JANUARY 23, 2009
JOB NUMBER: 061-0381

GREENBLOCK WORLDWIDE
P.O. BOX 749
WOODLAND PARK, CO 80866

RE: MOISTURE DEVELOPMENT IN AN ICF WALL

Dear Terry,

It has come to my attention that some design professionals are concerned with dew point calculations for the GreenBlock™ ICF wall. Generally speaking, the concern for dew point and subsequent condensation development within a wall cavity is the growth of mold and mildew within the wall cavity. GreenBlock™ ICF is composed of EPS, which is considered water resistant and vapor permeable and at the density and thickness of ICF blocks, the material acts as both a vapor retarder and an air barrier. This characteristic essentially moves the dew point to the exterior side of the concrete wall, minimizing interior humidity in the summer, and at the same time eliminates air infiltration in all seasons which eliminates the dew point factor from entering the wall system. The GreenBlock™ is superior in this fashion with a greater EPS thickness for the exterior side of the block, ensuring dew point development within the EPS.

ICF construction does not allow mold to grow. Because of the insulation and thickness of the concrete, no condensation can take place in the wall (no dew point occurs in the wall). Mold cannot grow without moisture and a food source. ICF will be recognized as helping to prevent insurance rates from increasing by decreasing mold claims.

The occurrence of concealed condensation requires three conditions: a moderately high humidity level, moisture movement into a cavity, and a surface which is below the dew point temperature of the inside air. The movement of moisture into a cavity may occur by diffusion through the materials of the wall or ceiling, or by air leakage through holes and cracks presenting an unobstructed path from inside to outside. Diffusion is reduced and controlled by low permeability materials, which are provided by the EPS foam exterior of the ICF form itself. Air leakage is also controlled by the EPS foam, but more effectively by the monolithic nature of the concrete wall system.

The designer's concern is a non issue. I think the main issues your designer is dealing with most likely come from poor waterproofing around windows and doors allowing a moisture intrusion leading to mold and mildew issues with finish materials. Please do not hesitate to contact this office if you have any questions.

Sincerely,

COLORADO REGISTERED ERIK D. MITCHELL 35108 PROFESSIONAL ENGINEER

Erik D. Mitchell, P.E.