

SAMPLING FOR PEPTIDE BONDS & PROTEINS

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Bill Weber – Forensic Construction Expert

Background

- In the restoration business for 31 years
- Licensed General Contractor in California
- Certified Restorer
- Council-Certified Indoor Environmental Consultant
- Council-Certified Mold Remediation Supervisor
- Principal Consultant for AVELAR, a comprehensive forensic architectural, construction and reconstruction management and litigation support company for 5 years



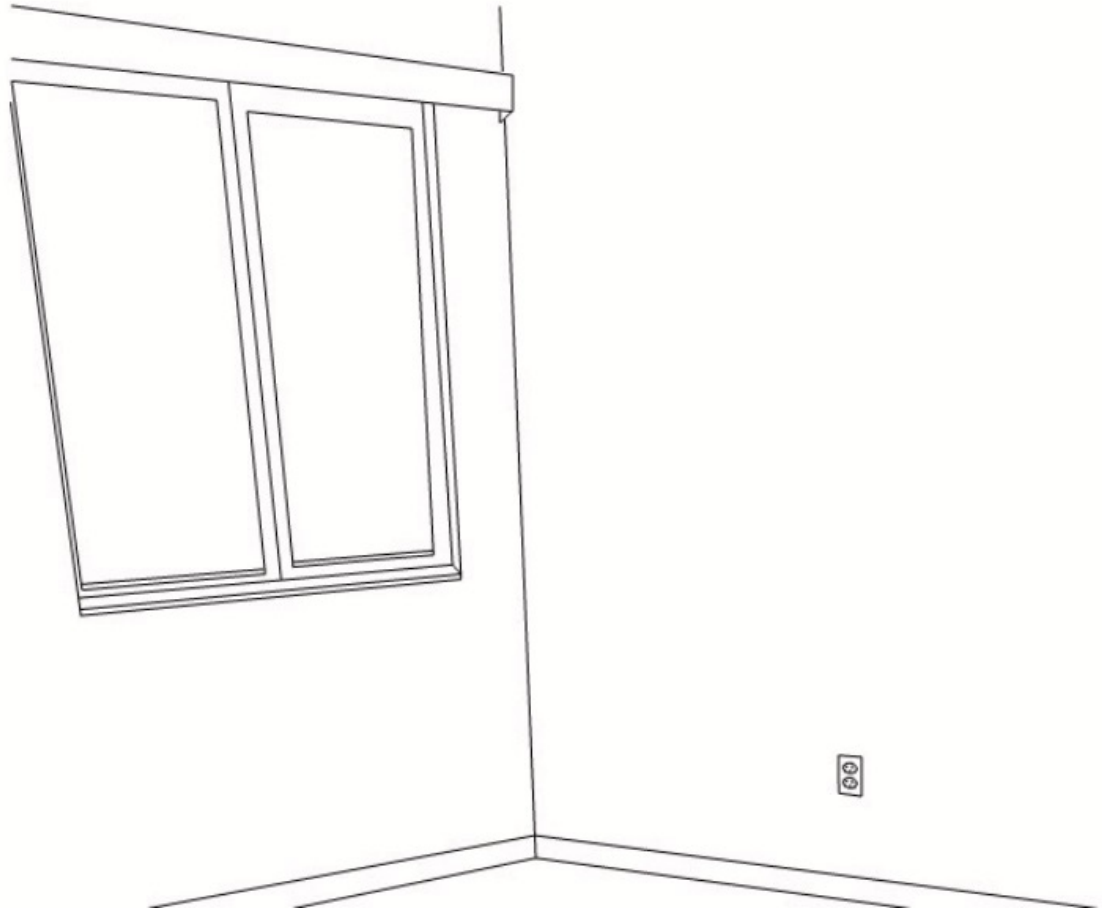
John C. Banta - Certified Industrial Hygienist

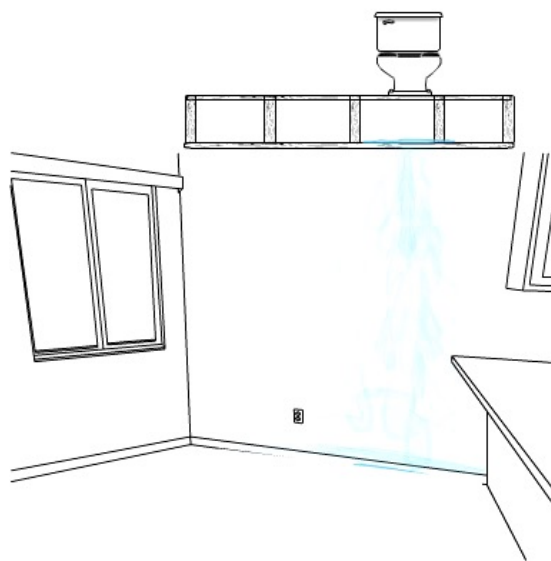
John C. Banta, CIH - Background

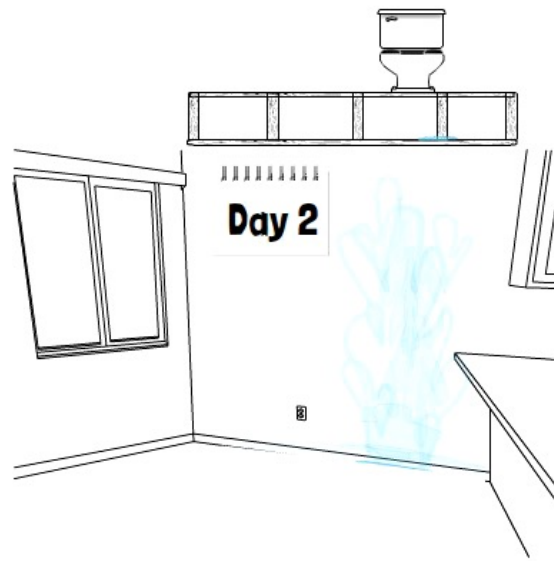
- 35 Years Indoor Environmental Professional
- 25 Years Emphasis on Water Damaged Environments
- 10 Years Focus on Medically Important Investigations
- Certified Industrial Hygienist
- Senior Environmental Consultant for RestCon Environmental
- Co-Author *Prescriptions for a Healthy House: A Practical Guide for Architects, Builders and Homeowners*. 4th Edition, April 2022

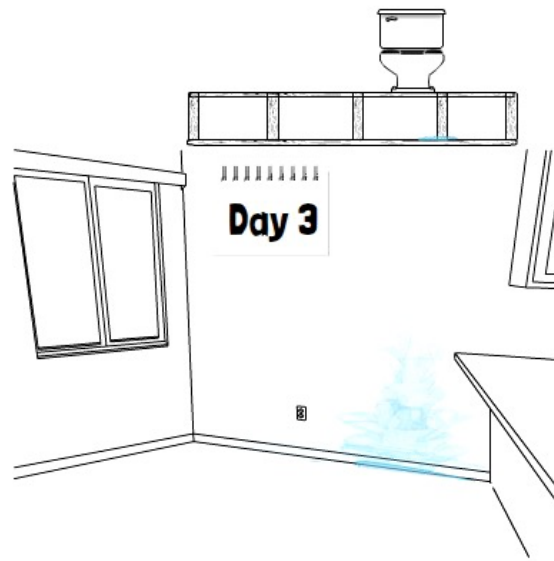


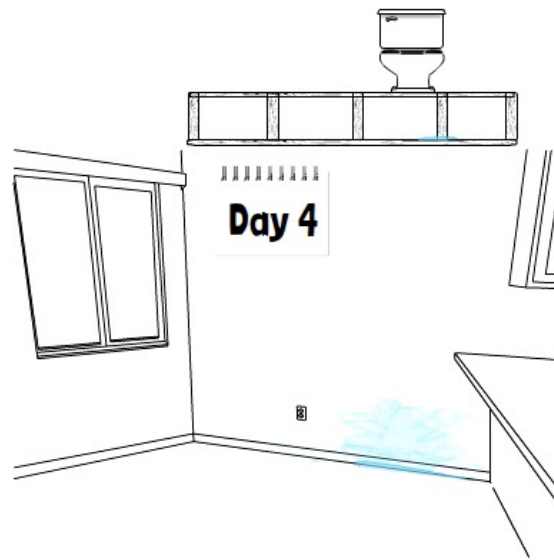


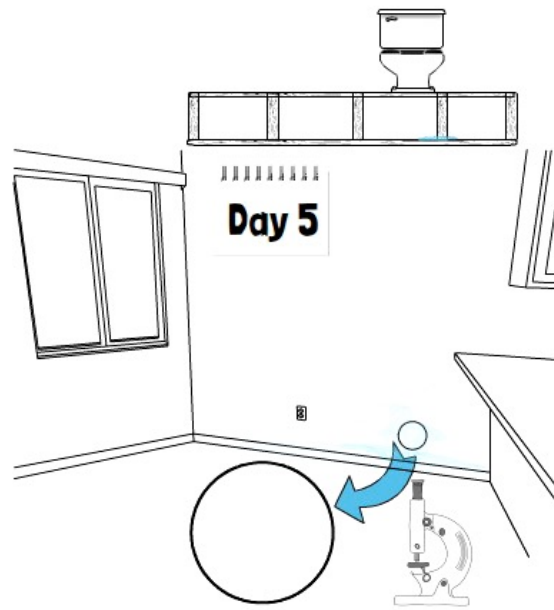


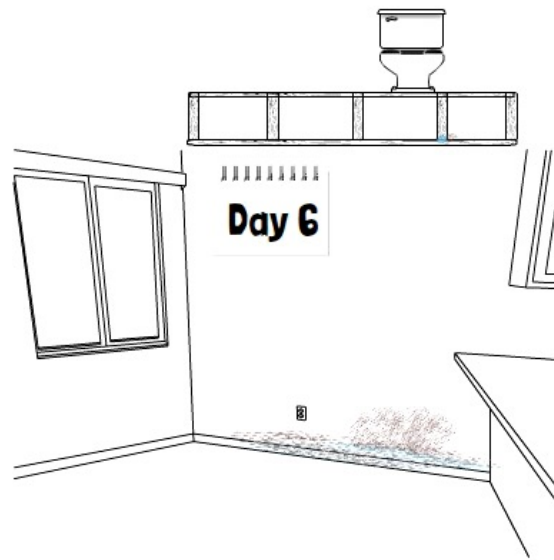


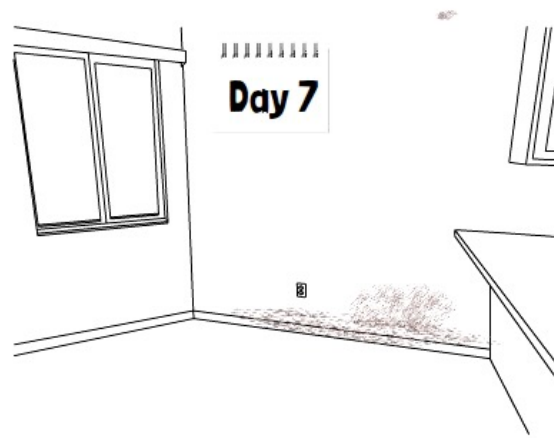




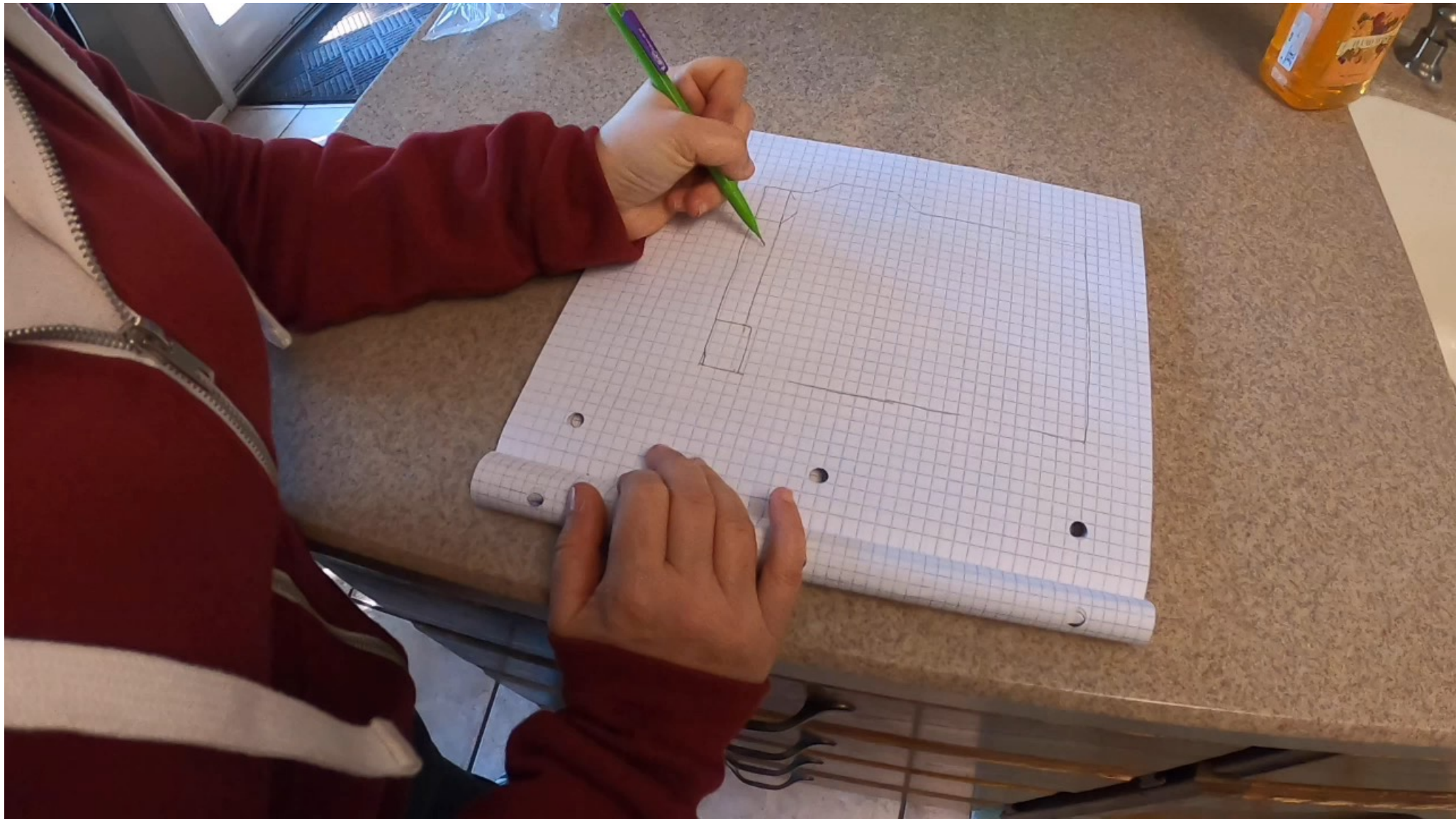






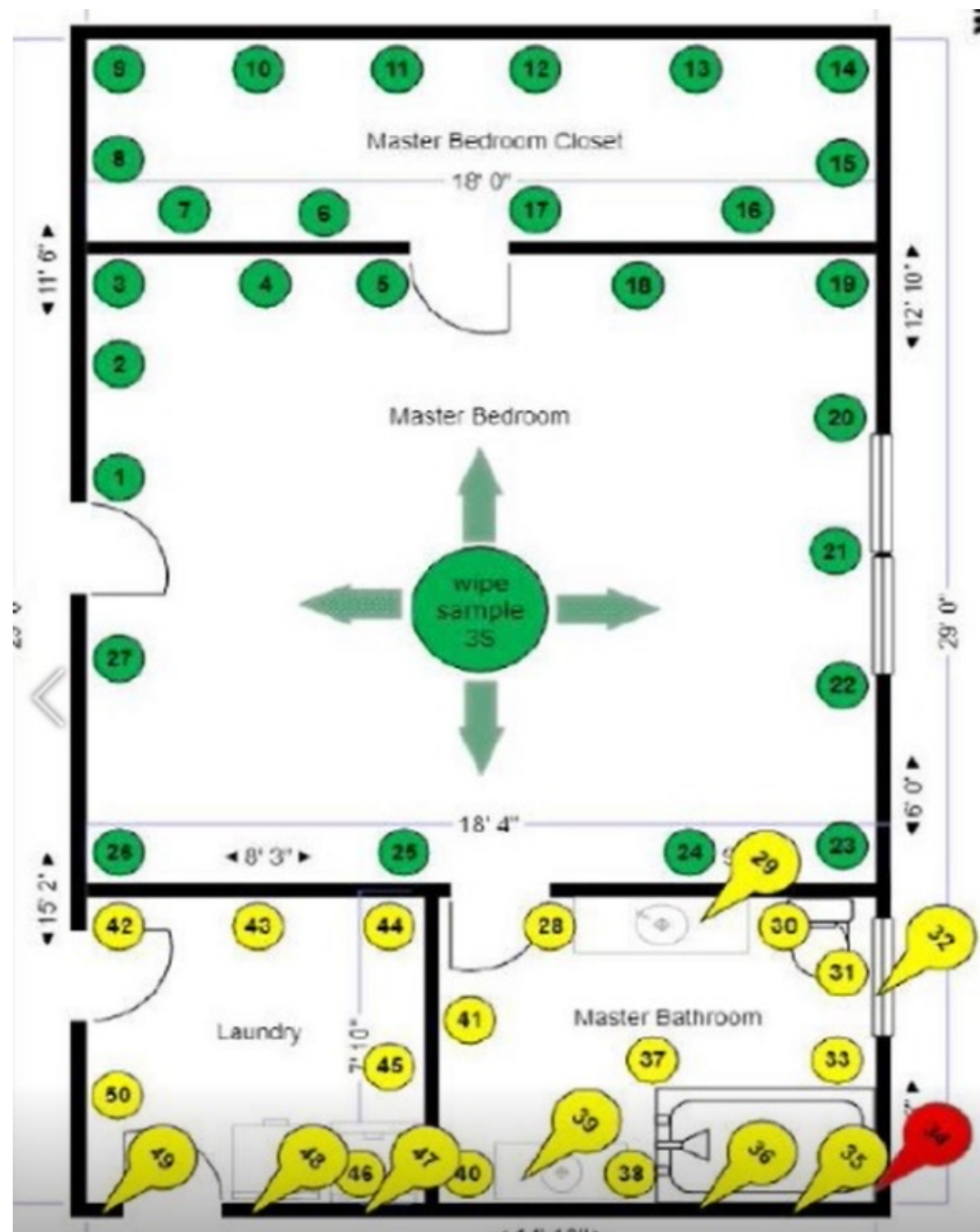


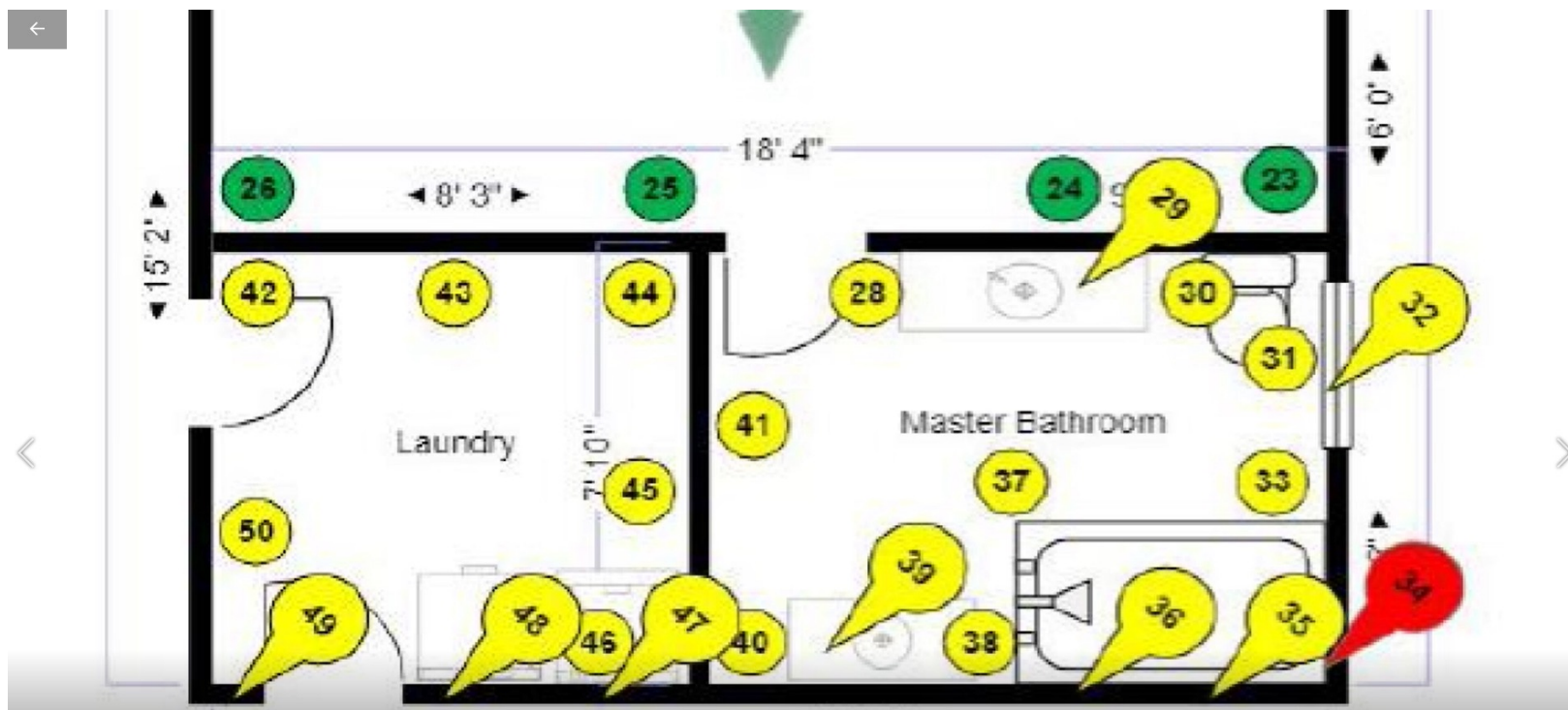


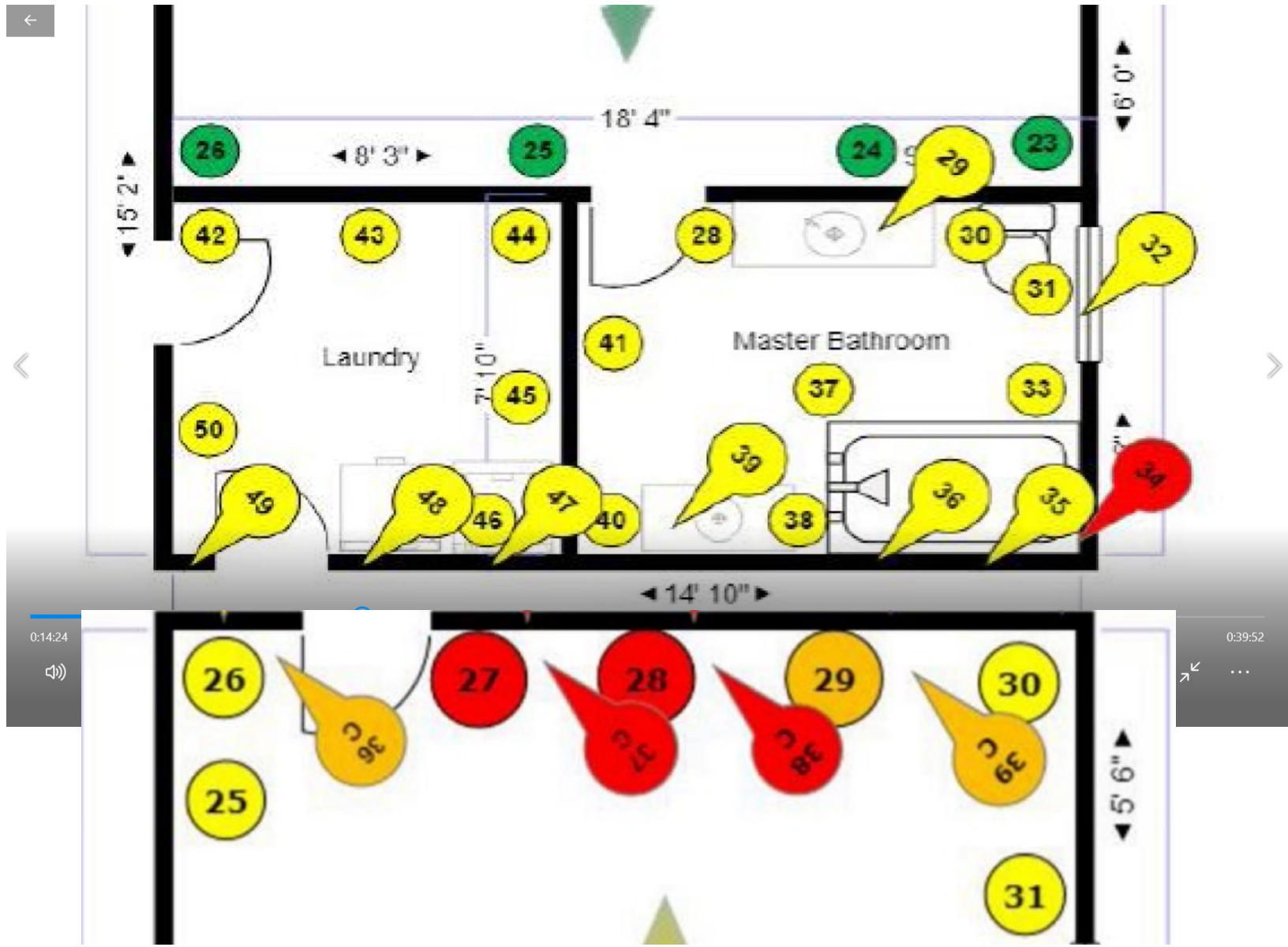


Micrograms / sample

Green	0-75
Yellow	76-225
Orange	226 – 450
Red	451->600









Case Study: San Francisco Home

Pathways Testing – Investigative Tool

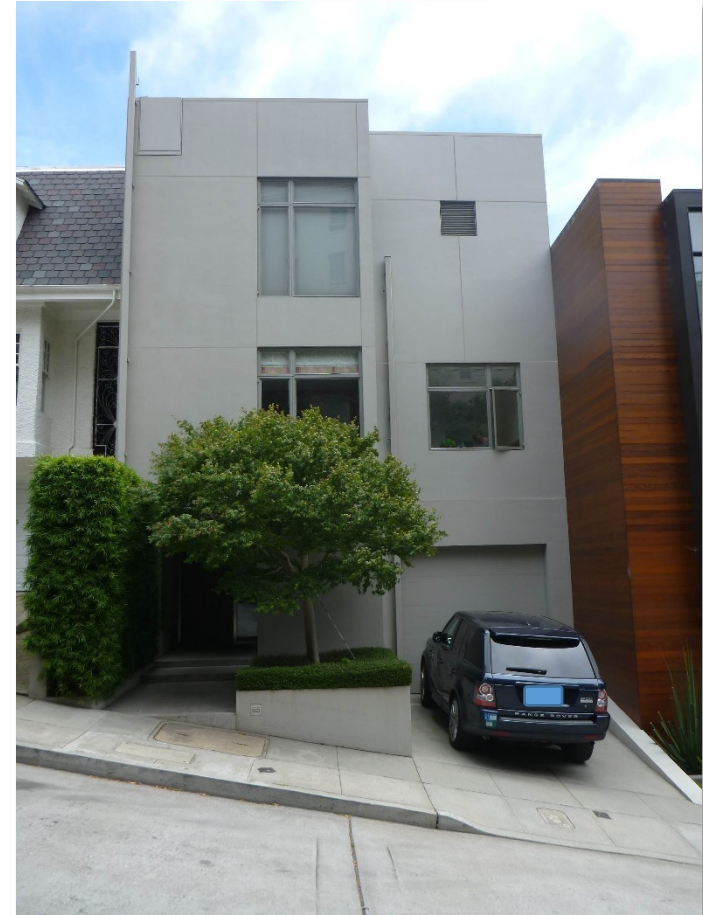
Bill Weber, GC,CR,CIEC,CMRS



A V E L A

Project Overview

- Home Built in 1941 and extensively remodeled in 1980 and 2000.
- In 2000, the upper most floor was added and a sky deck installed.
- The remodeling contractor has worked on the house since the completion of the 2000 remodel.
- Mold Illness including symptoms of chronic fatigue and insomnia



Project Overview

- Known knowns
 - Third floor window leak that impacted two rooms
- Unknowns discovered through the Mold and Moisture Investigation
 - The use of elastomeric paint coating
 - Condensation due to air leakage
 - Monolithic skylight leaks
 - Various door and window leaks due to product and installation issues
 - Water intrusion into the utility room
 - Waterproofing at parapets – handrails and wind screens



Findings - Water Testing Outside of Boiler Room Reveals Gross Amount of Water Intrusion



Findings – Targeted Water Testing Reveals Intrusion into Various Doors and Windows



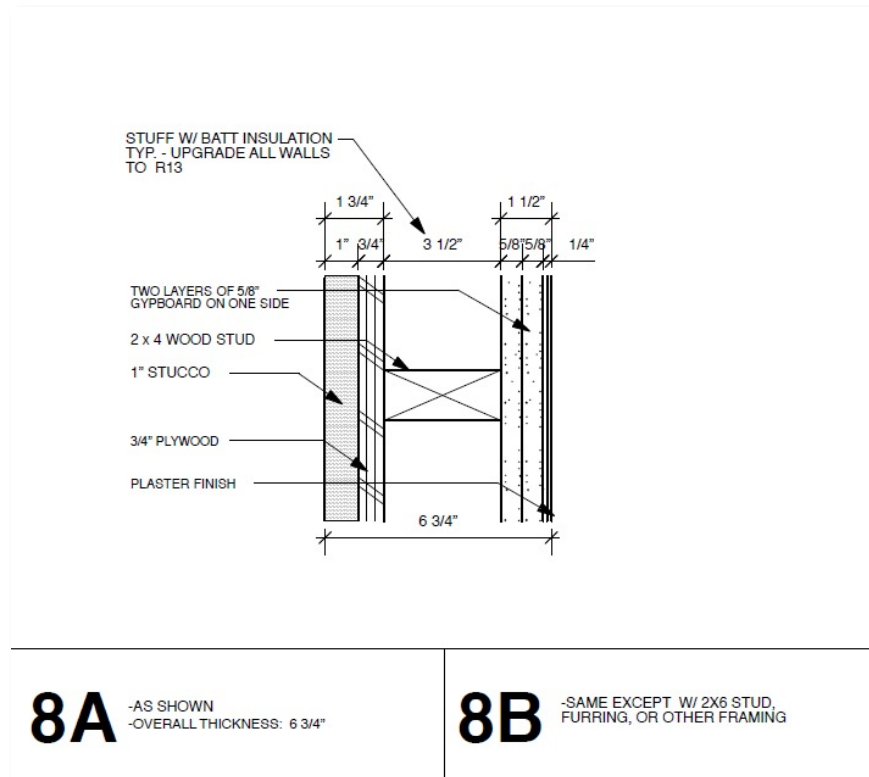
Type of Construction and High-End Finishes Prohibit Ability to Locate Mold Reservoirs



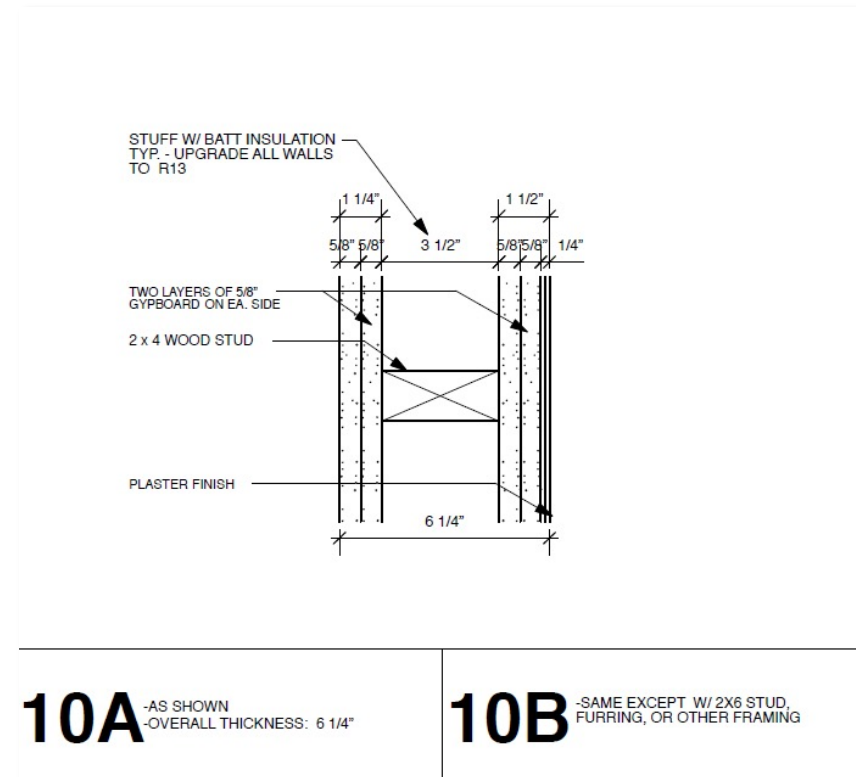
Type of Construction and High-End Finishes Prohibit Ability to Locate Mold Reservoirs



Exterior Wall Construction (typ.)



Interior Wall Construction (typ.)



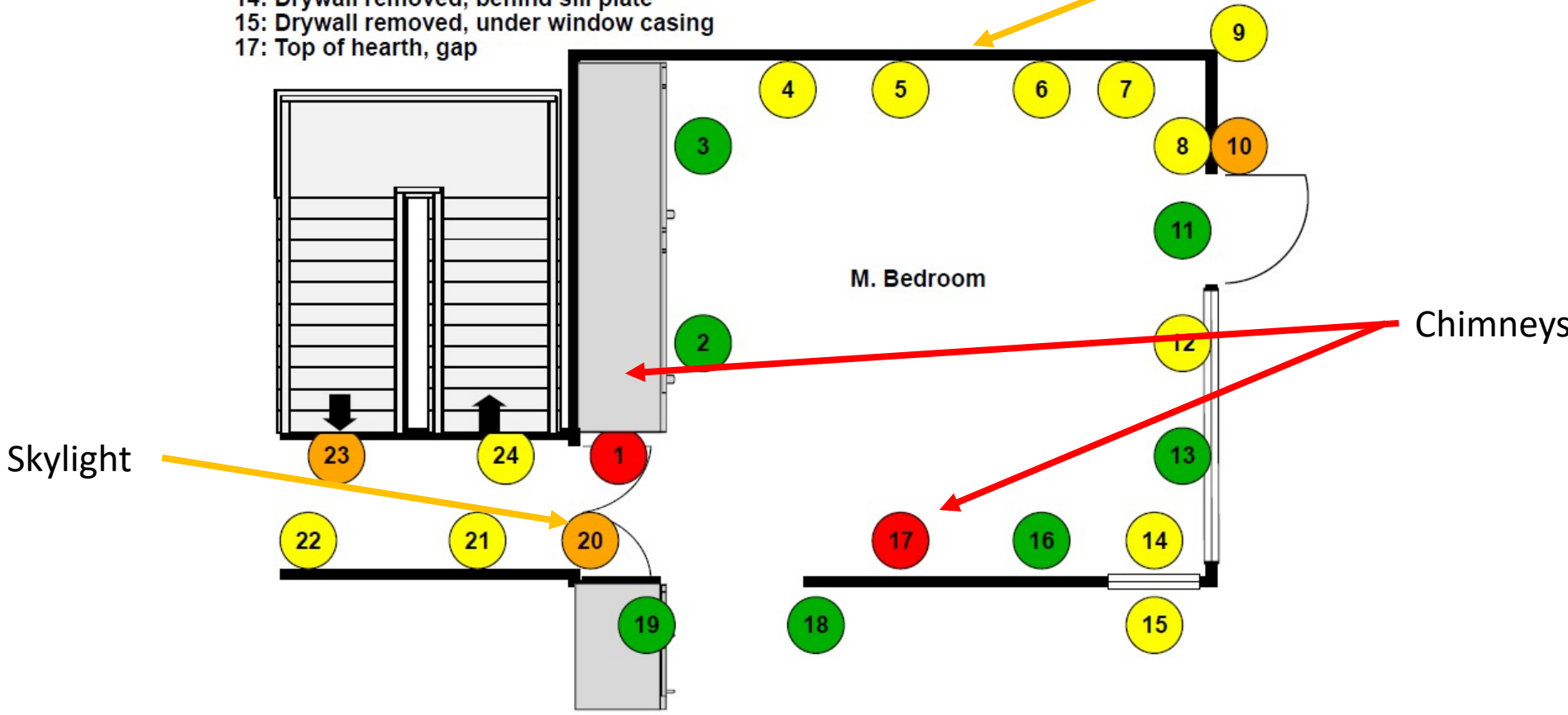


A V E L A R

Where are the Reservoirs we don't see? Pathways Testing

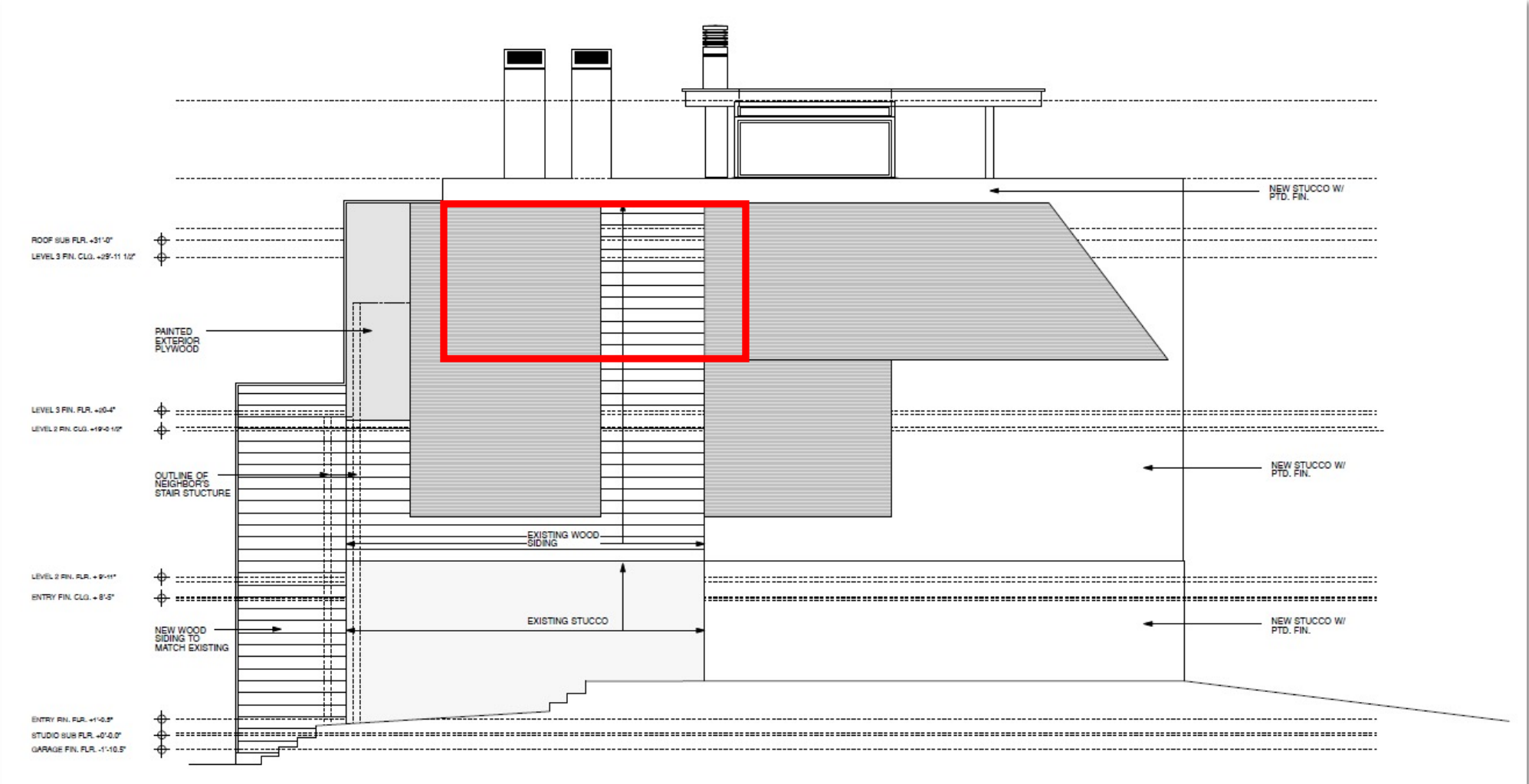
- 1: Inside Intercom System and base
- 4, 6: Inside cable hole
- 8: Drywall removed, above baseboard
- 9: Up corner along cut drywall
- 10: Drywall removed, up door weatherstripping
- 11: Door threshold
- 14: Drywall removed, behind sill plate
- 15: Drywall removed, under window casing
- 17: Top of hearth, gap

North Elevation





North Elevation





A V E L A R

North Elevation – Yellow Areas





A V E L A R

North Elevation – Yellow Areas



North Elevation Repairs

- Remediation Efforts
 - HEPA vacuum
 - 3-stage small particle cleaning
 - EcoSeal Plus (water-based elastomeric sealant fills joints and penetrations in the building enclosure)
 - Resample using Mycometer swabs and Pathways Testing



North Elevation Prompts South Elevation Inspection





Conclusion

- MSqPCR and Culturables revealed a problem - somewhere
- Whole-Body exploratory surgery is hard to justify and so is removing finishes “willy-nilly” in an \$6+MM home
- The Pathways Testing was an extremely valuable tool during the investigation process to:
 - Indicate hidden reservoirs from original construction
 - Indicate hidden reservoirs from remodeled areas
 - Indicate hidden reservoirs behind layers of building materials
 - Indicate hidden damages including:
 - Exterior gypsum
 - Failed waterproofing at sky deck and other locations
 - Long-term water damage



Case Study: Atherton Home

Pathways Testing – Post Remediation Verification
(PRV)

Bill Weber, GC,CR,CIEC,CMRS



A V E L A

Project Overview

- Home Built in 2005 following a fire that burned the existing house down
- The house is a “kit” house that was shipped from the east coast
- Husband assisted during construction process
- Widow with four grown children resides in home alone
- Mold Illness including symptoms of joint pain and sinus inflammation



Project Overview



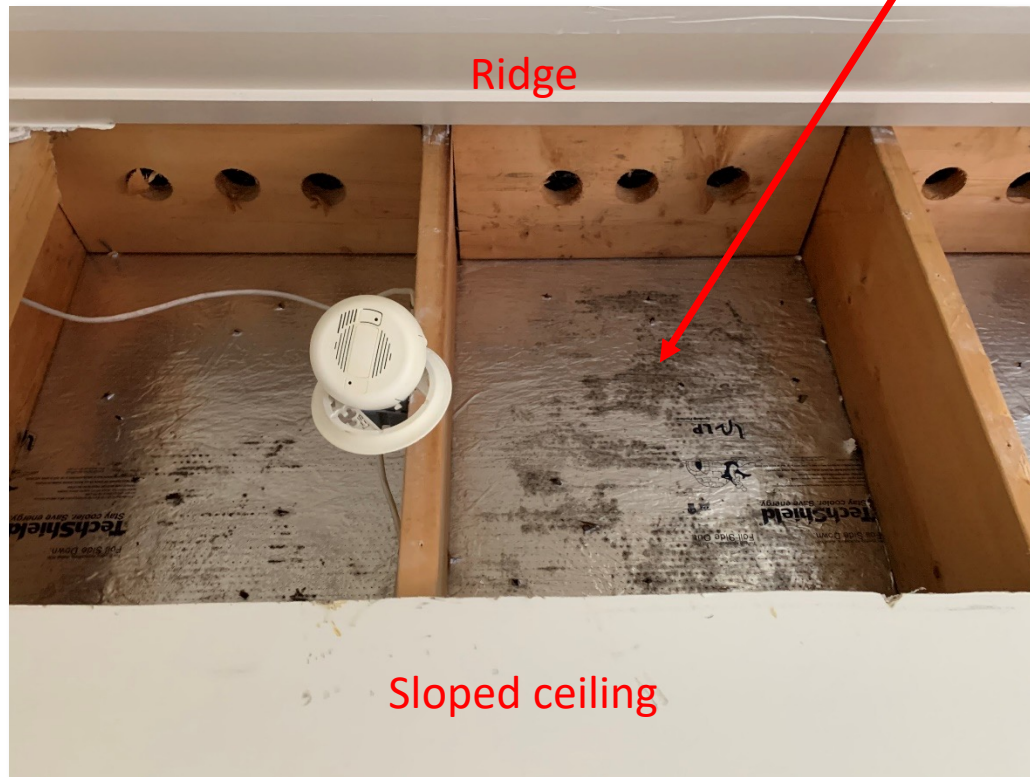
- Known knowns
 - Dishwasher leak in kitchen in 2013
 - Upstairs washing machine leak in 2013
 - Roofing area repaired in 2018
 - Solar installation leak above the garage
- Unknowns discovered through the Mold and Moisture Investigation
 - Unvented vaulted ceilings
 - Flooded crawlspace
 - Leaking skylights



Major Findings

Background Debris	Miscellaneous Spores	Mold Growth*	Comments	General Impression
11173112520-1 Sample Site: Right Front Slope				
Light	Very Few	2+ <i>Cladosporium</i> 2+ <i>Penicillium/Aspergillus</i>	None	Mold Growth
11173112520-2 Sample Site: Right Rear Slope				
Light	Very Few	3+ <i>Cladosporium</i> 2+ <i>Ulocladium</i>	None	Mold Growth

Unvented Vaulted Ceilings



[Regularly] Flooded Crawlspace



Theatrical Fog Pathway Testing

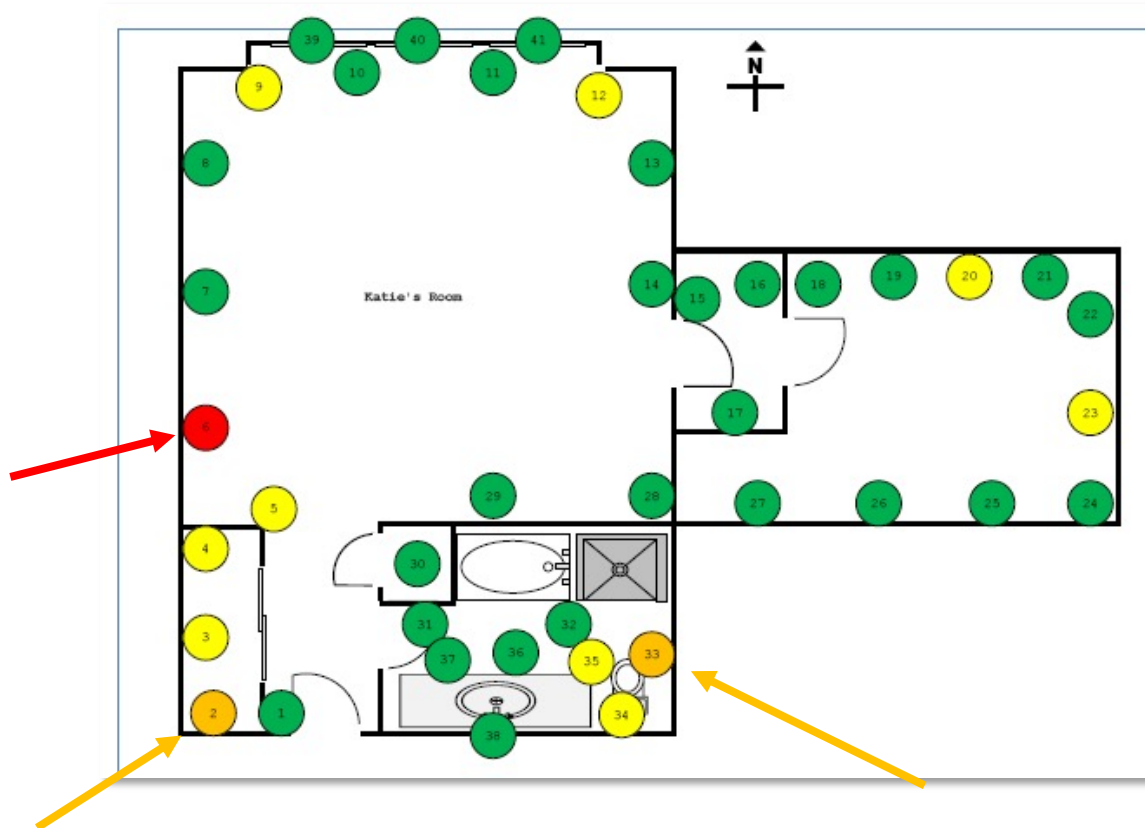


Theatrical Fog Pathway Testing

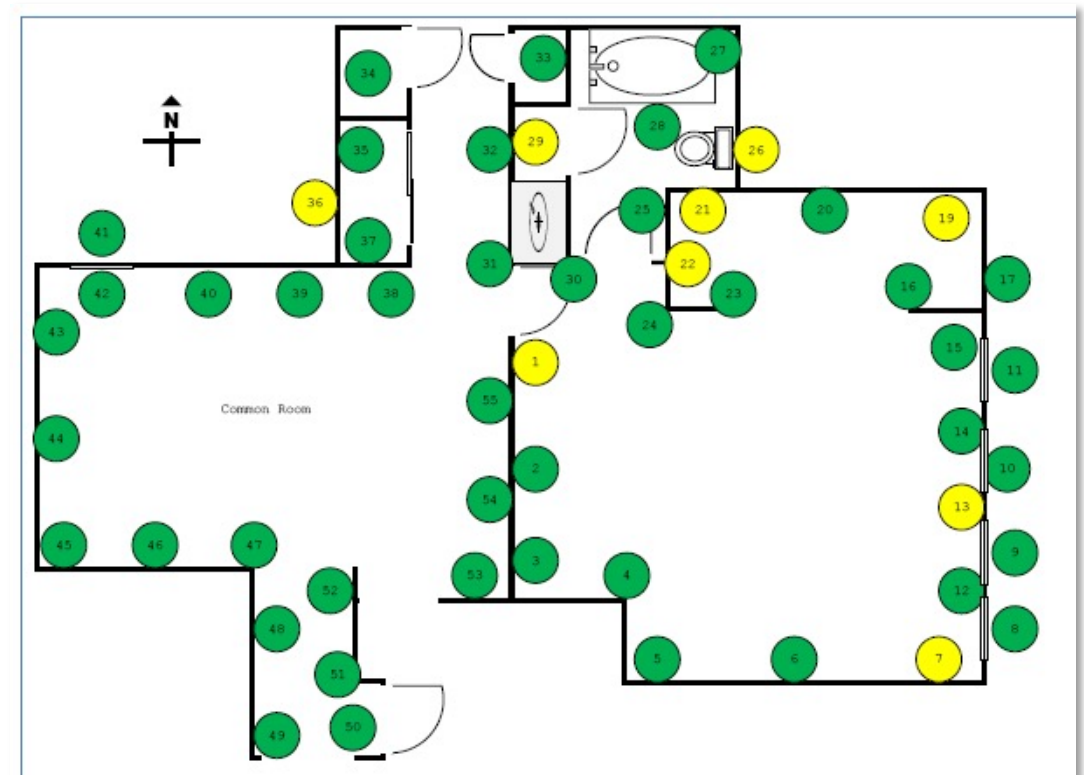


High Degree of Confidence, but Client Wanted to Make Sure – Pathways Testing

Potential Problematic Areas



What We Like to See



Katie's Room, Bathroom and Closet

Bedroom wall (Red)

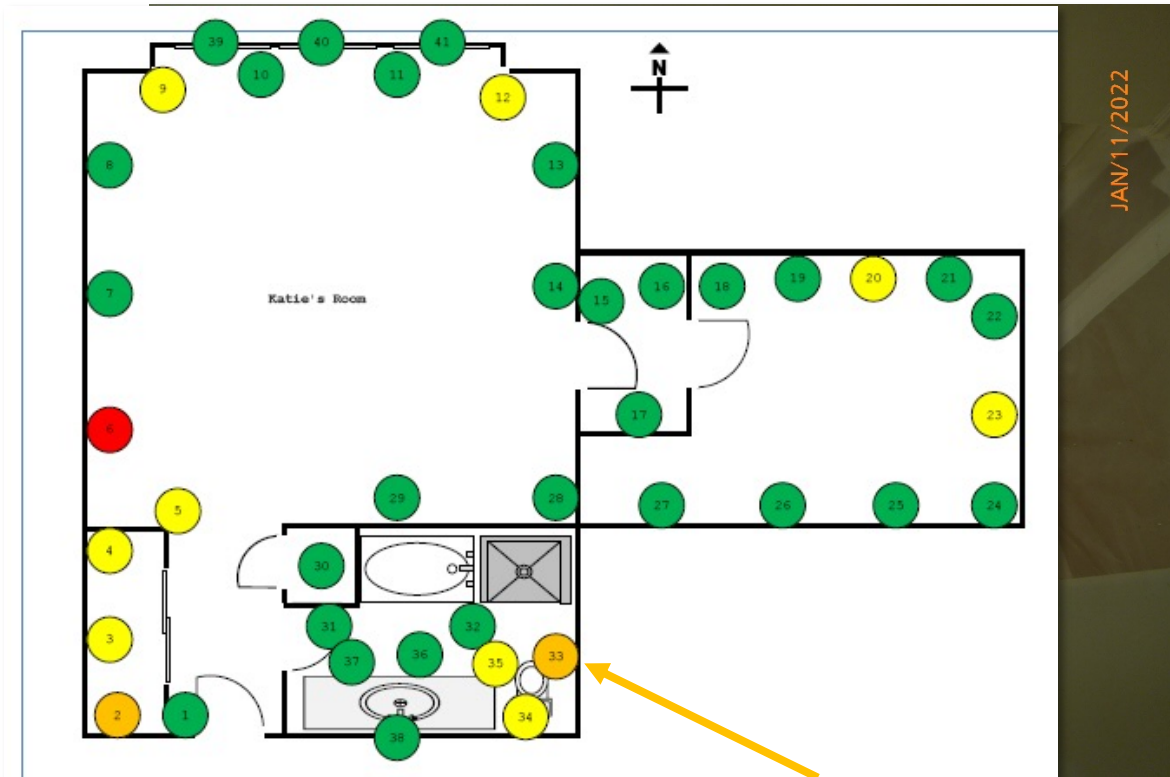


Water Intrusion from Roof Leak



Katie's Room, Bathroom and Closet

Potential Problematic Areas



Bathroom wall
(Orange)



Mold on Original
Plywood

Plywood Identified by Pathways Testing (9 Areas)

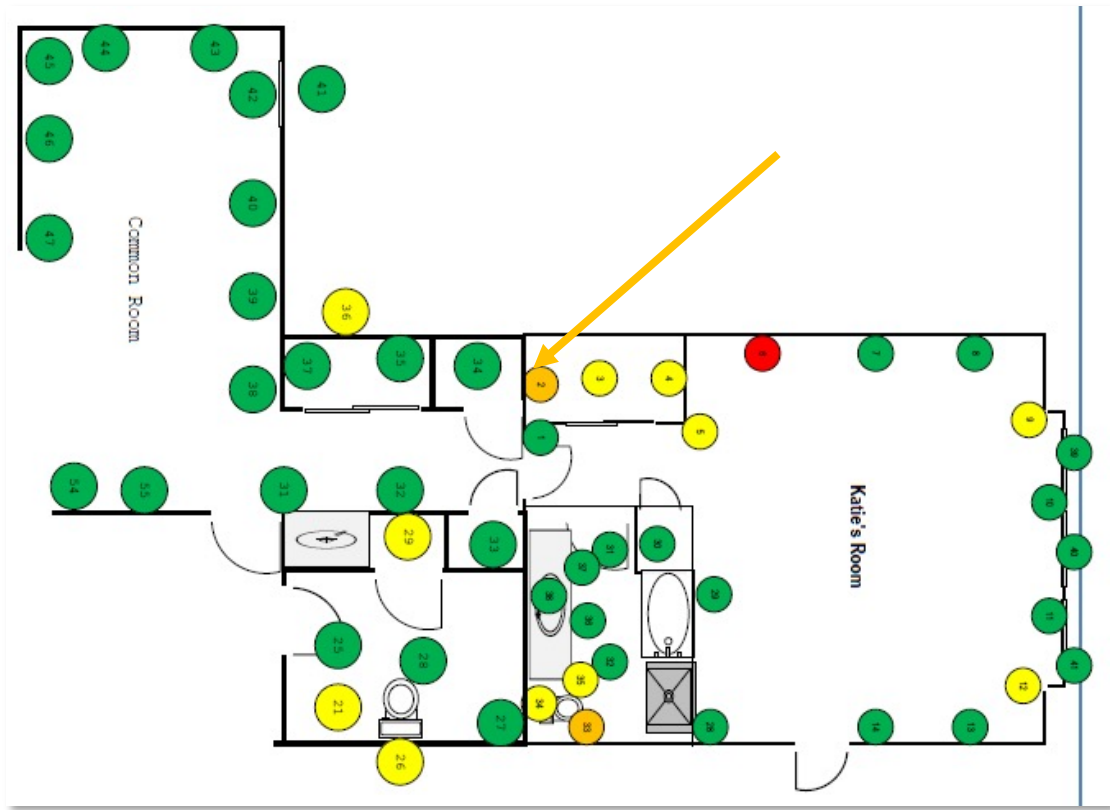
**Plywood presumed
wet during
construction**



**Plywood not
impacted
during
construction**

Katie's Room, Bathroom and Closet and Adjacent Areas

Washing Machine Overflow from 2013



Complete Project Success

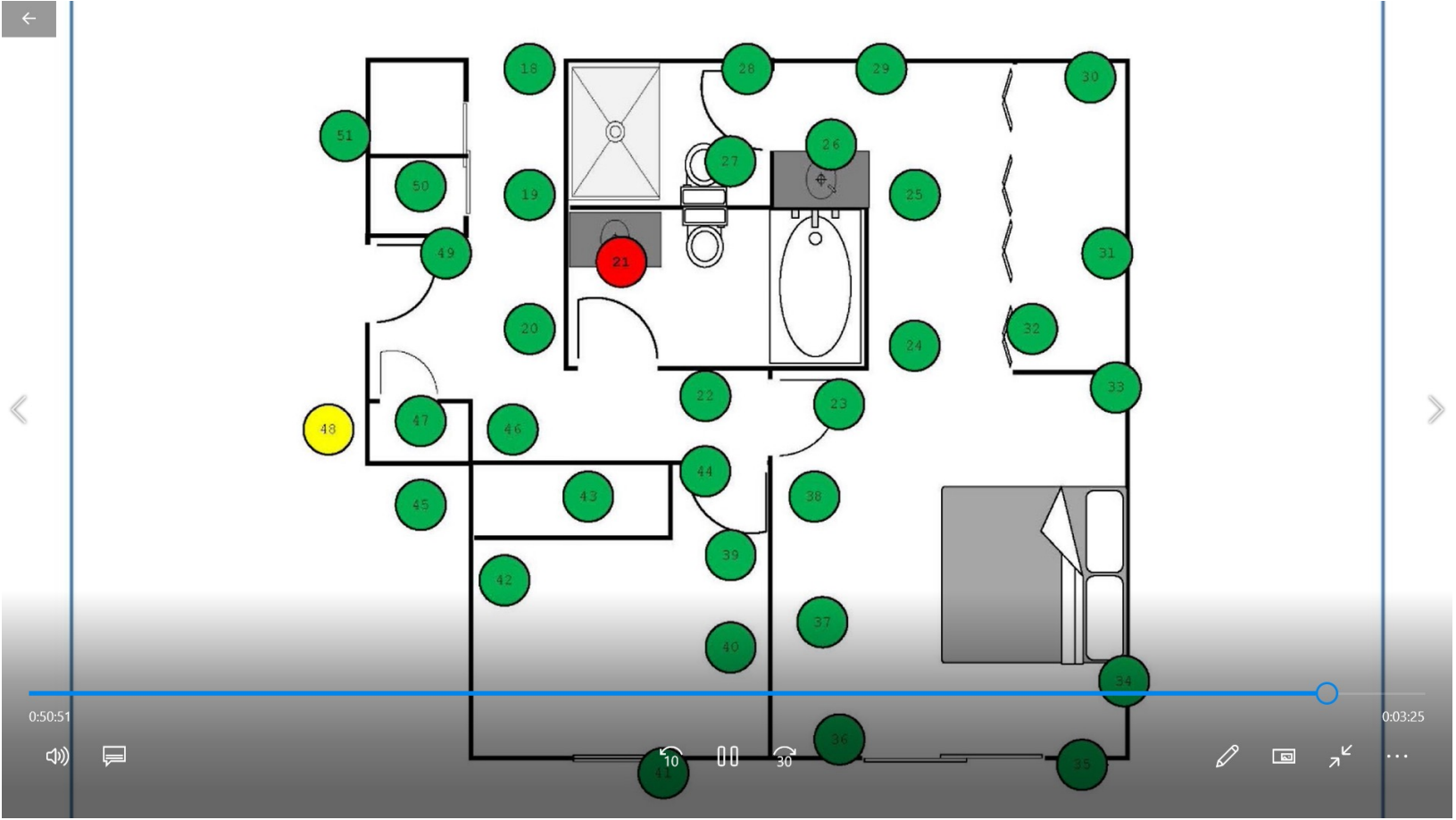


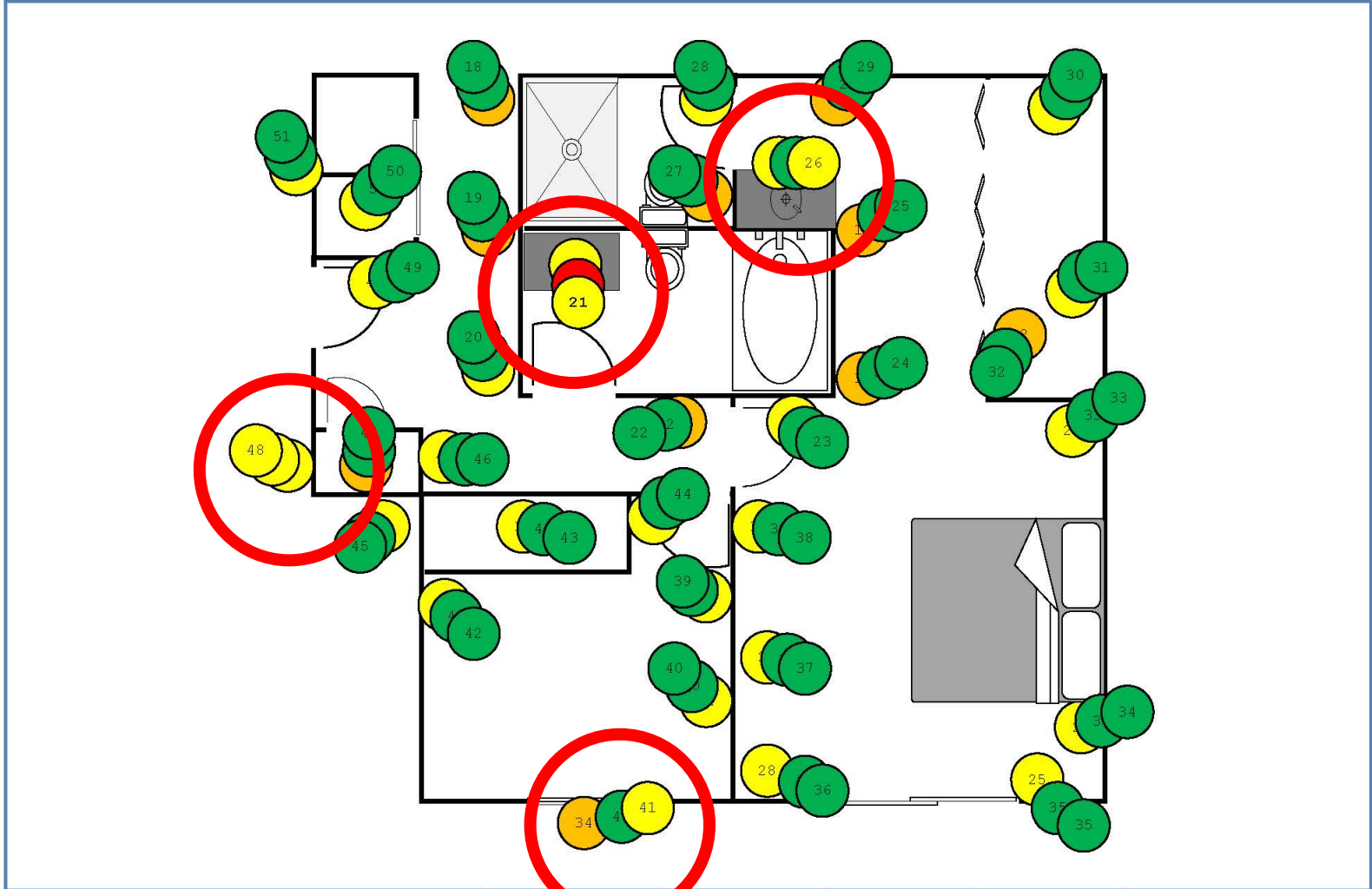
- Remediation Contractor was able to remediate the known knowns
- Forensic Building Consultant was able to locate and correct the issues in the unvented vaulted ceilings, the seasonal flooding in the crawlspace and the routes of entry from the crawlspace into the home as well as the skylight repairs
- The Pathways Testing was an extremely valuable tool during the post remediation verification process to locate additional unknowns
 - Revealed hidden water intrusion issues (historic roof leak)
 - Revealed hidden reservoirs from original construction (the bathroom plywood)
 - Revealed hidden reservoirs from water damages after 9 years (the washing machine overflow)



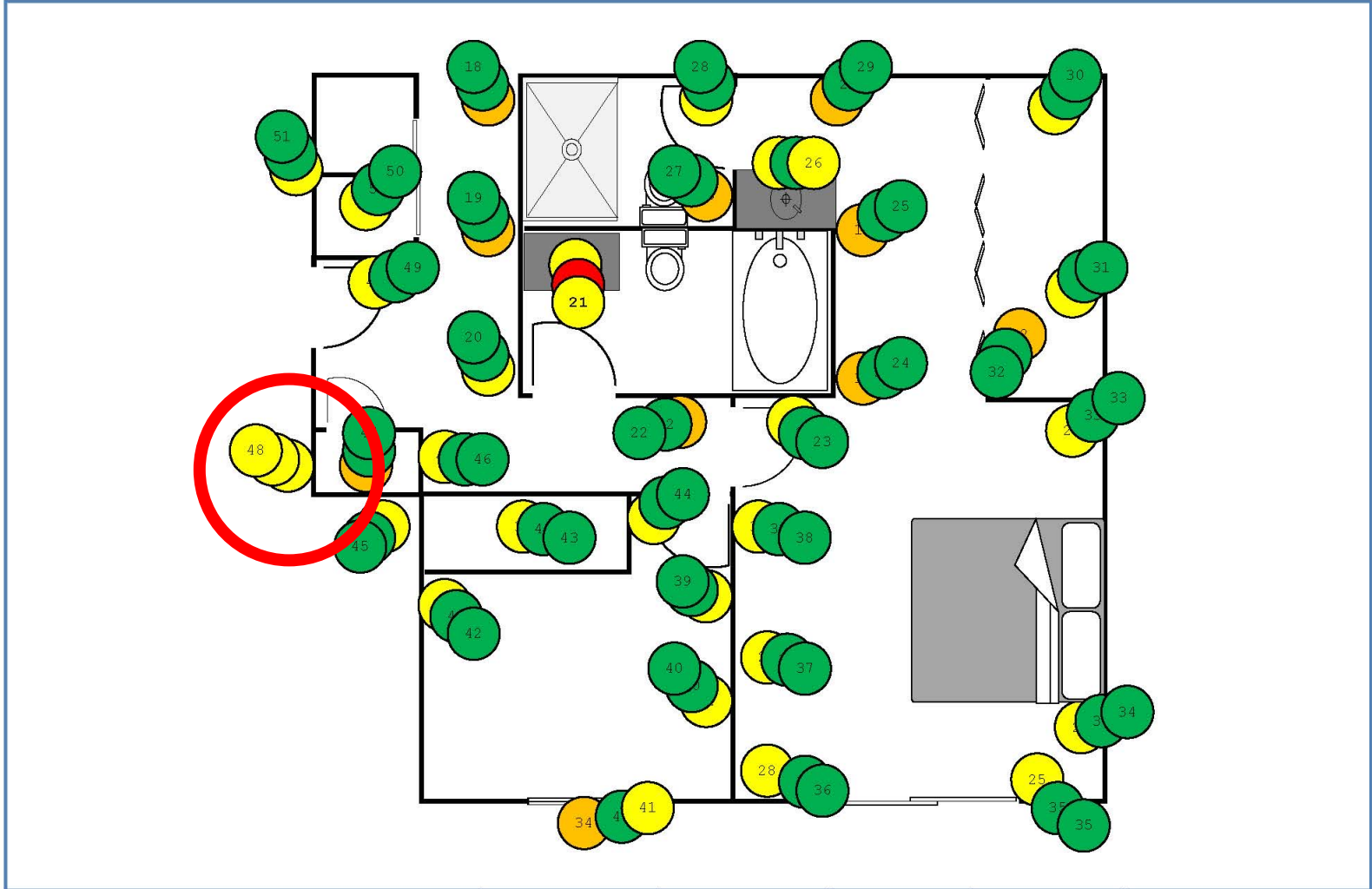
Select here to search

- Zoom
- Calculator
- inkscape

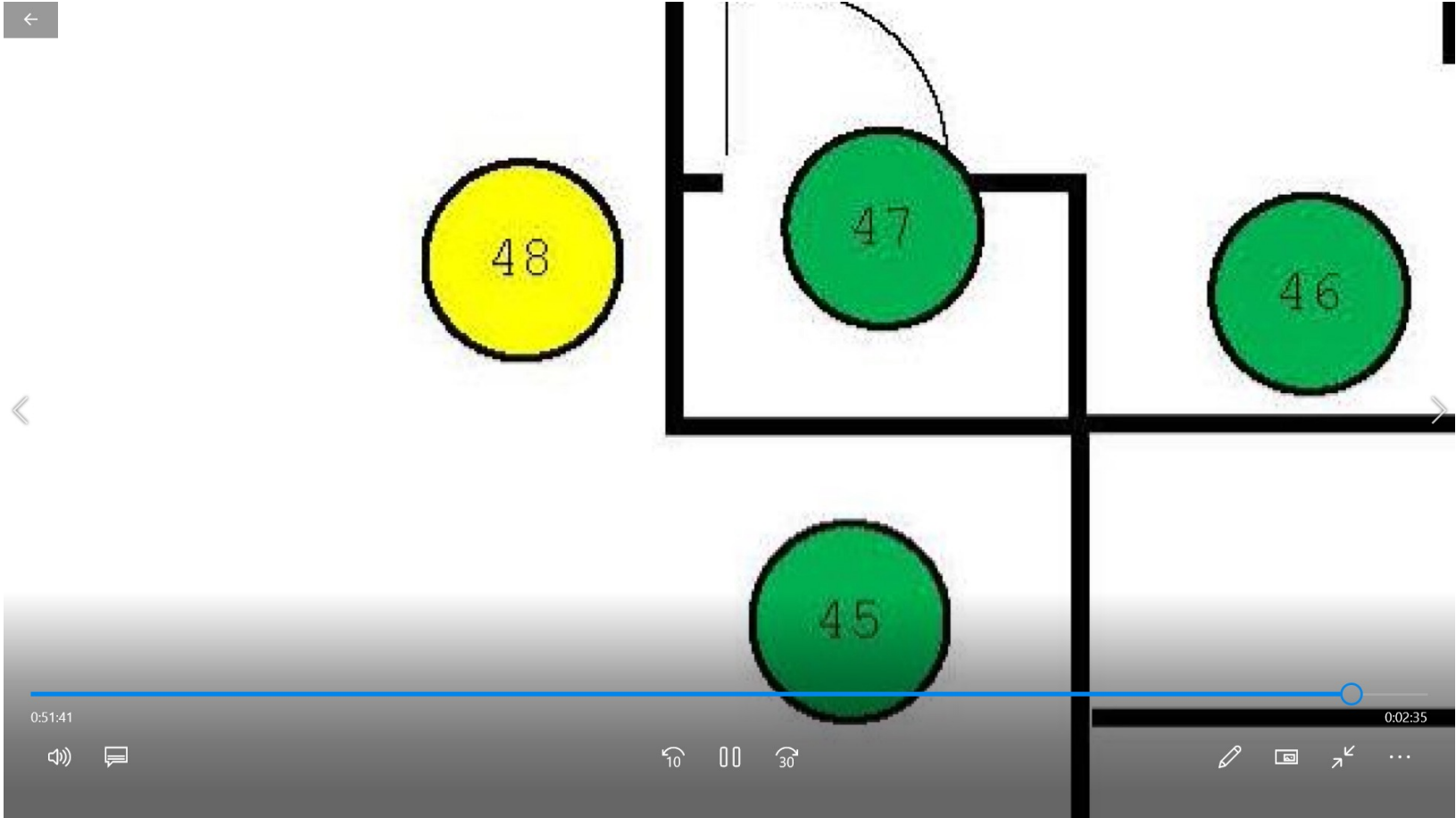


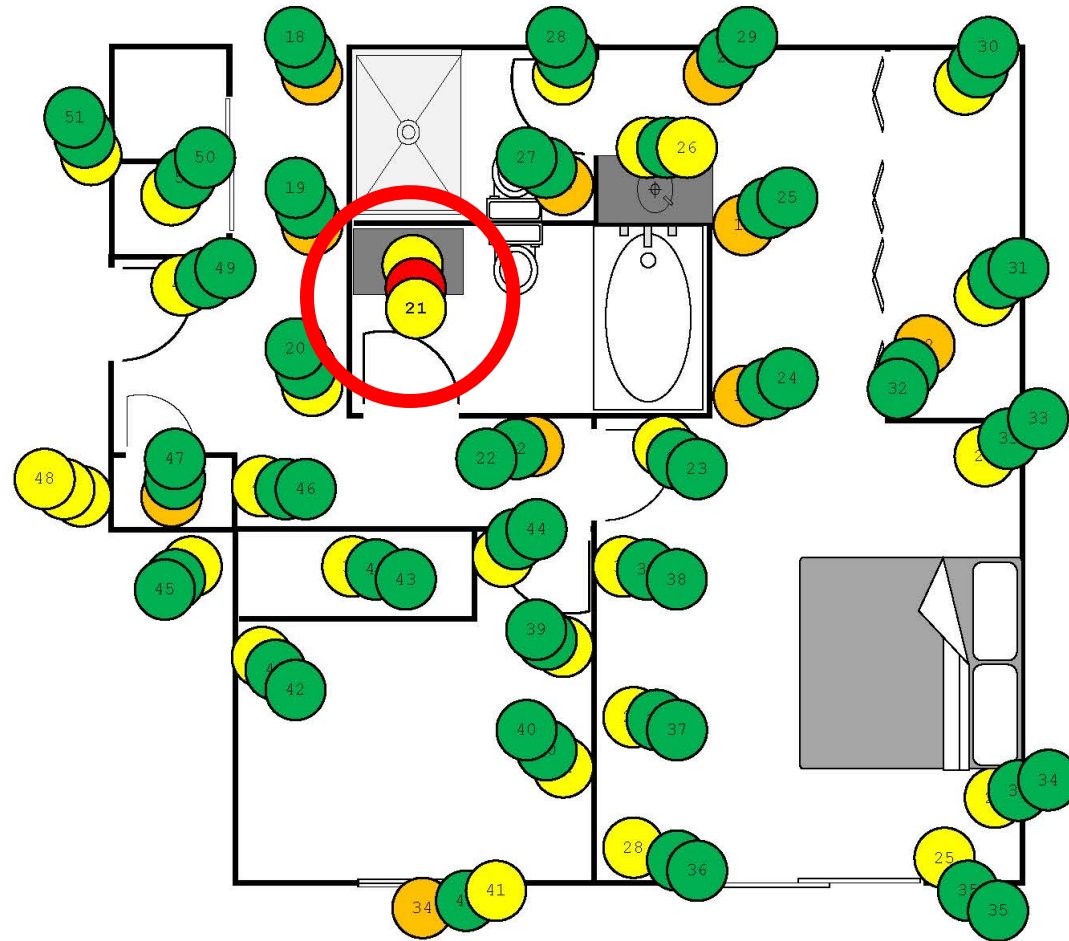


i 3343 Brittan Ave APT 3 San Carlos, CA 94070	Client: Tashiro	Job Number: 11542	Drawn: Nora Penic	Notes: Pathways	RestCon Environmental
Title : Master Suite, Hall, Bath, Bed 1	Scale: Custom	Date: 12/27/2021	Area: #2		

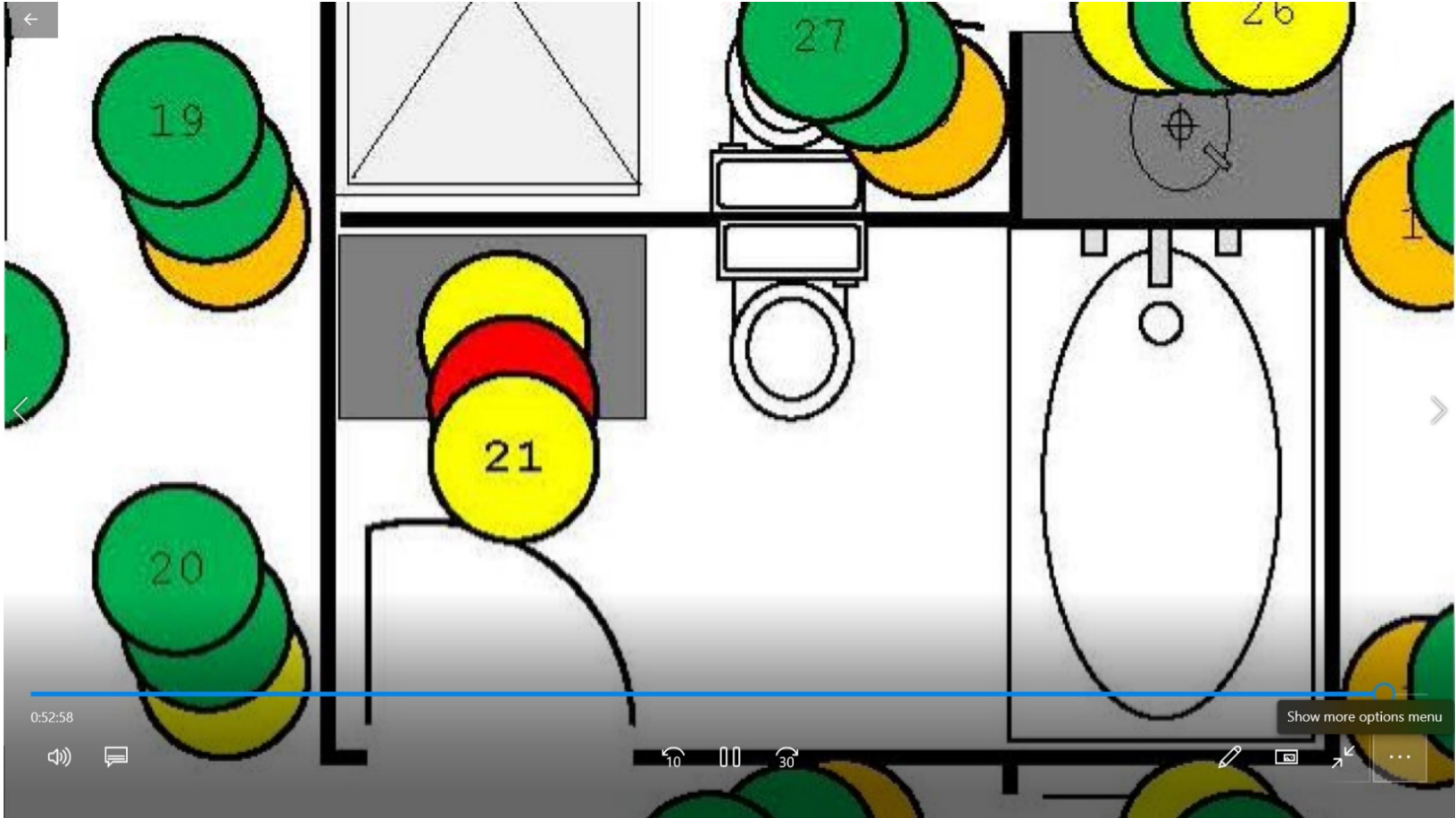


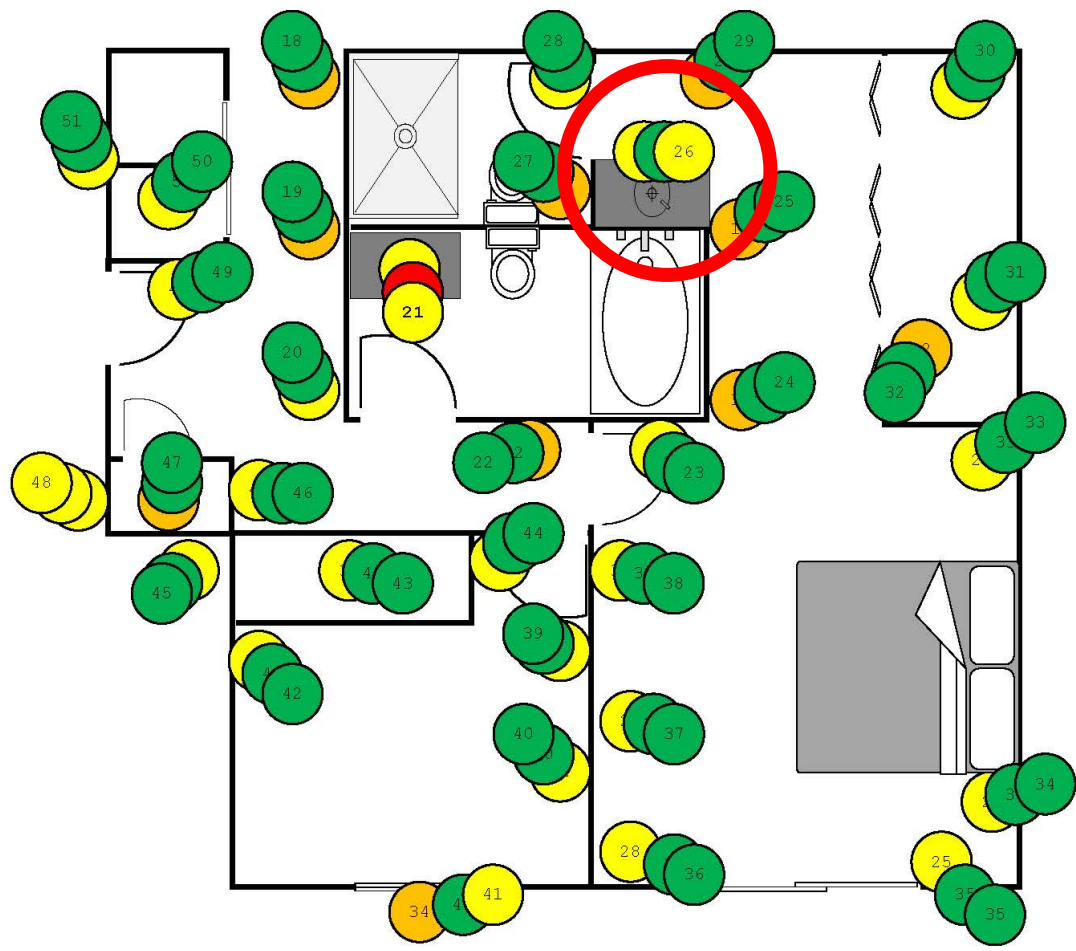
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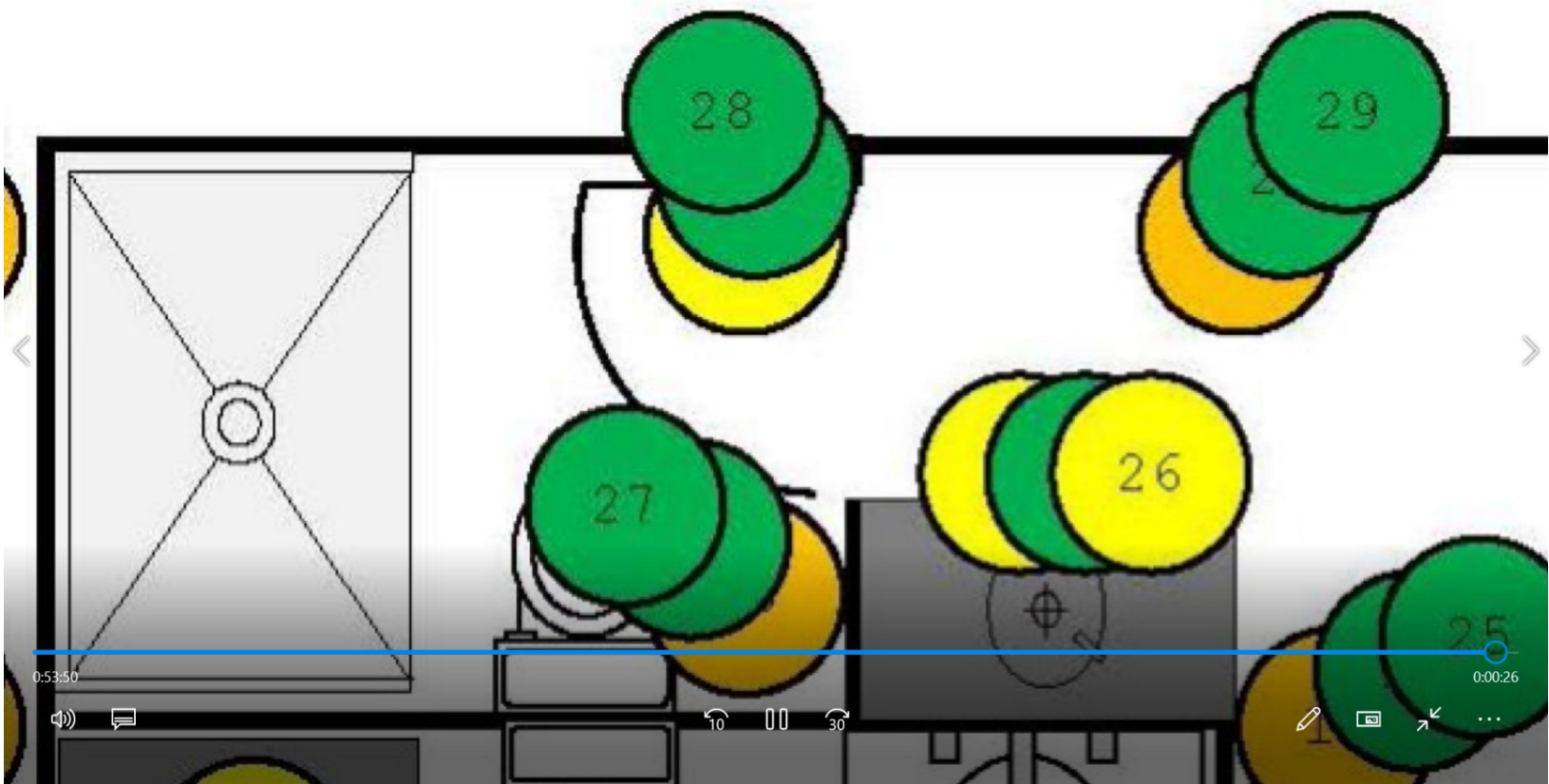


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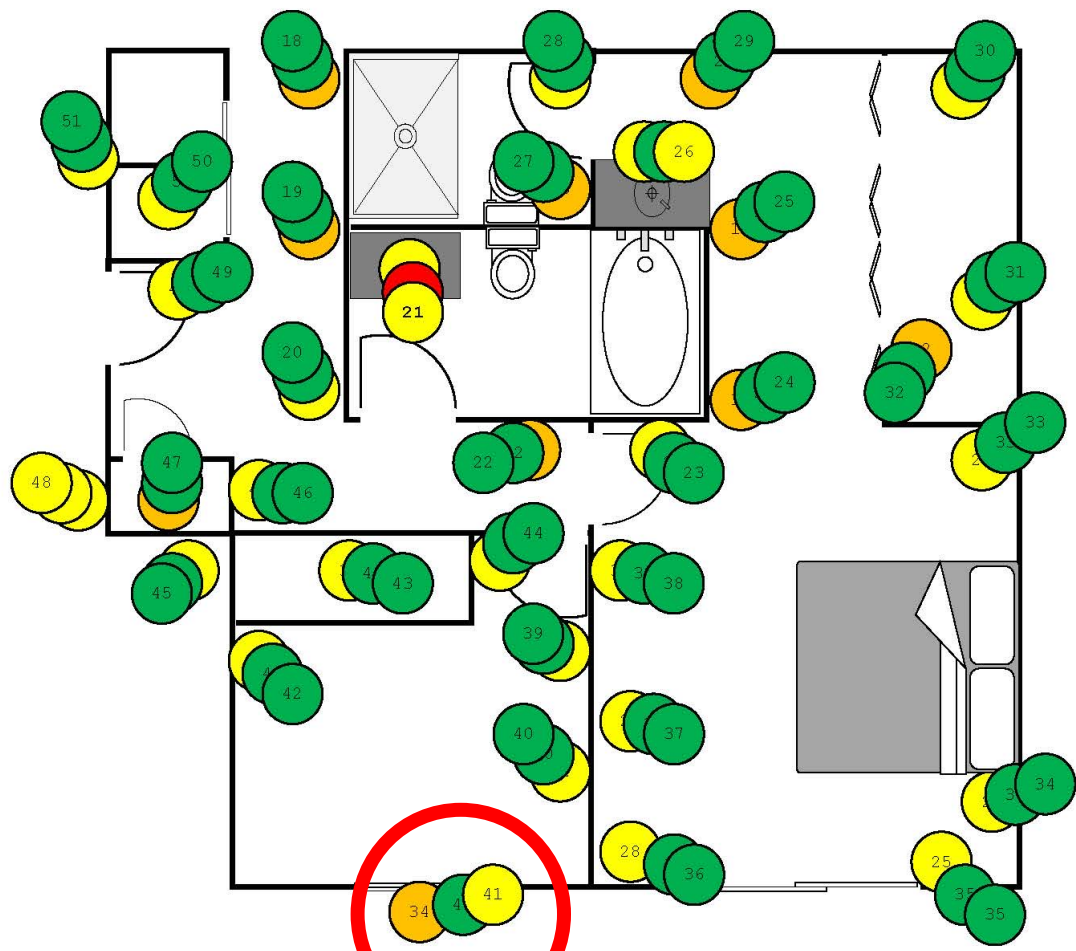


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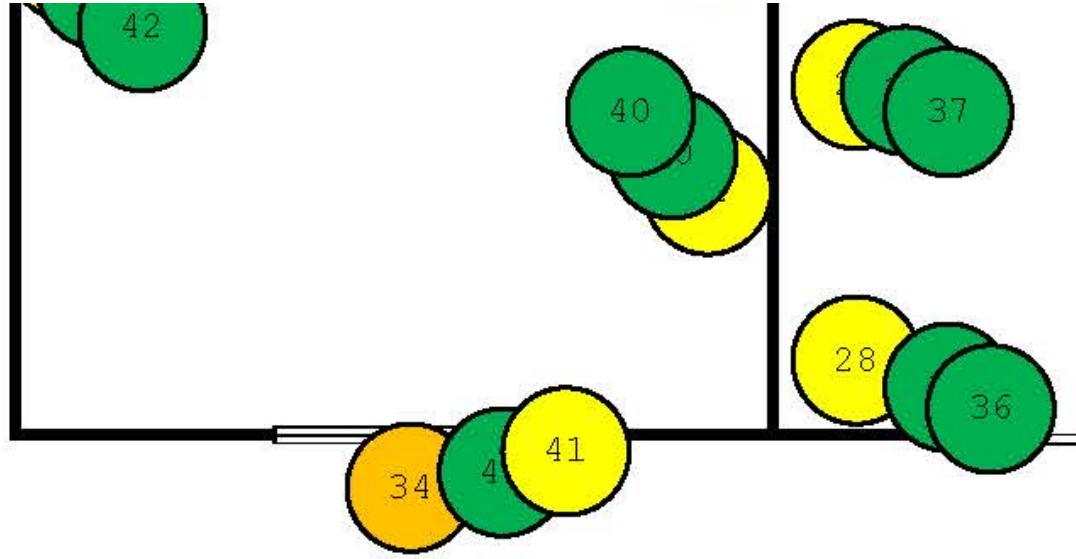


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