requirement

Apply for a Exterior Renewable Energy Mitigation Program (EREMP) Permit

Calculate "renewables" on-site.

Calculate EREMP payment option.

EREMP payment (if applicable) after credit for on-site renewable is incorporated. Submittal of GSHP calculations (if applicable)

Building Department issues EREMP permit.

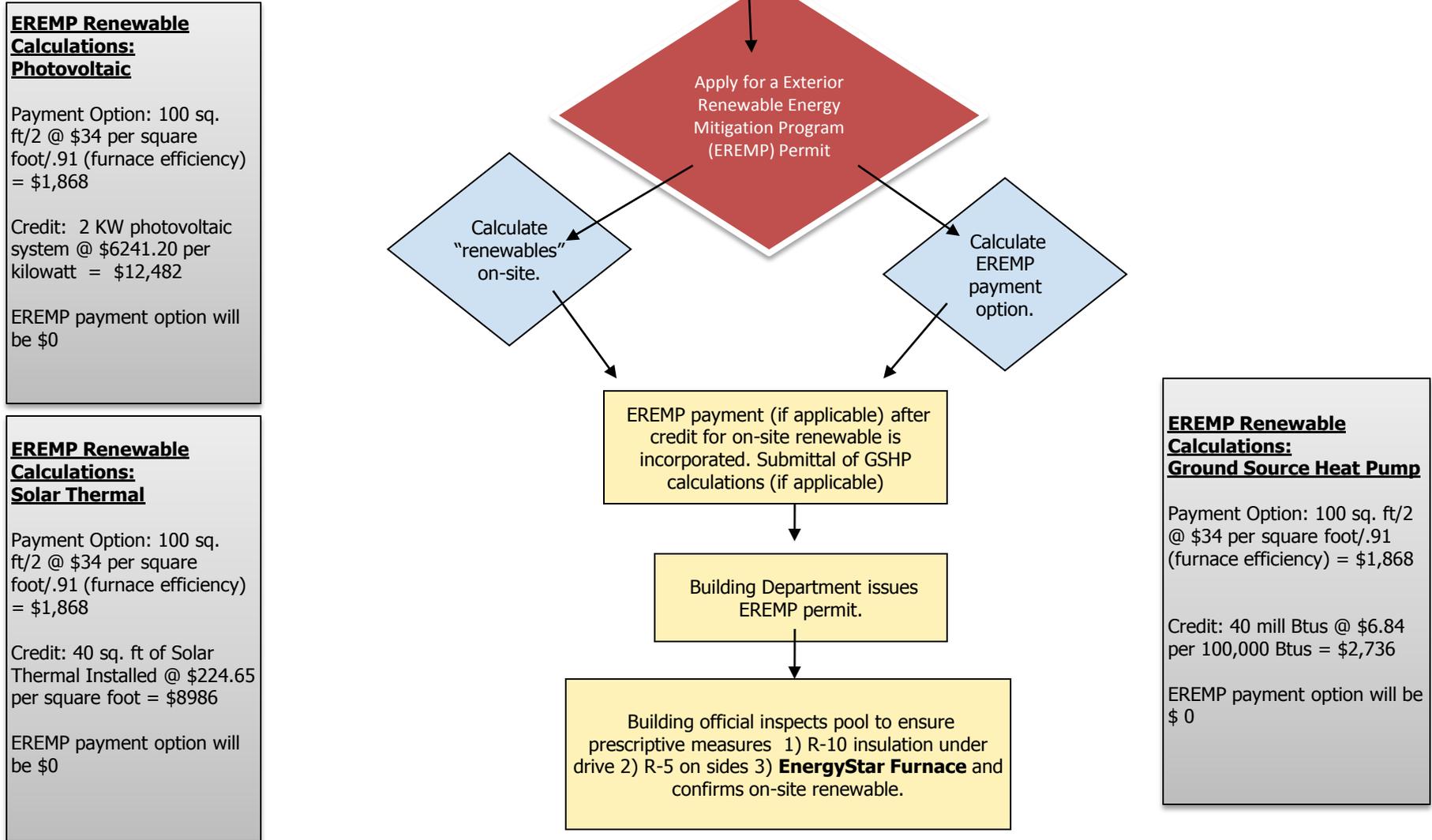
Building official inspects pool to ensure prescriptive measures 1) R-10 insulation under drive 2) R-5 on sides 3) **EnergyStar Furnace** and confirms on-site renewable.

EREMP Renewable Calculations: Ground Source Heat Pump

Payment Option: 100 sq. ft/2 @ \$34 per square foot/.91 (furnace efficiency) = \$1,868

Credit: 40 mill Btus @ \$6.84 per 100,000 Btus = \$2,736

EREMP payment option will be \$0



Scenario #10

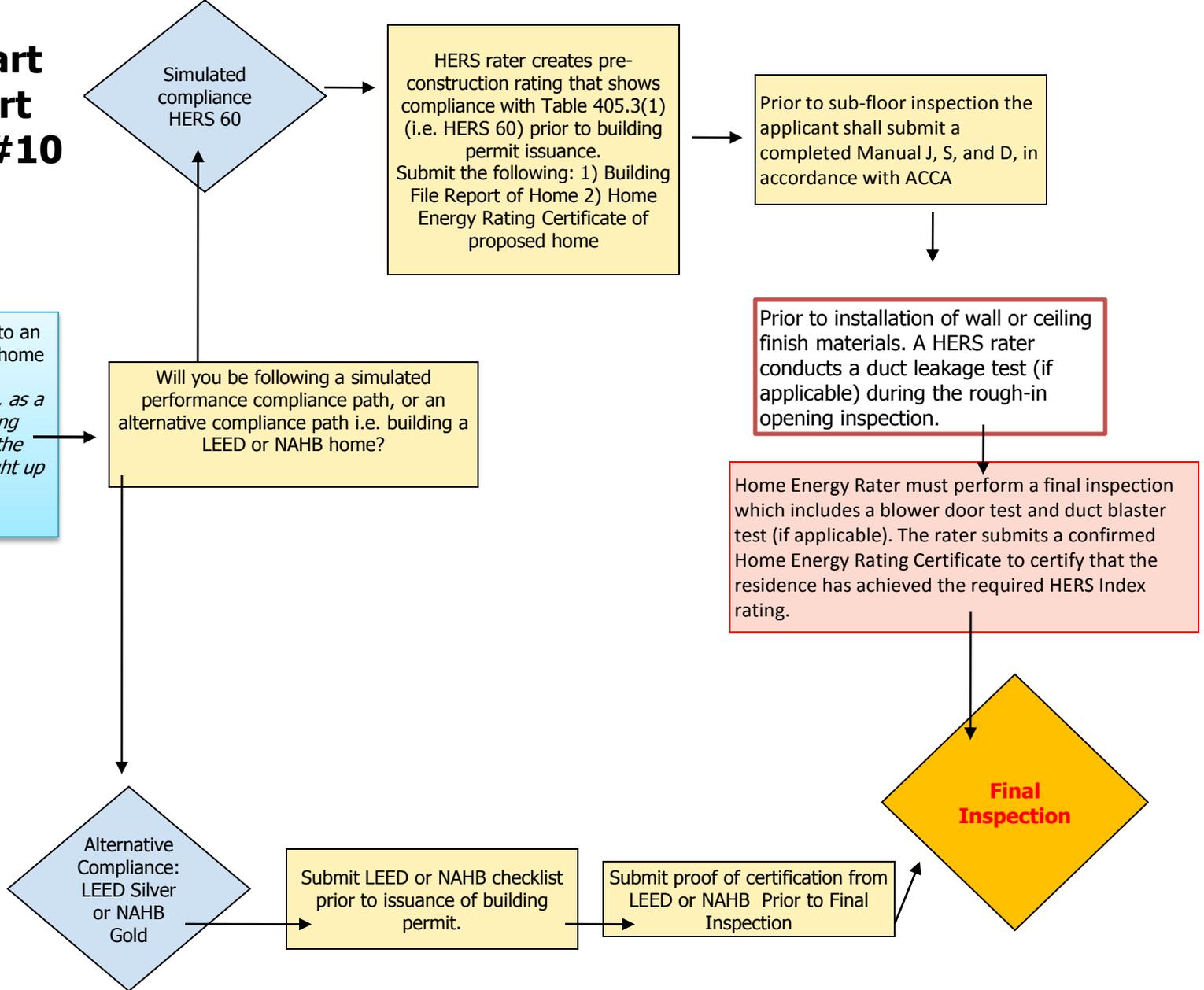
I am adding 2500 sq. ft. to my existing 2000 sq. ft. home.

- Will the project be required to meet new construction performance goals?
- What compliance paths are available?

BuildSmart Flowchart Scenario #10

Adding 2500 sq. ft. to an existing 2000 sq. ft. home

(The size of addition, as a function of the existing home size, requires the entire home is brought up to current code.)



Other Scenarios?

More Information and Learning Opportunities

- www.blainecounty.org
 - Go to the Building Department page
 - side link 2009 IECC BuildSmart Amendments
- www.ICCsafe.org
 - Free 2009 IECC
- New BuildSmart Code Website
- March 10th Info Open House – Community Campus
5:30PM -7PM
- March 28th Energy Modeling Charrette
- May/April - RESNET and HERS Energy Rater Training