Setting The Stage
Grenfell Tower
North Kensington, United Kingdom
June, 2017
Focus is on Cladding
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Effective Compartmentalization
Detection and Alarm Systems
Sprinkler Systems
Egress
Fire propagates vertically and horizontally outside of cladding, and between the cladding and the cavity insulation.

Cladding ignites, insulation in cavity ignites.

Fire blows out window.
Fire punches inward through window to inside

Fire propagates vertically and horizontally outside of cladding, and between the cladding and the cavity insulation

Cladding ignites
Insulation in cavity ignites

Fire blows out window
Dubai Address Hotel
Dubai, United Arab Emirates
January, 2015
Mermoz Roubaix, France
May 2012
Tamweel Tower
Dubai, United Arab Emirates
November, 2012
Al Nahda Tower
Sharjah, United Arab Emirates
April, 2012
Polat Tower
Istanbul, Turkey
July, 2012
Dubai Torch Tower
Dubai, United Arab Emirates
August, 2017
Thorn House Hotel
Rostov-on-Don, Grozny, Chechnya
September, 2017
Marco Polo Apartments
Honolulu, Hawaii
July, 2017
Trump Tower
New York, New York
April, 2018
The English Fix
Cladding Attachment
Hooker Chemical Building
Niagara Falls, New York
John E. Jaqua Academic Center
University of Oregon,
Eugene, Oregon
Stattdor Building
Dusseldorf, Germany
Where I Grew Up
Rain
Hydrostatic head

Cladding
Pascals   mph
50  Pa = 20  mph
100 Pa = 30  mph
150 Pa = 35  mph
250 Pa = 45  mph
500 Pa = 65  mph
1,000 Pa = 90  mph

Wind Speed (mph) vs. Stagnation Pressure (Pa)
Rain Screen
- Interior lining - gypsum board with latex paint
- Cavity insulation
- Gypsum sheathing, plywood, OSB
- Water resistance barrier (WRB) - 10 to 20 perms
- Vented air space - 1 inch
- Brick veneer
Interior lining - gypsum board with latex paint
Cavity insulation
Gypsum sheathing, plywood, OSB
Water resistance barrier (WRB) - 10 to 20 perms
Drainage mat with filter fabric
Vented air space
Stone
Diagram of a wall section:

- **Interior lining**: gypsum board with latex paint
- **Cavity insulation**
- **Gypsum sheathing, plywood, OSB**
- **Water resistance barrier (WRB)** - 10 to 20 perms
- **Drainage mat with filter fabric** (or building paper over drainage mat)
- **Vented air space**
- **Stucco with paint - paint layer greater than 10 perms**
Stucco

Expanded polystyrene insulation (EPS)

Air gap

Water control layer

Non paper-faced exterior gypsum sheathing, plywood or oriented strand board (OSB)

Insulated wood stud cavity

Gypsum board

Latex paint or vapor semi-permeable textured wall finish
Cladding Attachment
Second layer of z-bars should be installed perpendicular to the first layer; orientation of the two layers will depend on the requirements of the cladding attachment system.

First layer of z-bars embedded in the insulation layer; should the first layer be installed horizontally, the exterior leg should be turned down to promote drainage to the exterior.
Open Rain Screen
EIFS…”Drain Screen”
Beer Screen?
TYPICAL EIFS CONFIGURATION

1. Concrete or Masonry Substrate
2. Wood or Steel Framing
3. Approved Sheathing/Substrate
4. Air/Water Resistive Barrier Coatings
5. Vertical Notched Trowel Adhesive Applied to Insulation Board
6. Insulation Board
7. Reinforcing Mesh Embedded in Base Coat
8. Base Coat
9. Finish Coat

EIFS with drainage can be attached to concrete, masonry, or approved sheathing substrates by adhesive or mechanical fasteners (refer to specific manufacturer for fastener type and patterns)
Beer Screen?
NFPA 285
Image Courtesy Carlisle
Thank Jesse Beitel....