Permanently Installed Moisture Detection Systems

June 29, 2005

Duncan Townsend

Detec Systems, LLC

DETEC SYSTEMS

STRUCTURE MONITORING TECHNOLOGY

Moisture Detection & Monitoring Mitigates Risk for,

- Developers
- Contractors
- Architects and Engineers

- Insurers
- Lenders
- Owners

Moisture Detection and Monitoring System (MDMS)

- A mechanism to continuously detect, locate, report and log water intrusion and high moisture content in building materials in exterior walls and roof systems.
- Internal flood monitoring may be included.

Topics

I. Reporting Criteria

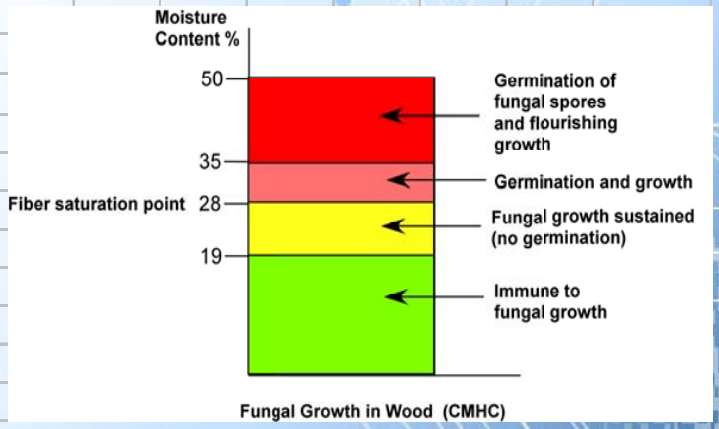
II. Design Criteria

Reports from the Building to Remote Monitoring Center

- Programmed to report moisture events in monitored zones
- Programmed to run scheduled reports

	Front Bedroom				Living Room							Back Bedroom					
UNIT	Window 1	Wibdow 2	Base 1	Base 2	Window 1	Window 2	Window 3	Window 4	Base 1	Base 2	Base 3	Window 1	Wibdow 2	Base 1	Base 2	K baswe	MB bth/cls
301	2.4	3.2	1.2	0.3	2.3				2.1	2.8			4.4	1.9	7		3.5
306	0.2		0.1		2.4	3.3	2.2	3.1	0.6	OPEN	0.3		10.6	1.6	1.9	2	
311	0.9				2.7	1.8		8.6	0.2	2.7	10.7	OPEN		3.8	7.6	13.8	

	Front Bedroom		Living Room		
	Window 1	Base 1	Window 1	Base 1	Base 2
302	200	0.5	2.7	1.8	200
303	3.9	0.2	1.5	0.7	1.2
304	3.2	0.3	2.6	1.1	2
305	5.5	0.2	2.1	1.4	1.7
307	0.6	200	1.3	0.1	0.7
308	200	OPEN	3.2	1.4	0.4
309	0.7	0.2	200		0.5
310	0.8		200	1.8	



Reports from Monitoring Center to Client

- The purpose of the monitoring center is to collect, interpret, report and store data relative to moisture events reported by the on site MDMS units.

Reports from Monitoring Center to Client

1. Periodic Reports
2. Active Event Reports
3. Event History Reports

Reports from Monitoring Center to Client

1. Periodic Reports
   - System identification
   - Dates & times of events
   - Detailed description & location of events
   - Guidelines for decision process - applicable building science

Reports from Monitoring Center to Client

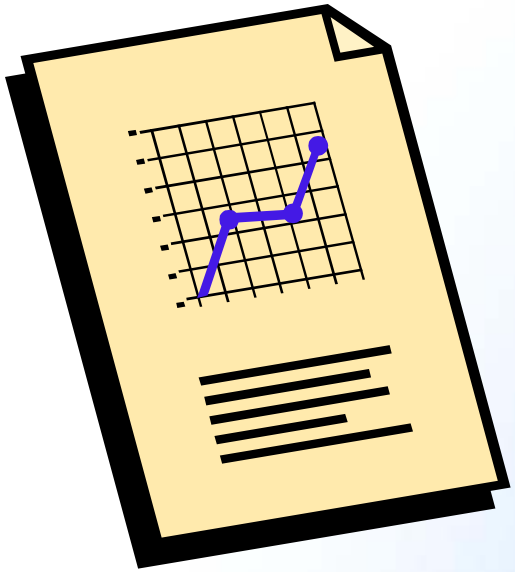
2. Active Event Report

- Urgent events currently detected
- For critical MC & cumulative time exposure issue <u>Maintenance alerts</u>
- Guidelines for the decision process - Apply building science

Reports from Monitoring Center to Client

3. Event History Report

- Upon request, a detailing the events history
- Matched to maintenance responses



Design Criteria

1. Require no alteration of construction- Must be non intrusive
2. Read data remotely - not practical to remove material to read sensors
3. Withstand the construction environment and repeated wet-dry cycles – Must be Durable

Design Criteria

4. Automate data collection to eliminate need for tedious manual readings
5. Conform to quality assurance testing upon installation and any time thereafter.
6. Self monitor for functionality- failsafe capabilities

Design Criteria

7. Should not introduce harmful substances into the building
8. Install and operate cost effectively
9. Require extremely low maintenance

Design Criteria

10. Detect liquid water intrusion as well as moisture accumulation in hygroscopic materials
11. Monitor the entire building perimeter as well as roof areas of the envelope

Design Criteria

12. Monitor at variable rates - 24/365
13. Compensate for significant temperature variances
14. Report monitoring locally but more importantly report remotely for third party verification

Design Criteria

15. Use absolutely minimal power
16. Data log the information for future retrieval
17. Operate reliably for at least the term of the 30 yr mortgage

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2005 ASHRAE

Annual Meeting

Denver, CO