DIVISION 14 - ENERGY (SUBJECT TO DIVISION 1)

14.A. GENERAL

1. Existing attics shall be insulated to a minimum R value of 40 at ceiling.

2. New exterior walls shall be insulated to a minimum R value of 19 before wall cavity is covered with finish material.

3. New floors over unheated spaces shall be insulated to a minimum R value of 40 at floor when specified in the Bid Document.

4. Install vapor barrier in crawl space and below all new interior concrete slabs on grade.

5. Additional insulation requirements beyond the general guidelines will be in Bid Document.

6. Box sills shall be insulated with 6" fiberglass bat insulation cut to fit firmly in the sill area.

14.B. MATERIALS

1. Loose-Fill Insulation - Loose-fill insulation blown into attics and sidewalls shall be cellulose and shall meet the Federal Specification HH-I-515 D. Each bag or other container of insulation must carry the following statement:

> "Attention: This material meets the applicable minimum Federal flammability standard. This standard is based upon laboratory tests only, which do not represent actual conditions which may occur in the home."

All manufacturers and private labelers of cellulose insulation are required to furnish a certificate of compliance with the Federal standard to each distributor or retailer to whom the product is delivered. Prior to the approval of any cellulose insulation for use in a city rehabilitation project, the contractor shall verify to the Rehab Specialist that the material meets the above standard.

2. Batt Insulation - Fiberglass batt insulation shall be used wherever possible and shall meet the Federal Specification HH-I-521 E.

3. Sealants - Glazing compound shall meet Federal Specification TT-G-410 E. Caulk shall be appropriate for the materials and situation and shall meet Federal Specification TT-S-001543 A.

4. Storm Windows - All storm windows shall be double track and shall meet Federal Standard ANSI 134.1. They shall have an air filtration test rating of .55 cfm or less and shall be marine glazed. Hardware shall be either die cast or 100% nylon and shall have mil finish unless otherwise stated in Bid Document.

5. Storm Doors - Aluminum storm doors shall be as stated in Division 8.

6. Rigid Insulation - Rigid insulation shall be as manufactured by "Dow Chemical" styrofoam or equal. K-factor, 0.185 at 40° F mean, compressive strength 40 psi at 5% deflection, water vapor transmission rate 0.6. Density 2.1 lbs./cu. ft.

14.C. INSTALLATION

1. Insulation material shall be continuous and of uniform thickness and size.

2. Remove dirt, debris and foreign matter from spaces to receive insulation.

3. Install insulation in conformance with manufacturer's recommendations; maintain integrity by fitting material around all penetrations, and do not compress insulation.

4. Vapor barrier shall be 4 mil polyethylene film sheeting and placed on the warm side (winter) of walls. Urea formaldehyde vapor barrier is not an acceptable material.

5. Insulation shall be placed and secured to prevent shifting, settlement or drifting of material.

14.D. ATTIC VENTILATION

1. When using roof or ridge vents without eave vents and no ceiling vapor barrier, enough vents should be used to provide 1 square foot of free vent area for each 150 square feet of ceiling area.

2. When using roof or ridge vents without eave vents and a ceiling vapor barrier, enough vents should be used to provide 1 square foot of free vent area for each 300 square feet of ceiling area.

3. When using a combination of roof or ridge and eave vents and no ceiling vapor barrier, there should be 1 square foot of free vent area for each 300 square feet of ceiling area. Vents should be installed with 50% of the total area of the vents in the roof near the peak.

4. Install air chutes between roof rafters at the end of the ceiling joints and allow at least a 1" opening next to roof for ventilation from soffit area. Air chutes shall be at least 2" higher than the finished depth of insulation. The number of air chutes shall be determined by the amount of square footage ventilation needed in relation to the amount of square footage of insulation being installed. All vented soffit openings shall not be blocked.

14.E. CRAWL SPACE VENTILATION

There should be 1 square foot of free vent area for each 150 square feet of floor area. (See Section 3.R.)

14.F. LOOSE FILL

All holes drilled by insulating contractor shall be plugged with like material, finished to match existing surface.

Any siding, floor boards, trims, or moldings removed for the purpose of insulating shall be reinstalled free from any marks, nicks, or damage caused by removal, and finished to match existing. Except attic floor boards which shall be renailed free of MAJOR cracks and defects caused by removal and insulation. Whenever possible, siding shall be removed and holes drilled in sheathing so that plugs are not necessary.