Case Study - Excessive Moisture in Concrete Floor Slab (Aldehydes)

Project Description: Odor Investigation Carpet Squares in New Construction

Scope of Services: Accredited Environmental Technologies, Inc. (AET) was contracted to identify the source of a noxious odor within a 1 story, on-slab 25,000 square foot retail space. This newly constructed space had been in operations for approximately 2 months and both customers and employees complained of the noxious odor since the store opening. Interior finishes included sheetrock walls, concrete block walls and rubber-backed carpet squares as flooring.

AET's visual inspection of the retail space found no evidence of water damage or exposed mold growth. Six roof-top HVAC units servicing the building were inspected and it was determined only 1 of 6 was in operation (at 100% outdoor air). AET perceived odors only in the carpeted areas of the retail space.

AET's Experience: Concrete floor slabs can contain excessive moisture. A floor slab can appear dry but moisture can migrate to the slab surface and result in the failure of adhesives, staining/discoloration of flooring, and mold growth associated with the floor adhesive, rubber backing or leveling compound. A concrete floor slab poured in an enclosed building will dry at a rate of 1 inch per month (under average ambient conditions).

AET's Investigative Approach/Tools

1. ***Calcium Chloride Surface Testing*** - was performed to evaluate the amount of moisture being released from the concrete floor slab. Testing confirmed the concrete had not properly cured and was releasing moisture to the back side of the carpet squares.

2. ***VOC Air Sampling*** - was performed for suspect chemical associated with the degradation of the carpet squares. Degradation occurs as a result of the excessive moisture and the high pH created.

Conclusion

Air sampling confirmed a significant level of aldehydes (above background in the retail space). Aldehydes have a low odor threshold of 15-120 ppb and can release a pungent, foul odor.

Final Solution

The building HVAC system was adjusted; all 6 HVAC units were operated at 15% outdoor air. The carpet squares were removed and replaced.

When you need professional help or advice, email Alan Sutherland, CIH, CHMM at a.sutherland@aetinc.biz or call 610-891-0114. We provide nationwide services; phone consultations are free. Check out the full range of environmental contracting/consulting services we provide at our website www.aetinc.biz.

Accredited Environmental Technologies, Inc.