EF 5:
ALLOW EXTERNAL INSULATION BEYOND THE ZONING LIMITS

New York City Zoning Resolution: Various sections
Proposal developed by the Energy & Ventilation Committee.

Summary

Issue:
Insulating the exterior of a building is often the most effective way to reduce heat transfer and fuel consumption. But many buildings are built up to the zoning setbacks, making it impossible to add insulation to the exterior.

Recommendation:
Allow exterior insulation on existing buildings to extend into side and rear yard setbacks.

Proposed Legislation, Rule or Study

Amendment to the Zoning Resolution of the City of New York

1. Include the following as a permitted obstruction in the sections listed below:

   For buildings constructed prior to July 1, 2009, insulation added to an existing exterior side wall, rear wall, or rear wall equivalent, up to a maximum added wall assembly thickness of 6", provided that the added insulated wall assembly achieves a minimum R-value of 3.5 times its thickness in inches, and provided that such added wall assembly shall not encroach on the required width of any driveway up to a height of 8'-0" above the driveway.

   - Section 23-12 (Permitted Obstructions in Open Space)
   - Section 23-44 (Permitted Obstructions in Required Yards or Rear Yard Equivalents)
   - Section 23-62 (Permitted Obstructions)
   - Section 23-87 (Permitted Obstructions in Courts)
   - Section 24-33 (Permitted Obstructions in Required Yards or Rear Yard Equivalents)
   - Section 24-51 (Permitted Obstructions in Courts)
   - Section 24-68 (Permitted Obstructions in Courts)
   - Section 33-23 (Permitted Obstructions in Required Yards or Rear Yard Equivalents)
   - Section 33-42 (Permitted Obstructions in Courts)
   - Section 37-721 (Sidewalk Frontage)
   - Section 37-723 (Circulation Paths)
   - Section 37-726 (Permitted Obstructions in Required Yards or Rear Yard Equivalents)
   - Section 43-23 (Permitted Obstructions in Required Yards or Rear Yard Equivalents)
   - Section 43-42 (Permitted Obstructions in Courts)
   - Section 62-626 (Permitted Obstructions)
   - Section 81-252 (Permitted Obstructions)
   - Section 84-135(e) (Limited Height of Buildings)
   - Section 84-333(b) (Limited Height of Buildings)
   - Section 104-322 (Permitted Obstructions)

Supporting Information

Issue- Expanded
Applying insulation on the exterior of a building is a relatively easy and effective way to substantially improve the R-value of existing walls without interrupting occupancy or requiring expensive renovation. Creative techniques for application are currently being developed in Canada, Europe and the US. Some techniques, such as spray foam and EIFS (Exterior Insulation Finishing System) have the added value of creating an air barrier, a necessity for managing and lowering energy use in the building. In addition, insulation applied to masonry walls encloses the existing masonry, allowing the thermal mass of the masonry to buffer temperature swings that tax...
mechanical systems. Exterior application of insulation to existing buildings has become a common option in Europe and will become a necessity in the US as energy becomes less available. If enough insulation is added to a structure, some building types and uses may not need traditional heating and air conditioning systems.

The Zoning Resolution requires buildings to be setback from lot lines under many circumstances. Since many buildings are constructed right up to their zoning setbacks, this means they would be unable to add exterior insulation. This proposal would add external insulation as a “permitted obstruction” under the Zoning Resolution, enabling the insulation to extend over setbacks. The proposal includes minimum R-value requirements to ensure the insulation’s effectiveness and sets a cap on the distance the insulation may extend over setback lines.

Environmental & Health Benefits
By directly reducing building loads, increased insulation will lower emissions associated with boilers, furnaces, and the power plants that supply electricity to air conditioners. By reducing thermal gradients and drafts within buildings, external insulation will contribute to greater occupant comfort and fewer colds. Because the cost effectiveness of external insulation varies widely between buildings, it is not possible to project implementation rates or overall impacts.

This proposal was found to have a low, positive environmental impact per building and to impact a large number of buildings. It was thus given an environmental score of 2.

This proposal was found to have a positive, indirect health impact.

Cost & Savings
This proposal is for a code allowance, which will have no direct impact on construction costs.

Precedents
There are no known precedents for this proposal.

LEED
The measure outlined in this proposal will positively impact the feasibility of insulating existing walls, thereby increasing the potential of meeting LEED requirements.

In an existing building, this recommendation will assist in complying with:
- LEED EB-EA prerequisite 2, Minimum Energy Performance
- LEED EB-EA cr.1, Optimize Energy Performance.

For existing walls in a new construction project, this recommendation will assist in complying with:
- LEED NC-EA prerequisite 2, Minimum Energy Performance
- LEED NC-EA cr.1, Optimize Energy Performance
- LEED for Schools EA prerequisite 2, Minimum Energy Performance
- LEED for Schools EA cr.1, Optimize Energy Performance
- LEED CI-EA prerequisite 2, Minimum Energy Performance
- LEED CI-EA cr. 1.3, Optimize Energy Performance, HVAC

This recommendation will also assist in complying with:
- LEED for Homes EA cr.1, Optimize Energy Performance.

Since numerous points can be acquired under all of these rating systems, any code changes involving energy performance could have a significant influence.

Implementation & Market Availability
Technology is currently available to add insulation to the exterior of buildings. The Issue – Expanded section listed EIFS as one way to add insulation to the exterior of buildings, and it is. However, misuse of EIFS has resulted in rot and structural damage to buildings and must be avoided by good practice. In general, insulation must be added in ways that do not trap moisture in the interior of building walls, and competent professionals commonly do this.