



# **WEATHERIZATION**

- **Community Action Program of**
- **Belknap & Merrimack Counties. Inc.**
  - **Rob Bowers**
  - **Energy Auditor**



## The Mobile “HOME”

- **Who are our clients**
- **What are the problems with these homes**
- **What we do to weatherize the homes**
- **How much do we actually save**



## Who are our clients

- **The homes are income eligible at under 200% of Federal Poverty Guidelines**
- **Elderly**
- **Disabled**
- **Low income with children**



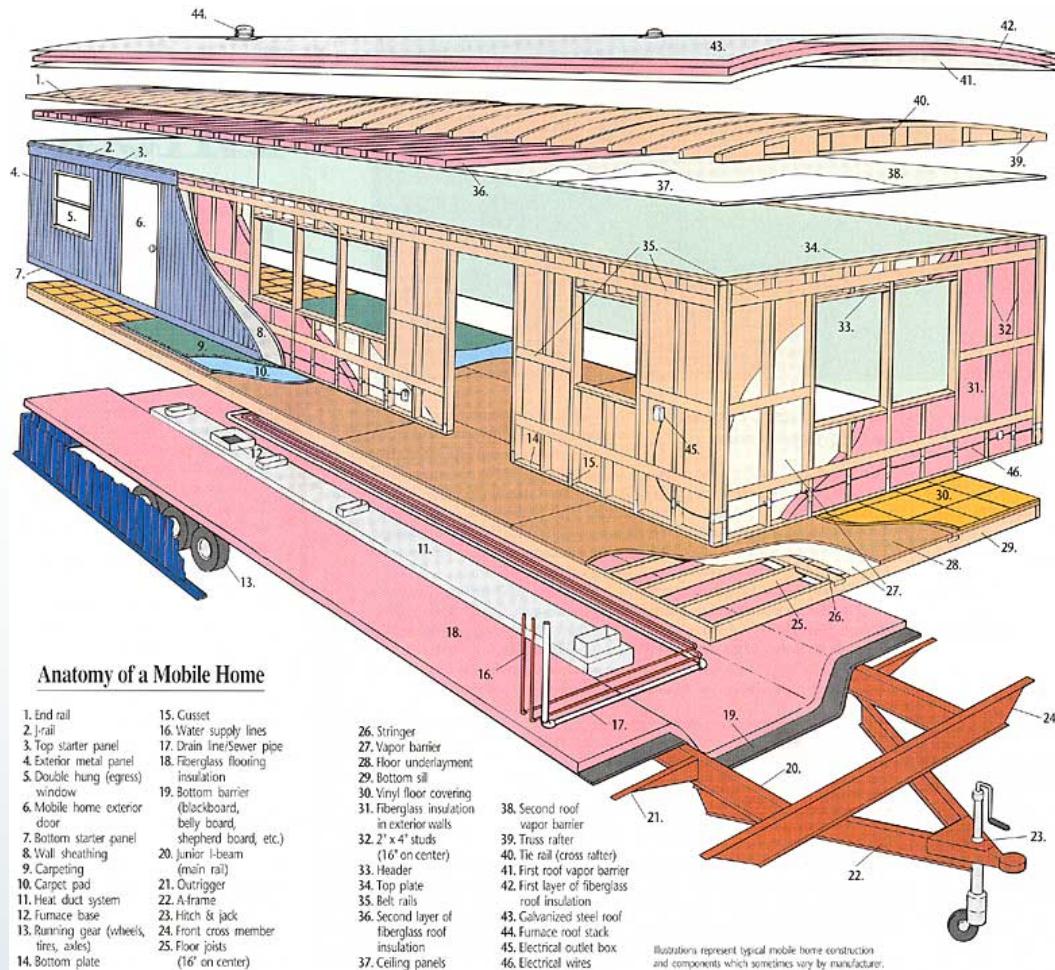
# Where are the energy problems

- **Ceiling insulation**
- **Belly insulation**
- **Heating Ducts**
- **Oil tanks outside**
- **Cracked Furnaces – CO<sub>2</sub> poison**
- **Leaky Roofs**



# COMMUNITY LOAN FUND

Opportunity. Investment. Impact.



## Anatomy of a Mobile Home

- |   |  |  |   |
|---|--|--|---|
| 1. End rail                             | 15. Gusset   | 26. Stringer                                   | 38. Second roof vapor barrier                 |
| 2. J-rail                               | 16. Water supply lines   | 27. Vapor barrier                              | 39. Truss rafter                              |
| 3. Top starter panel                    | 17. Drain line/Sewer pipe  | 28. Floor underlayment                         | 40. Tie rail (cross rafter)                   |
| 4. Exterior metal panel                 | 18. Fiberglass flooring insulation                                 | 29. Bottom sill                                | 41. First roof vapor barrier                  |
| 5. Double hung (egress) window          | 19. Bottom barrier (blackboard, belly board, shepherd board, etc.) | 30. Vinyl floor covering                       | 42. First layer of fiberglass roof insulation |
| 6. Mobile home exterior door            | 20. Junior I-beam (main rail)                                      | 31. Fiberglass insulation in exterior walls    | 43. Galvanized steel roof                     |
| 7. Bottom starter panel                 | 21. Outrigger  | 32. 2" x 4" studs (16" on center)              | 44. Furnace roof stack                        |
| 8. Wall sheathing                       | 22. A-frame  | 33. Header                                     | 45. Electrical outlet box                     |
| 9. Carpeting                            | 23. Hitch & jack   | 34. Top plate                                  | 46. Electrical wires                          |
| 10. Carpet pad                          | 24. Front cross member   | 35. Belt rails                                 |   |
| 11. Heat duct system                    | 25. Floor joists (16" on center)                                   | 36. Second layer of fiberglass roof insulation |   |
| 12. Furnace base                        |  | 37. Ceiling panels                             |   |
| 13. Running gear (wheels, tires, axles) |  |  |   |

Illustrations represent typical mobile home construction and components which sometimes vary by manufacturer.

# A wide range of HOMES



# Attics / Ceilings



# “Belly” Insulation





# Heating Ducts



## Exterior Fuel Tanks

- Exterior Fuel tanks means 1 thing
- Kerosene is the fuel
- Highest priced fuel  
=\$4.35 gallon



# Furnaces



# Roofs



# How we weatherize



# Weatherization Works



## Pre Weatherization

- Fuel
  - Ave = 478.6 Gallons @ \$4.35 = \$2,082
  - (Minimum fill is 150 gallons = \$652)
- Electric
  - Ave = 11,440 Kw @ 0.14378 = \$1,644



## **SAVINGS – AVERAGE HOME**

- **Gallons of K-1 = 172.56 gallons**
- **kWh = 3,309.33**
- **MBtu = 38.86**
- **CO<sub>2</sub>e per year = 6,482 lbs / 3.24 tons**





## Projected Program SAVINGS

- 425 homes
- Gallons saved = 73,336 = \$319,011 / yr.
- kWh saved = 1,406,467 = \$20,218 / yr.
- MBtu saved = 16,515 – every year
- CO<sub>2</sub>e per year = 1,377 Tons – every year
- Every 3 homes weatherized – the 4<sup>th</sup> home heats for free – forever



## Collaboration

- Over 7,000 annual kWh usage - the utilities may fund up to \$4500
- Refrigerators are provided by the utilities
- Major projects - Habitat for Humanities – “Brush of Kindness Program”
- Non-Eligible neighbors – audits & advice

# Collaborative w/ Habitat



# Roof



# Interior



# Finished project

