History of EIFS

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EDI Board of Directors

- What is EIFS.
- Brief history of the industry.
- How and why it works.
- Objectives of EDI.

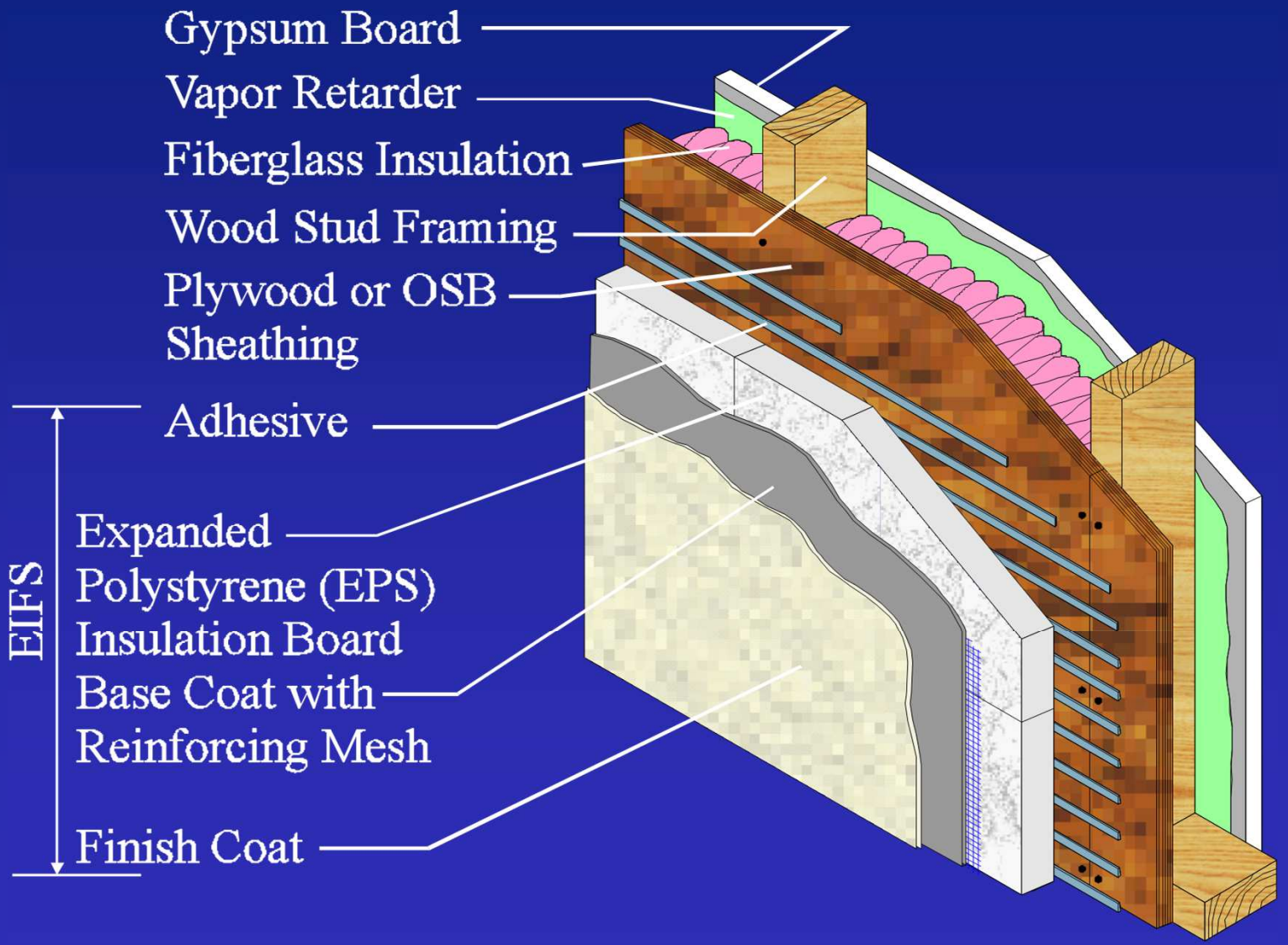
What is EIFS?

- E = Exterior
  - Specifically intended for outside use
- I = Insulation
  - Thermal performance AND isolation
- F = Finish
  - Creates the final appearance of a wall
- S = System
  - Combination of proprietary materials

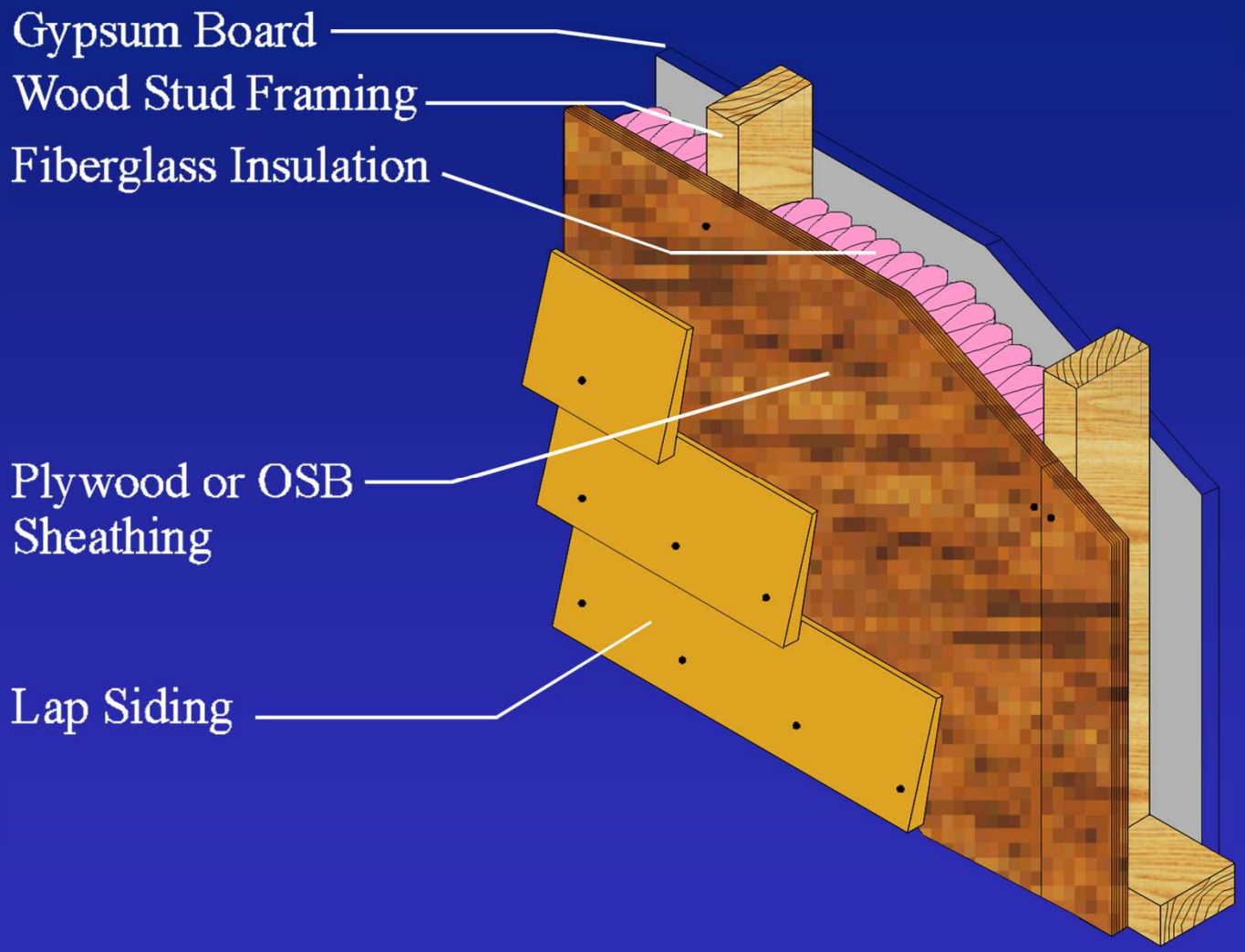
Types of EIFS

- Class:
  - PB (Polymer Based)
  - PM (Polymer Modified)
- Attachment
  - Adhered
  - Mechanically Fastened
- Water Infiltration Resistance
  - Face Sealed Exposed Barrier
  - Water Managed Concealed Barrier

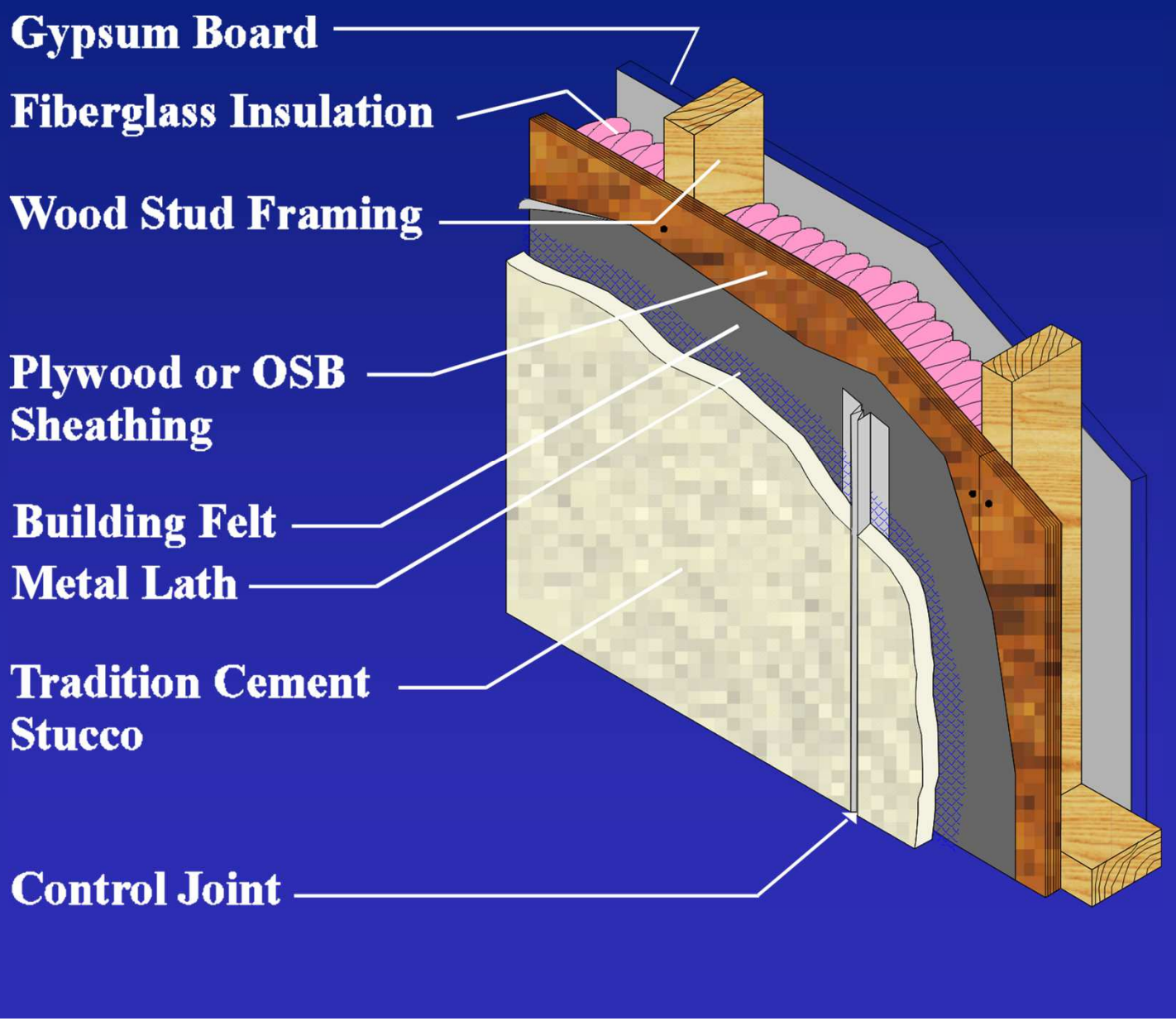
Typical PB Installation



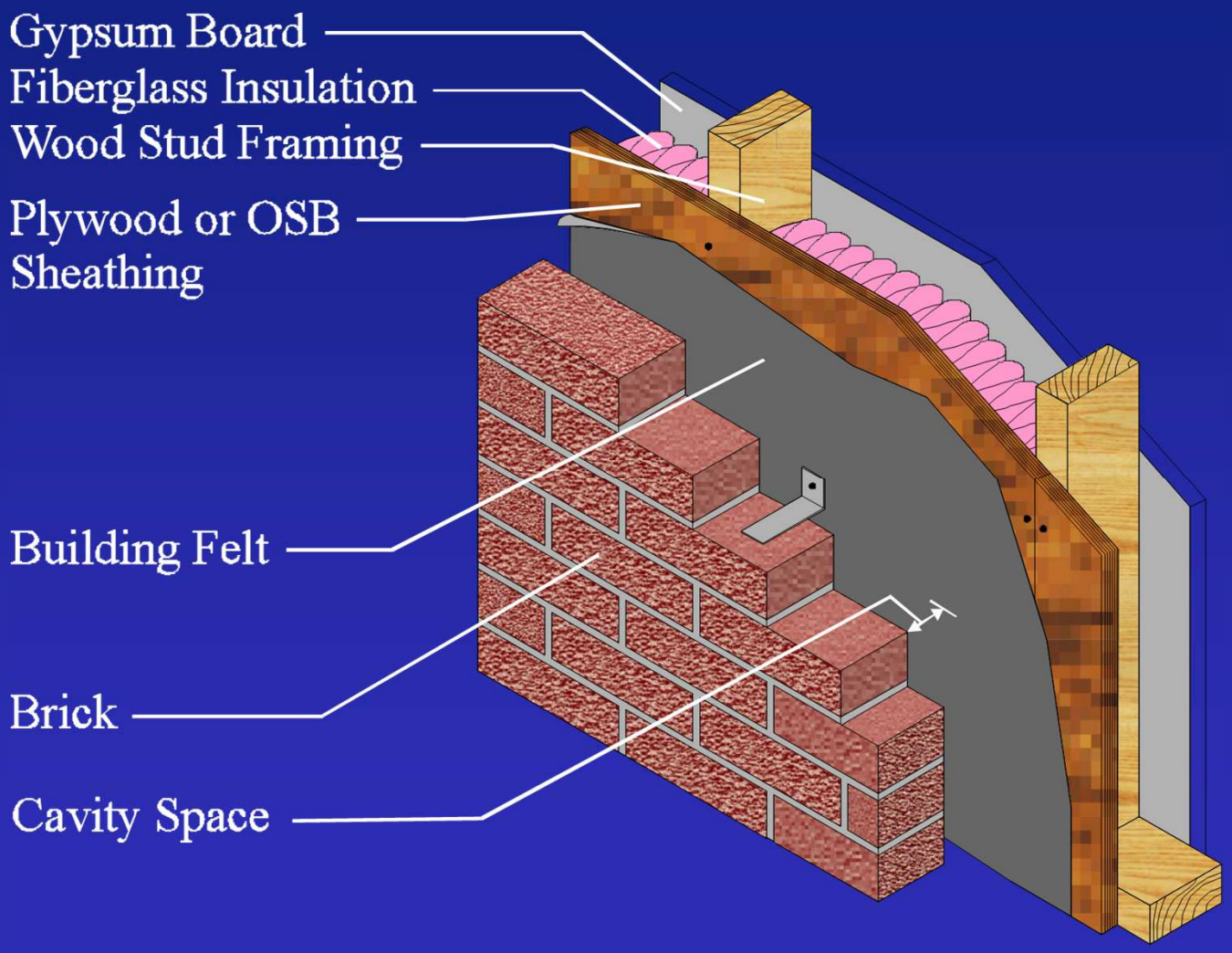
Wood, vinyl, … , lap siding



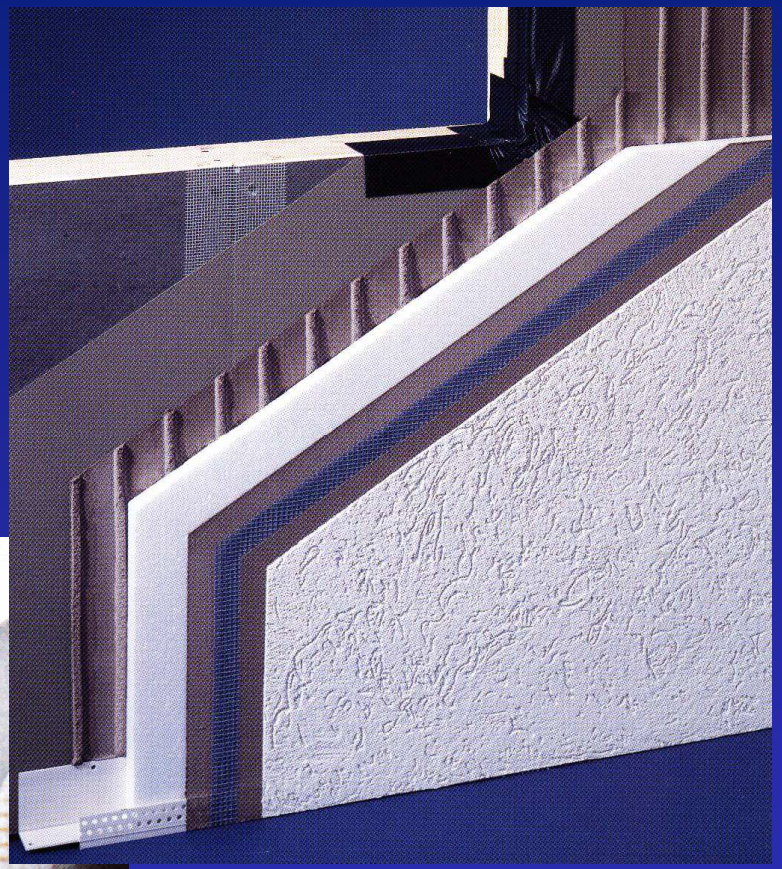
Traditional stucco



Brick veneer



Water-managed EIFS



History

- Roots in 1947 in Europe as part of reconstruction effort after WWII.
- Similar to masonry + stucco construction used in Europe.
- 1960's developments in polymer chemistry.
  - Polystyrene (EPS)
  - Acrylics
  - Sealants
- Brought to USA by Dryvit in 1969.
  - Promoted for commercial use.
  - Substrates different in US market

Early US application

- 1969 – 1976 Dryvit dominated US market.
  - Commercial use
  - Northeast.
  - $2m.
- Details evolved for US market.
  - Floor line joints.
  - Backwraping.
  - Sealants imporved.
  - Panelization.
  - Tests and standards.
    - Materials, system performance.
  - Code evaluation reports.

Market transition

- In 80's, small EIFS manufacturers pioneered and dominated residential market.
  - Scant guidelines.
  - No Code compliance or evaluation.
  - No R+D, engineering background.
- No recognition or accommodation of the difference between commercial and residential construction.
- In early 1990's, Savings and Loan debacle slowed the commercial market and major manufacturers entered the residential market.

Differences: Commercial vs. Residential

- Architect or engineer
- Details, specs
- Submittals, q.c.
- Large, bondable subs
- Flat roofs, parapets
- Steel, concrete
- Commercial windows
- Sequence – wall first
- $5.50 - $7.50 sq. ft.

- No design professional
- No design documents
- No submittals
- Small subs
- Sloped roofs, gutters
- Wood framing
- Residential windows
- Sequence – window first
- $3.50 - $4.50 sq.ft.

"Construction Chain of Command"

Scope of the market

- 500,000 residences
- 750,000,000 sq. ft. @ 1,500 sf/r.
- Total EIFS market:
  - 1970 to 1979 $64,000,000
  - 1980 to 1989 $2,500,000,000
  - 1990 to 1998 $4,000,000,000
- 10% of the market is residential.

$6.5 Billion

Performance and Advantages

- Insulation on the outside
  - Energy conservation.
  - Stabilize temperature of structure.
- Aesthetic flexibility.
- Economical.
- Soft.
  - Buffered from substrate.
  - Crack control.

Problems in the industry

- HUD concerns.
  - Cracking, sealants.
  - Gypsum sheathing.
- 1996 Hanover County (Wilmington) North Carolina.
  - Widespread failures.
  - County building inspectors responded.
  - Moratorium on barrier EIFS.
  - Class action law suit.

What went wrong

- Barrier EIFS without flashing and proper details.
- Absence or poor application of sealants.
- Non-performing windows.
- Code required vapor barriers in humid costal environment.
- “Trunk slammer”, “Tail light warranty”.
- Class action law suit.
- Media hysteria and misrepresentations.

Controversy

- Is EIFS viable?
- Can EIFS dry out?
- Are all EIFS homes doomed?
- Can EIFS homes be repaired and what repair is responsive to the damage?
- Does EIFS require any greater skill or care than other residential cladding?

Why EDI ?

- Volunteer instructors and Board.
- Train and certify inspectors.
- Provide competent quality control.
- Contribute to the viability of the industry and the protection of the consumer.
- Competent evaluation of problems.
- Recognize when forensic engineering is needed.

Your job

- Master the basics of EIFS.
- Master the inspection process.
- Master the evaluation and moisture analysis process.
- Appreciate the importance of thoroughness and professionalism.
- Ask questions and participate in the discussions and re-caps.
- Contribute to a solution, not the problem.