

FINAL REPORT OF THE HYDROLAB PROJECT 2001 FLOORING, HUMIDITY, AND MOLD GROWTH

EXECUTIVE SUMMARY

Mold growth on carpet, VCT, ceiling tiles, and drywall was studied in four phases of highly controlled, elevated temperature and humidity exposures between April and December of 2001.

In phase 1, 16 test beds of new and soiled carpet and VCT, along with standard ceiling tile and drywall were exposed to a continuous temperature of 80°F and relative humidity of 65% for a period of 21 days. As expected, no mold colonies were detected on any of the materials.

In phase 2, the same test materials were exposed to an elevated climate of 80°F and 80% relative humidity. It was anticipated that at these conditions mold would grow rapidly (< 21 days) on all organic materials. Surprisingly, it was not until 5 weeks of continuous exposure at high and extremely uncomfortable indoor temperature and humidity levels, that mold growth appeared, and only on dirty portions of test materials, and the wood holding the drywall.

For phase 3, all carpet materials were cleaned and exposed to the extreme climate of 80°F and 80% relative humidity. After 4 weeks of incubation, a uniform spore deposit of *Aspergillus glaucus* (*A. glaucus*) was detected on all test materials. The presence of this particular species of mold suggests that the most likely source of spores was mold growth on wet wood framing material holding drywall in the test beds. After two months of exposure, there was no indication of active mold growth on any of the cleaned (old or new) carpet samples.

In phase 4, the test area was rebuilt and only clean flooring materials (4 new carpets, 4 old carpets, 4 new VCT, and 4 old VCT) were exposed to the elevated climate of 80°F and 80% relative humidity. Naturally deposited mold spore was vacuumed from all flooring materials. After two months of exposure there was no increase in spore count or any indication of mold growth on carpet or VCT.

The main conclusion of this research is that clean carpet does not support mold growth even at prolonged and elevated temperature and humidity levels. It is a conclusion for this project that for any material Dirt + Water (High Humidity) = Mold Growth. The obvious management solution for mold indoors is to keep all carpet materials dry or at least clean.