

PROJECT: OVERCOAT

Steve Schirber
612-787-5716
steve@cocoon-solutions.com



Purpose

1. Solution to Ice dams and related problems associated with Story and half Homes
2. Test the Exterior Thermal Moisture Management System (ETMMS) as a roof only approach roof-only approach for maximizing opportunities for insulation, air sealing, and roof deck ventilation
3. Compare the ETTMS Approach to current methods

What is a Story and a Half (SAAH)?







Why Story and a Half

- 1.Represents common building type
- 2.Typically has performance issues
- 3.Difficult to retrofit

What are the problems with the Story and a Half?

- 1.Durability
- 2.Ice Dams
- 3.Comfort
- 4.Air Quality
- 5.Moisture Issues
- 6.Utility Costs

WHY ARE SAAH'S A PROBLEM?

Why are SAAHs a Problem?

Boundary Conditions!

Why are SAAHs a Problem?

1. Attics are not intended to be finished
2. Desire to maximize space
3. Using the roof for a wall
4. Creating confused spaces
5. The devil is in the details

Retrofit Performance Goals

1. Air Leakage reduction
2. Moisture Management
3. Increase R-Value
4. Minimize Thermal Bridging
5. Appropriate Ventilation(IAQ)
6. Combustion Safety

Overcoat: Case 1

CASE 1





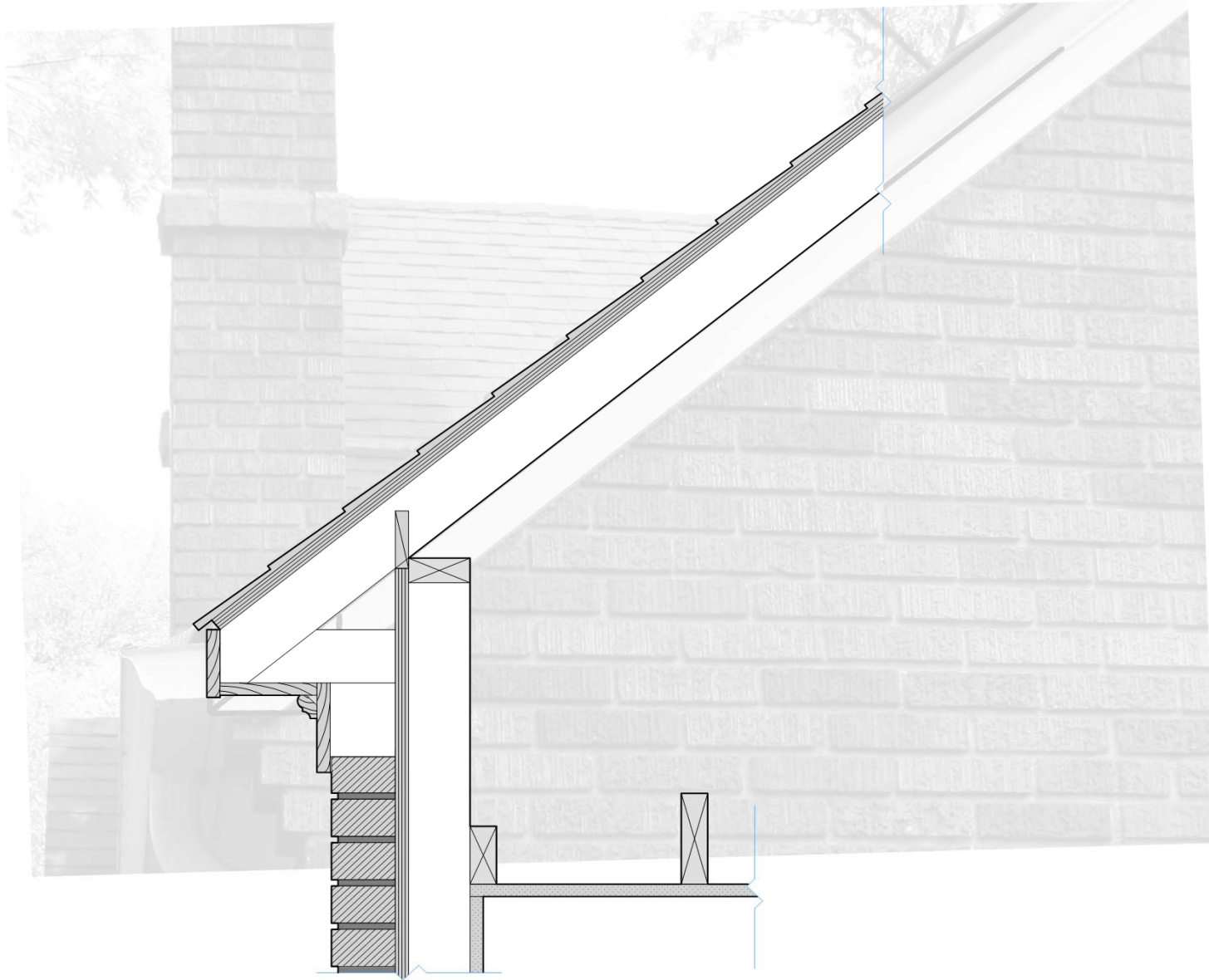




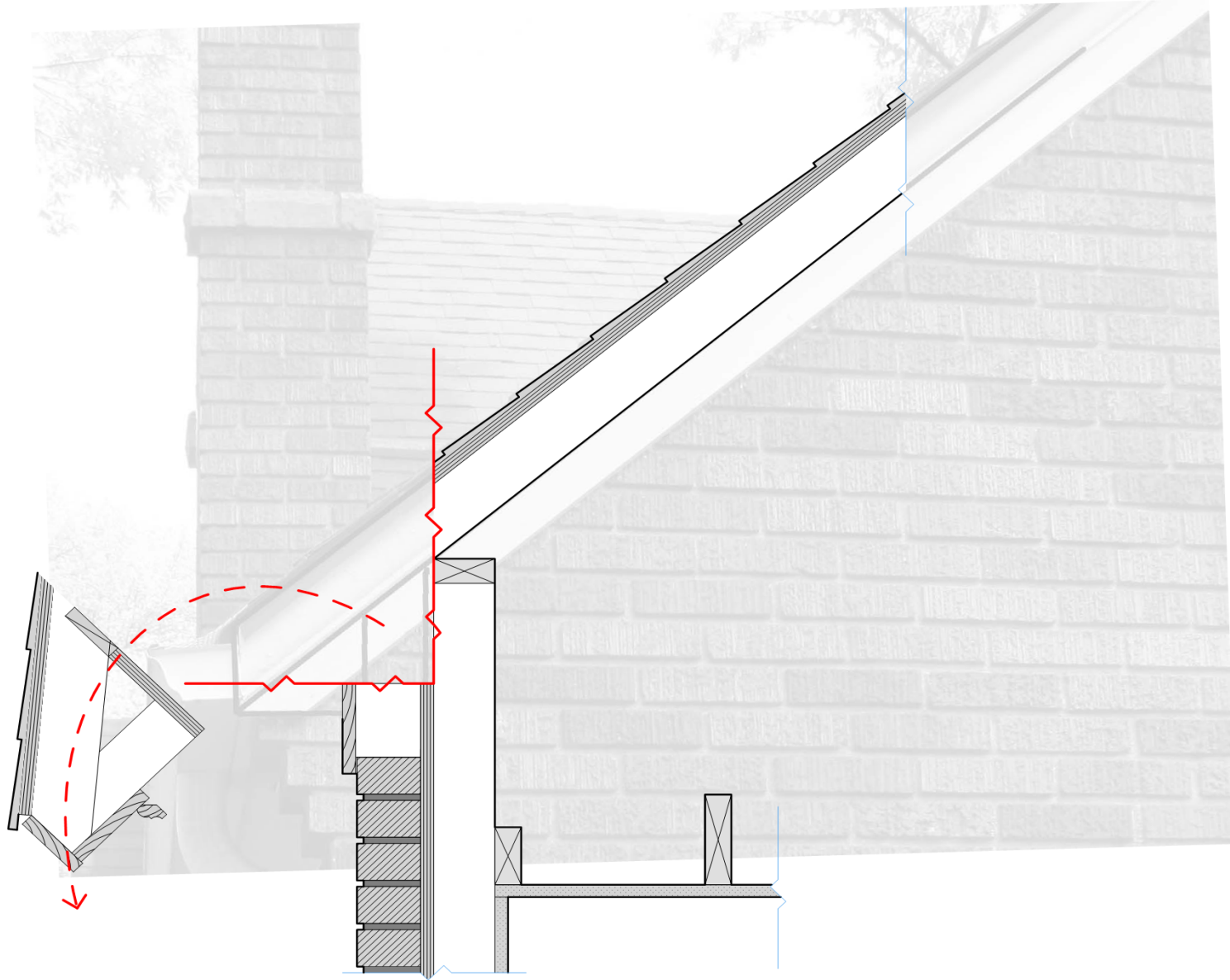
What is an Overlay?



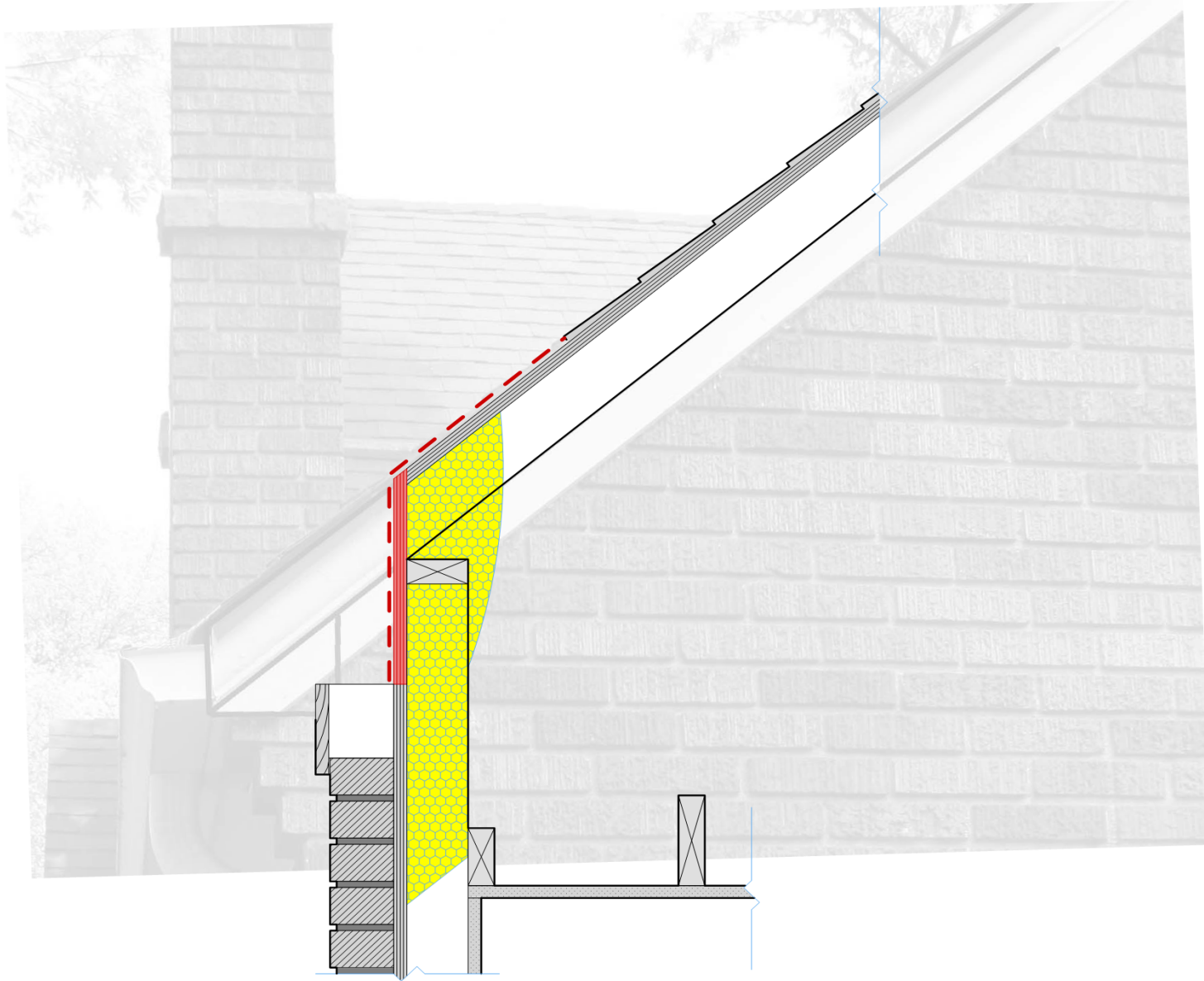
What is an Overlay?



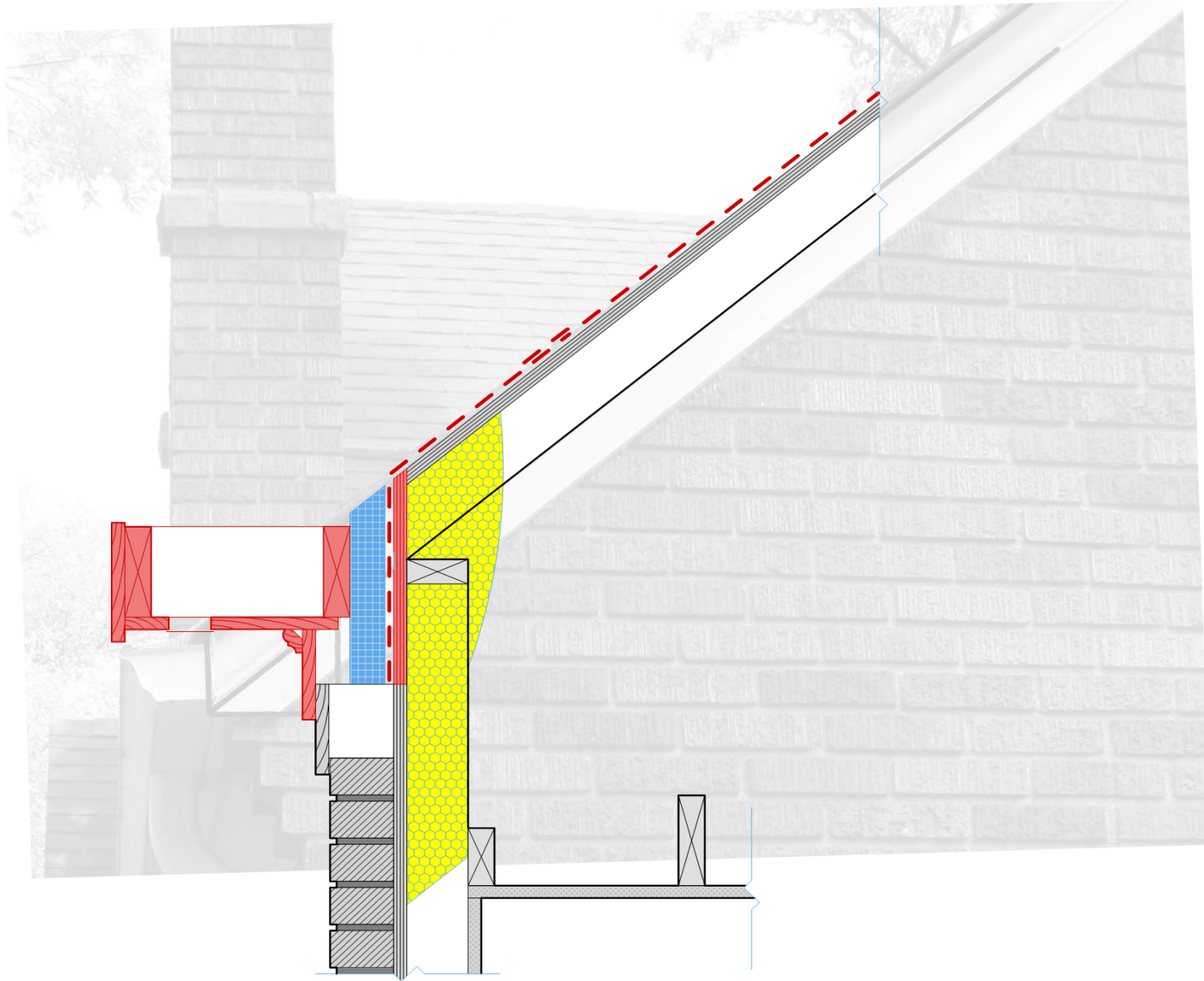
What is an Overlay?



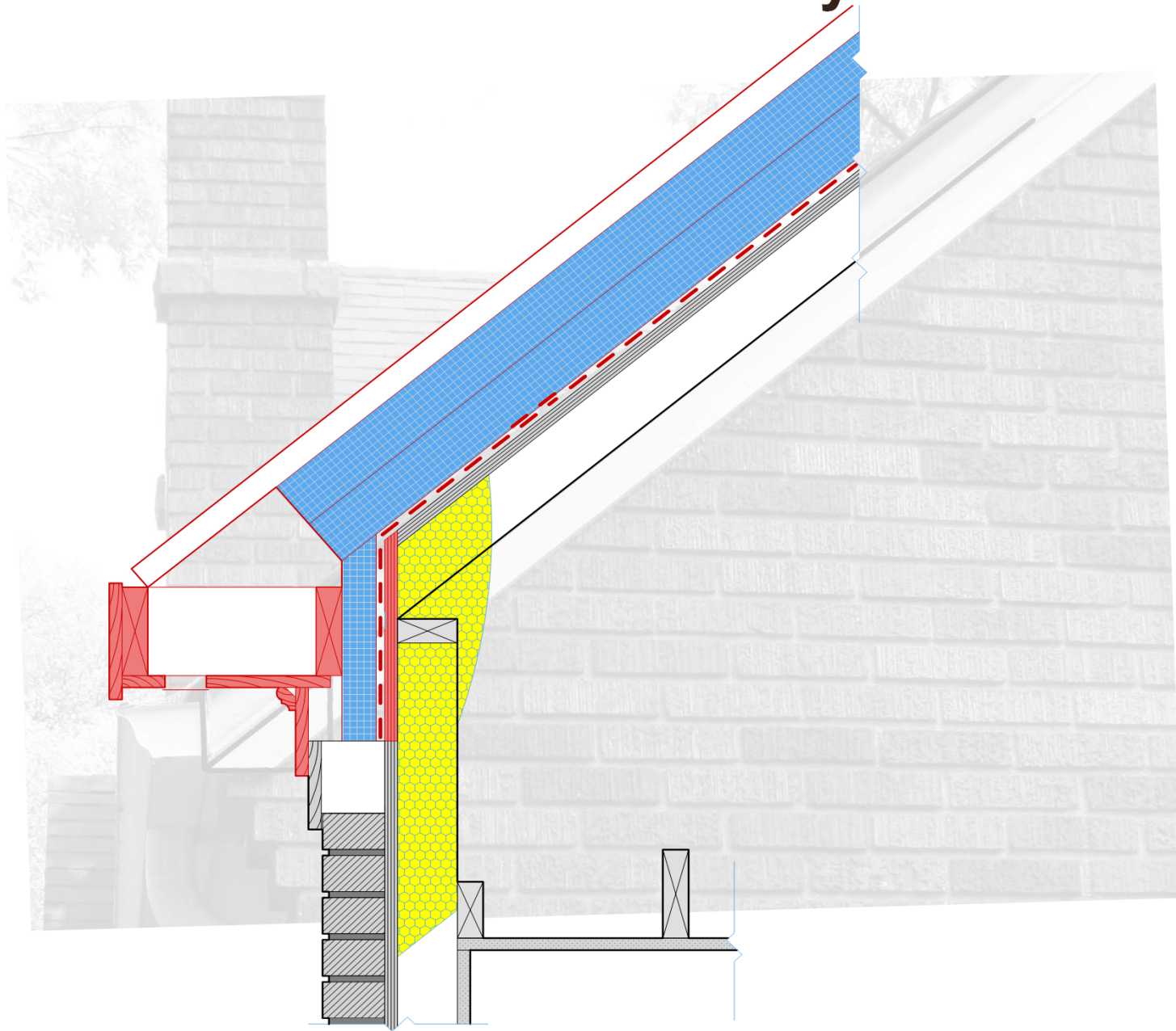
What is an Overlay?



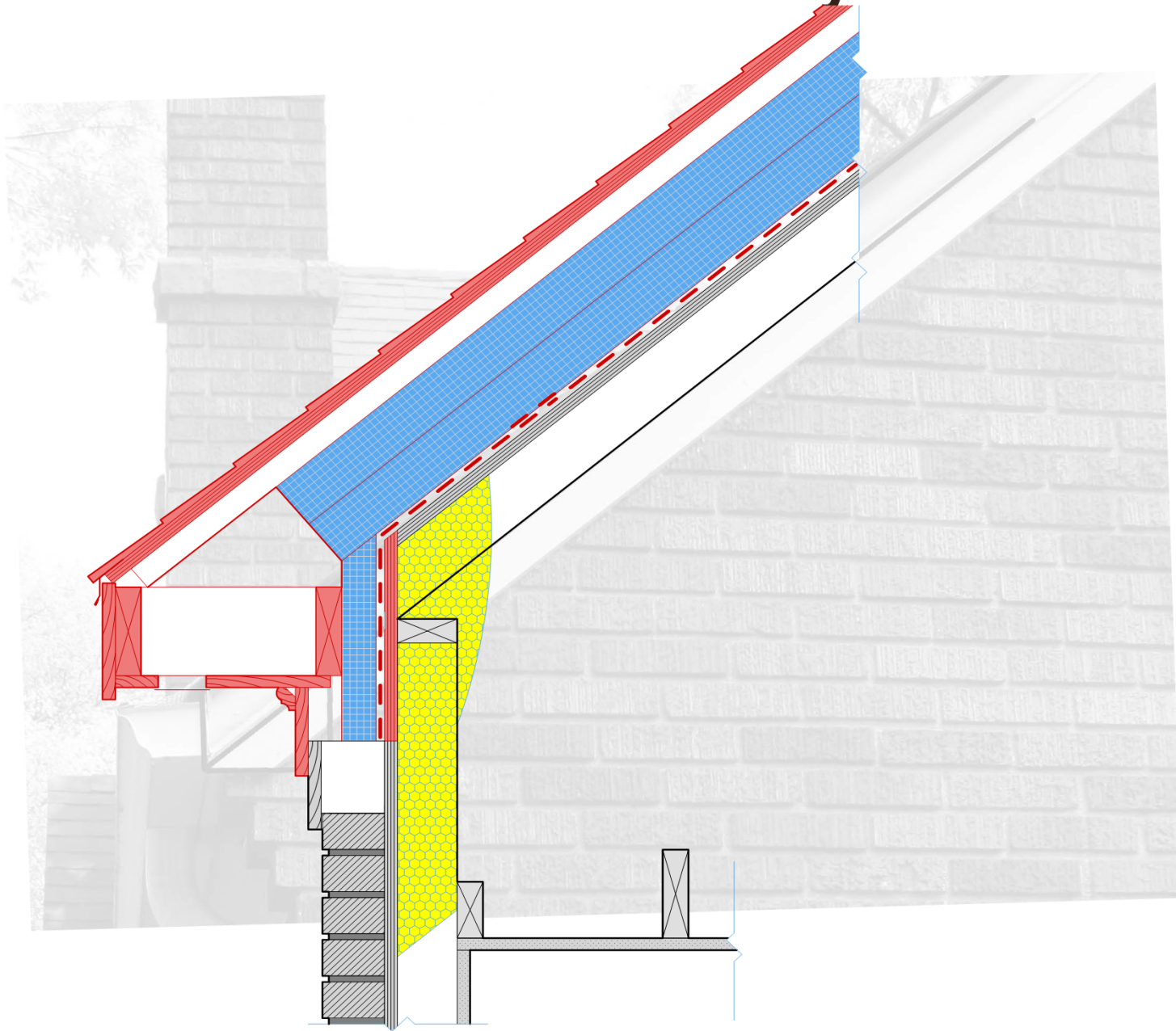
What is an Overlay?



What is an Overlay?



What is an Overlay?



Planning

1. Identify areas affected by elevating roof deck 6"

Planning



Planning



Planning



Planning

1. Identify areas affected by elevating roof deck 6"
2. Eliminate roof penetrations

Planning



Planning

1. Identify areas affected by elevating roof deck 6"
2. Eliminate roof penetrations
3. Sequence Tear off and Dry-in

Remove Existing Attic Insulation



Demo



Demo



Air/Vapor Control



Air/Vapor Control



Air/Vapor Control



Air/Vapor Control



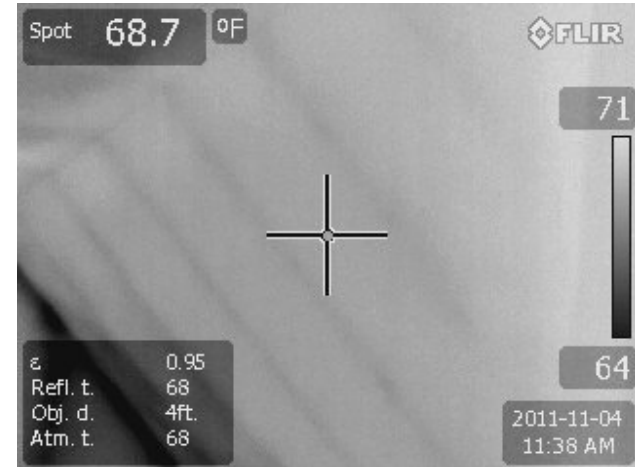
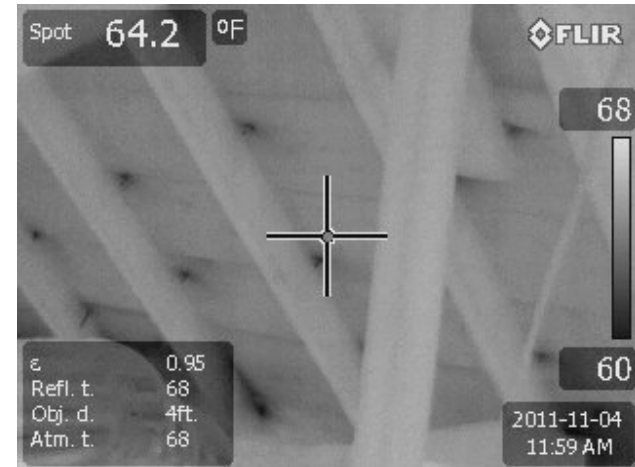
Air/Vapor Control



Air/Vapor Control

Air Test!

Air/Vapor Control



Insulation Details



New Soffit/Eave Detail



New Soffit/Eave Detail



Insulation



Insulation



Insulation



Frame Venting Sleepers



Frame Venting Sleepers



Frame Venting Sleepers



Soffit Venting



Soffit Venting



Soffit Venting



Soffit Venting



Roofing



Roofing



Finished!



Finished!



Results

Overcoat: Case 1

MEASUREMENT	PRE TEST		POST TEST		REDUCTION	
Air Leakage (CFM50)	2371	-	1880	=	491	CFM50
Air Changes (ACH50)	4.93	-	3.9	=	1.0	ACH50

CASE 1



Existing House



Existing House



Existing Upper Level



Existing Insulation



Demo



Demo



Demo



Membrane



Membrane



Membrane



Air Test



Insulation



Air Test Again!



Framing New Soffit/Eave Detail



Framing New Soffit/Eave Detail



Insulation



Insulation



Insulation



Frame Gable Rakes



Frame Gable Rakes



Frame Venting Sleepers



Frame Venting Sleepers



Roofing



Roofing



Finished!



Finished!



Results

Overcoat: Case 2

MEASUREMENT	PRE TEST	POST TEST	REDUCTION	% REDUCTION
Air Leakage (CFM50)	2925 CFM	1289 CFM	1636 CFM	56%
Air Changes (ACH50)	7.02	3.09	3.93 ACH	56%

RESULTS

1. Thermal imaging done in conjunction with blower doors suggests very effective air sealing method
2. Eliminated ice dam formation (as a result of heat loss)
3. Occupants reported significant comfort changes
4. Comparative effectiveness for air leakage is not readily available without knowing percent of leakage from treated surface area
5. Assume equal leakage per square foot of surface area

CANDIDATE FOR OVERLAY

1. Finished attic space
2. House has heat loss performance issues
3. Needs new roof
4. Needs Eave and Cornice work
5. Client can afford it!

THANK YOU!



Steve Schirber
612-787-5716
steve@cocoon-solutions.com

