## EIFS Wall Insulation

### Author

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### Description

EIFS is a layer of insulation that is applied to the outside walls of a building. It is typically a layer of foam insulation covered by a thin layer of fiber mesh embedded in polymer.

### Modeler Description

Determine the thickness of expanded polystyrene insulation required to meet the specified R-value. Find all the constructions used by exterior walls in the model, clone them, add a layer of insulation to the cloned constructions, and then assign the construction back to the wall.

### Use Case Types

Retrofit, New Construction

### Arguments

No arguments

### Initial Condition Message

The total area of exterior walls.

### Final Condition Message

The total number of ERVs that were added to the model.

### Not Applicable Messages

Not applicable if the model has no exterior walls.

### Warning Messages

### Information Messages

The thickness of insulation required to reach the target R-value.

### Error Messages

Error if R-Value requested is less than zero.

### Code Outline

* Determine the thickness of expanded polystyrene required to hit the target R-value
* For each surface, find the external wall construction
* For each external wall construction, create a clone and add the layer of insulation to the outside.
* Assign the new external wall construction to all external walls.

### Tests

**This measure applies to:**

1. Large Office
2. Medium Office
3. Primary School
4. Secondary School
5. Large Hotel
6. Hospital
7. Small Office
8. Stand-Alone Retail
9. Strip Mall
10. Supermarket
11. Quick Service Restaurant
12. Full Service Restaurant
13. Small Hotel
14. Outpatient Healthcare
15. Warehouse
16. Midrise Apartment