

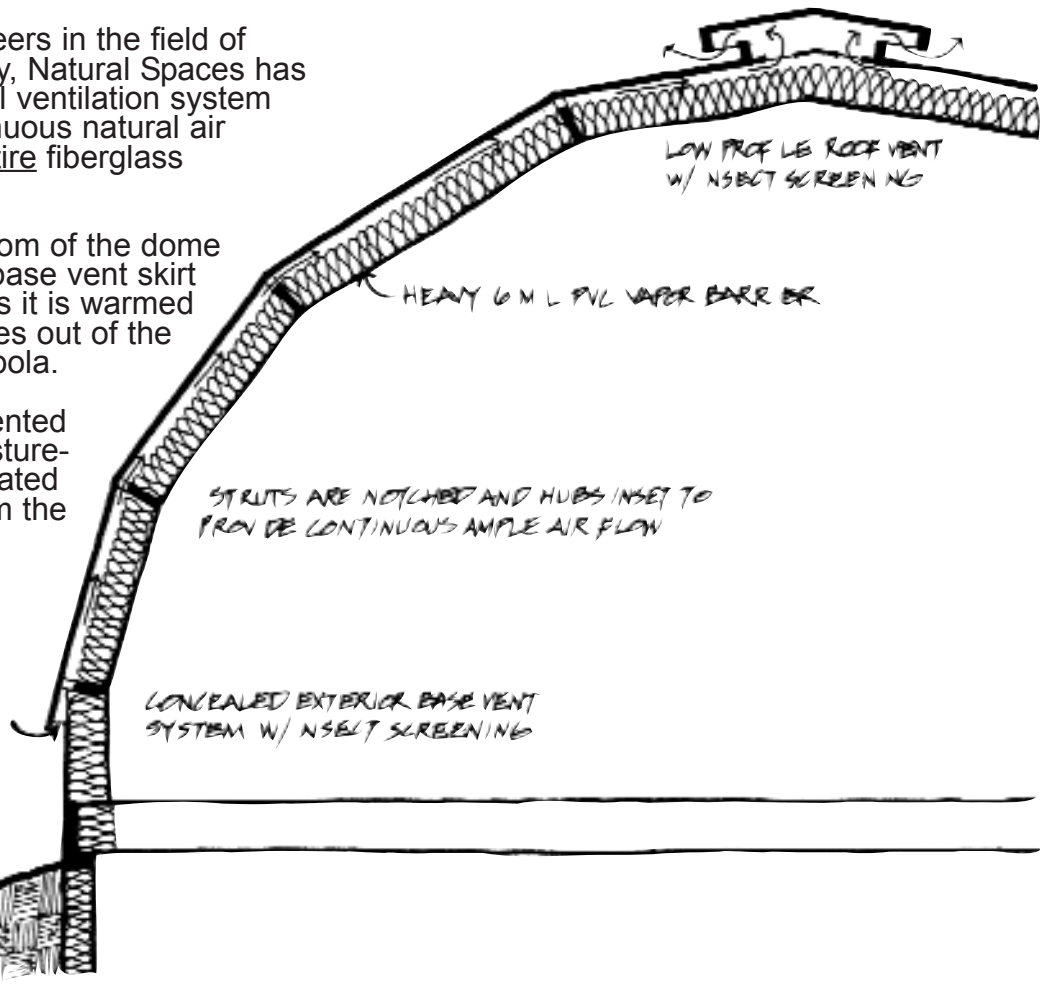
ventilation

wall cavity

As leaders and pioneers in the field of dome home technology, Natural Spaces has developed a dome wall ventilation system that provides for continuous natural air circulation over the entire fiberglass insulation surface.

Air enters at the bottom of the dome shell through a flared base vent skirt with screening, rises as it is warmed by the sun, and escapes out of the top low profile vent cupola.

The air being vented carries with it any moisture-laden air that has migrated into the wall cavity from the inside of the dome.



Most other dome companies ignore the condensation problem or simply don't know it exists.

Almost all of the building codes call for a vented air space on the cold side of the insulation in any cathedral ceiling. All building codes require ventilation of attic spaces.

Dome companies that use rigid insulation, cutting it to fit within the triangles, may have a serious condensation problem because the insulation board does not fit tight to the outside panel. This leaves a perfect space for vapor to condense on the outside panel.

If you have ever tried cutting 4x8 sheets of insulation board and tried to fit them into triangular spaces, you know you can't get a

tight fit.

Vapor barriers that are put up triangle by triangle create a gap at every single joint, allowing vapor to easily enter the roof cavity.

The only kind of insulation not subject to this problem is sprayed-in-place urethane. This material, when properly applied to dry wood, adheres and does not allow vapor to penetrate. However, there are other problem details to be dealt with correctly.

condensation

Condensation can be described as the change in moisture from a vapor to a liquid. Water vapor within the house can migrate through the wall or ceiling during the heating season to some cold surface where it condenses, collecting in the form of ice or frost. During warm or sunny periods, the frost melts. When conditions are severe, this meltdown in unvented spaces may drip to the ceiling below and damage the interior finish. Wood sheathing may swell up. Insulation becomes wet and loses resistance to heat loss. These problems can be reduced or eliminated when proper construction details are used.

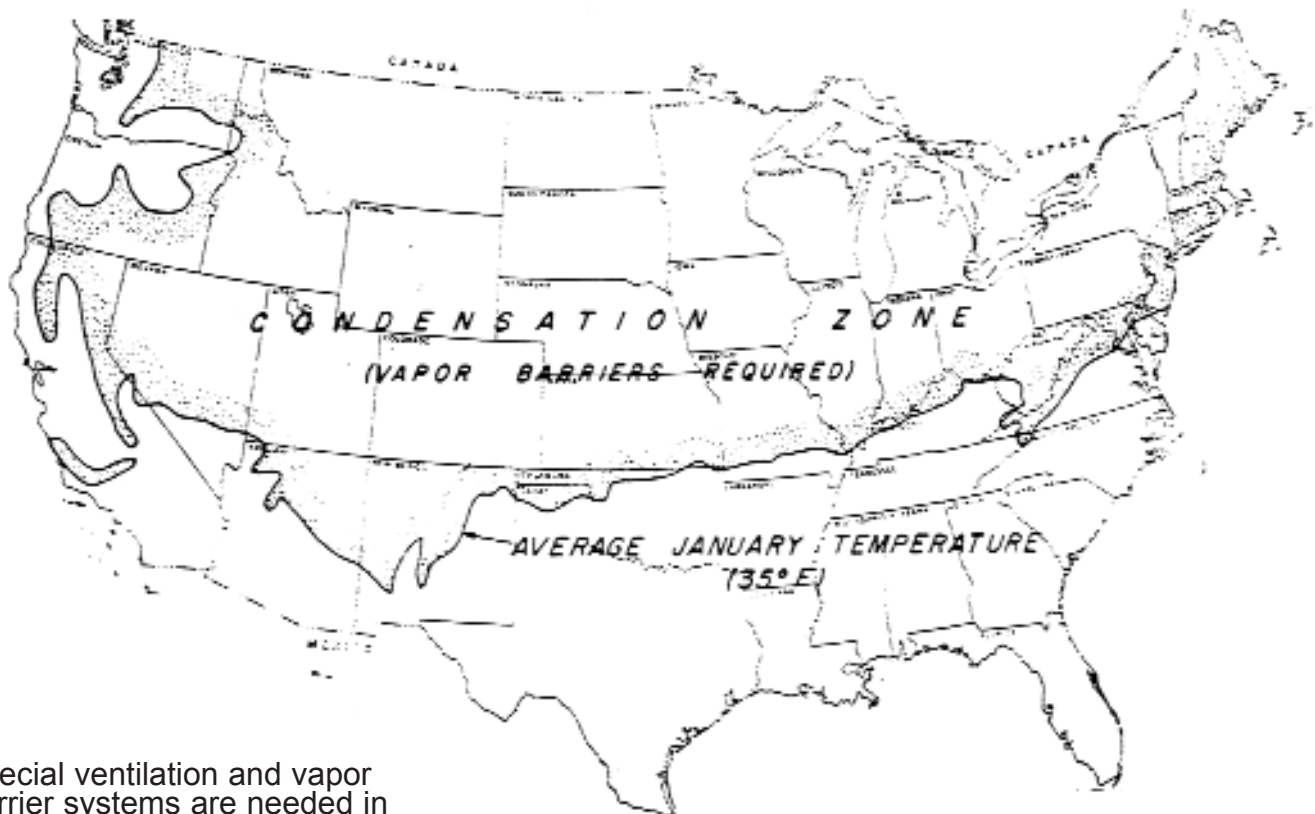
The control of condensation thru the use of vapor barriers and ventilation should be

practiced regardless of the amount of insulation used.

The use of both inlet and outlet vents in attic and roof spaces aids in keeping the air moving and preventing the accumulation of frost or condensation on roof sheathing in cold areas. "Dead" air pockets in the roof can normally be prevented by good distribution of inlet vents in the soffit areas. However, there is still a need for vapor barriers; ventilation alone, when insulation is used, does not prevent condensations problems.

MAP SHOWING CONDENSATION PROBLEM AREAS

Winter condensation problems occur where the average temperature for January is 35° or lower. Some intermittent problems may occur in other areas having averages up to 45°.



Special ventilation and vapor barrier systems are needed in coastal regions and mixed-humid regions

This map is from a 40-page government publication on condensation problems