Analyze Exterior Wall Assembly

Arch 3630

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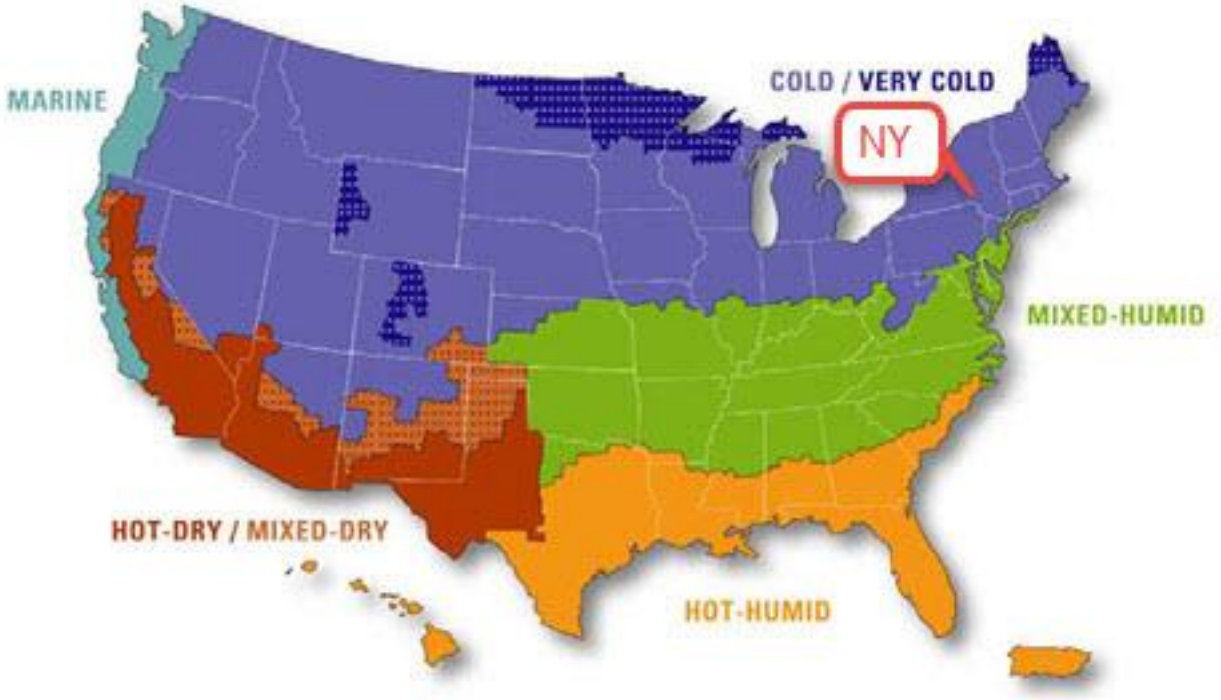
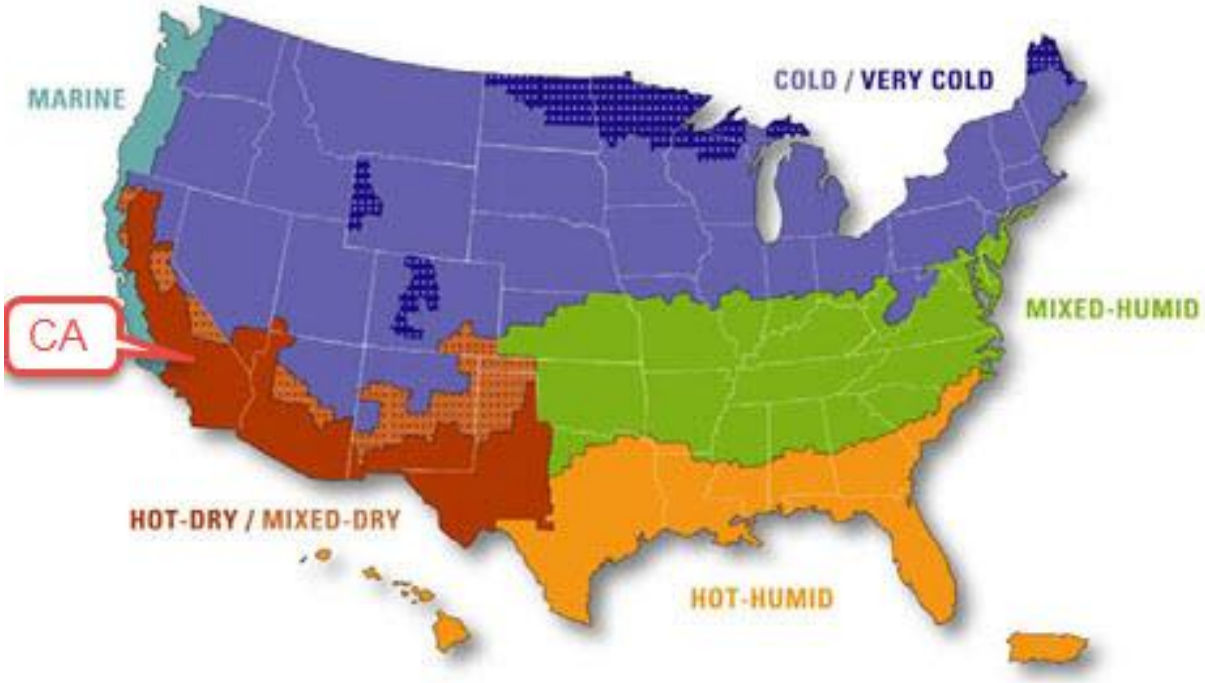
- ***New York Climate*** is generally humid continental and features significant variation over the years. Winter temperatures average below freezing during January and February but near freezing along the Atlantic coastline, while summerlike conditions prevail from June to August statewide. New York is located at cold zone.



Irvine climate is warm during summer when temperatures tend to be in the 70's and cool during winter when temperatures tend to be in the 50's. The warmest month of the year is August with an average maximum temperature of 85.40 degrees Fahrenheit, while the coldest month of the year is December with an average minimum temperature of 40.40 degrees Fahrenheit.



Average Temperature Characteristics of New York

- ***Mean Temperature*** : The average temperature of the air as indicated by a properly exposed thermometer during a given time period, usually a day, month, or year.

New York climatologically information is based on monthly averages for the 30-year period1981-2010.

Month	Mean Temperature °F		Mean Total Rainfall (mm)	Mean Number of Rain Days
	Daily Minimum	Daily Maximum		
Jan	26.9	38.3	92.7	10.4
Feb	28.9	41.6	78.5	9.2
Mar	35.2	49.7	110.7	10.9
Apr	44.8	61.2	114.3	11.5
May	54.0	70.8	106.4	11.1
Jun	63.6	79.3	112.0	11.2
Jul	68.8	84.1	116.8	10.4
Aug	67.8	82.6	112.8	9.5
Sep	60.8	75.2	108.7	8.7
Oct	50.0	63.8	111.8	8.9
Nov	41.6	53.8	102.1	9.6
Dec	32.0	43.0	101.6	10.6

Average Temperature Characteristics of Irvine, CA

Month	Mean Temperature °F		Mean Total Rainfall (mm)	Mean Number of Rain Days
	Daily Minimum	Daily Maximum		
Jan	47.8	68.2	79.2	6.1
Feb	49.3	68.6	96.5	6.4
Mar	51.0	70.2	61.7	5.5
Apr	53.5	72.7	23.1	3.2
May	57.1	74.5	6.6	1.3
Jun	60.3	78.1	2.3	0.6
Jul	63.6	83.1	0.3	0.3
Aug	64.1	84.4	1.0	0.3
Sep	63.1	83.1	6.1	1.0
Oct	58.7	78.5	16.8	2.5
Nov	52.0	72.8	26.4	3.3
Dec	47.5	67.7	59.2	5.2

Average Monthly Temperatures in NYC

For the current weather in NYC, click here.

Month	Maximum / Minimum in Fahrenheit	Maximum / Minimum in Celsius
January	39 / 26	4 / -3
February	40 / 27	5 / -3
March	48 / 34	8 / 1
April	61 / 44	16 / 6
May	71 / 53	21 / 11
June	81 / 63	27 / 17
July	85 / 68	29 / 18
August	83 / 66	28 / 19
September	77 / 60	25 / 16
October	67 / 51	19 / 10
November	54 / 41	12 / 5
December	41 / 30	5 / -1

Irvine, CA Historical Temperature			
Month	Average	Max Average	Min Average
January	57.55°	68.18°	46.85°
February	56.53°	65.63°	47.38°
March	59.48°	68.58°	50.35°
April	62.13°	70.3°	53.92°
May	65.2°	72.15°	58.2°
June	67.87°	74.19°	61.49°
July	71.7°	78.33°	65.02°
August	73.64°	81.2°	66°
September	73.22°	81.52°	64.88°
October	69.18°	78°	60.28°
November	63.13°	72.73°	53.48°
December	56.5°	65.16°	47.8°

- ***Heating Degree Days:*** is a measurement designed to reflect the demand for energy needed to heat a building. It is derived from measurements of outside air temperature.

New York

	2008	2007	2006	2005	2004	2003	2002	2001	2000	Normal
January	1156	1160	1031	1404	1561	1512	1036	1246	1368	1257
February	1114	1275	1040	1061	1162	1262	927	1060	1077	1070
March	955	1027	895	1049	839	950	885	1048	762	889
April	394	622	462	440	486	612	511	522	585	528
May	300	196	232	325	154	253	326	202	209	220
June	17	40	43	6	54	46	51	46	74	42
July		7	0	0	3	0	4	21	14	4
August		25	17	1	25	9	9	0	25	13
September		86	130	58	79	91	69	116	207	124
October		271	500	410	464	519	538	407	456	463
November		816	608	674	764	677	790	607	801	741
December		1146	918	1179	1157	1103	1177	954	1323	1085
TOTAL		6671	5876	6607	6748	7034	6323	6219	6901	6438

- ***Humidity :*** Humidity is the amount of water vapor in the air and indicates the likelihood of precipitation, dew, or fog .

High	Time	Place	Low	Time
81.9	4 am	Albany	56.5	4 pm
82.0	7 am	Binghamton	61.8	4 pm
80.8	4 am	Buffalo	62.4	4 pm
71.1	7 am	New York City, Central Park	53.6	4 pm
76.2	7 am	New York JFK Airport	58.2	1 pm
71.1	4 am	New York La Guardia Airport	54.8	4 pm
82.3	4 am	Rochester	61.0	4 pm
81.9	4 am	Syracuse	60.5	4 pm

- New York

Annual averages for daily high and low relative humidity (%)

High	Time	Place	Low	Time
		Southern California		
66.2	4 am	Bakersfield	38.0	4 pm
79.3	4 am	Long Beach	50.9	1 pm
78.6	4 am	Los Angeles	58.7	1 pm
76.1	4 am	San Diego	57.8	1 pm
79.7	4 am	Santa Barbara	57.7	1 pm
88.0	1 am	Santa Maria	53.8	1 pm
		Northern California		
78.2	4 am	Fresno	40.3	4 pm
82.4	4 am	Sacramento	45.5	4 pm
83.8	4 am	San Francisco	59.4	1 pm
77.9	4 am	Stockton	44.6	4 pm

- Irvine

Temperature Extremes Records of New York

New York: Temperature Extremes

Month	Maximum °F	Year	Place	Minimum °F	Year	Place
Jan.	75	1950	Dansville	–46	1904	Paul Smiths
Feb.	78	1985	Millbrook	–52	1979	Old Forge
March	91	1945	Bedford Hills	–41	1938	Chazy
April	98	1976	New Paltz	–24	1923	North Lake
May	102	1962	Poughkeepsie	10	1903	Paul Smiths
June	105	1919	Indian Lake	21	1909	Nehasane
July	108	1926	Troy	25	1963	Allegheny State Park
Aug.	106	1948	Cairo	20	1909	Indian Lake
Sept.	107	1953	Elmira	15	1947	Roxbury
Oct.	99	1927	Addison	2	1925	Indian Lake
Nov.	87	1950	Elmira	–24	1933	Franklinville
Dec.	77	1998	Islip*	–47	1933	Philadelphia

Temperature Extremes Records of Irvine

Max temp history

Hottest Ever This Month	36.2°	08/02/2009
Hottest This Year	34.4°	18/01/2014
Hottest This Month	30.1°	01/02/2014
Long Term Average	22.8°	
Average This Month	28.8°	
Hottest February On Record	Avg. max. temp. 27.1°	1991

Min temp history

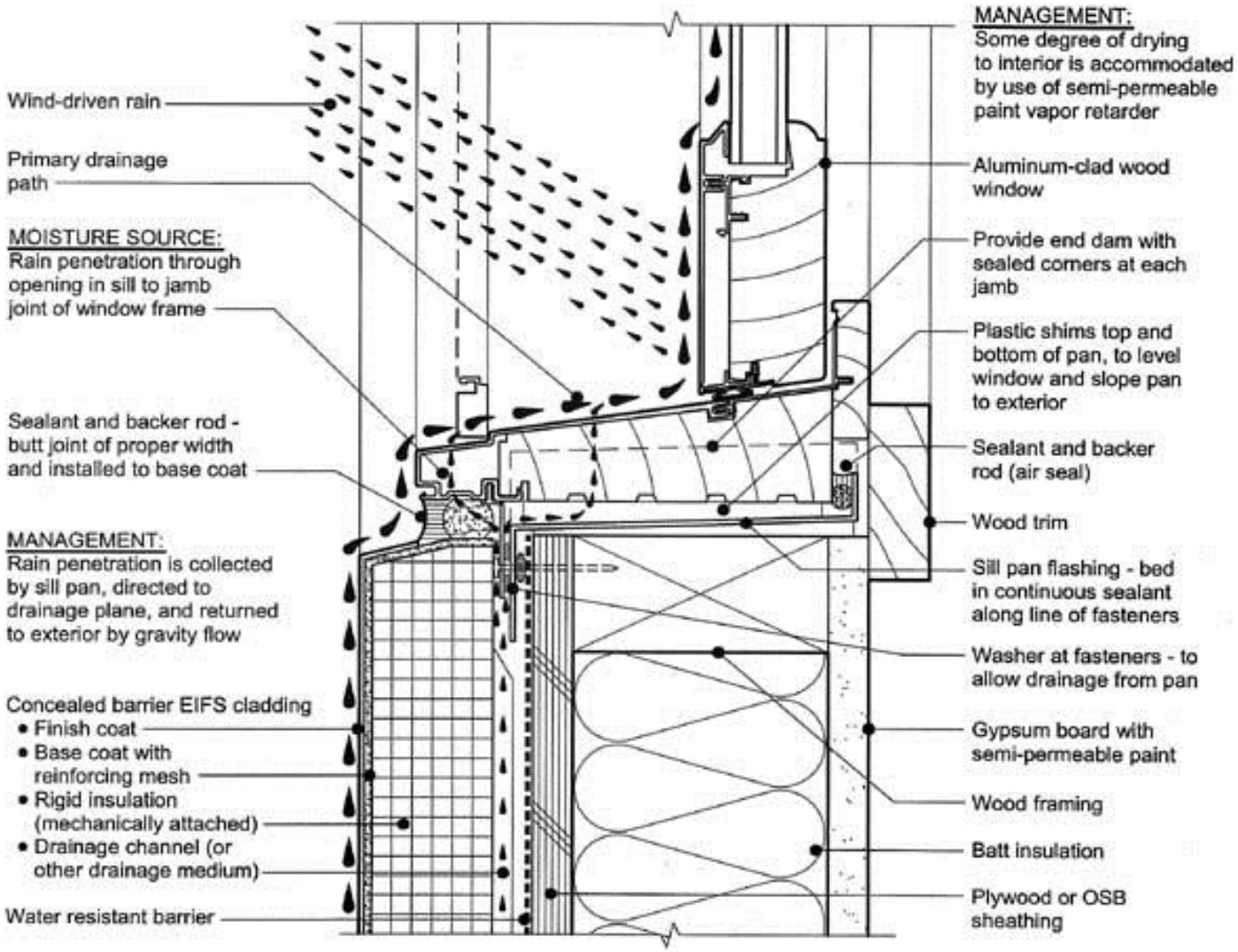
Coldest Ever	-0.7°	24/02/1996
Coldest This Year	9.1°	26/01/2014
Coldest This Month	13.0°	03/02/2014
Long Term Average	13.3°	
Average This Month	14.1°	
Coldest February On Record	Avg. min. temp. 9.9°	1996

- ***Average Precipitation*** **:** Depending on the part of the state, the average yearly rainfall total in New York State is between 30 and 48 inches.

The average yearly rainfall total in ***Irvine*** is 14.38 inches

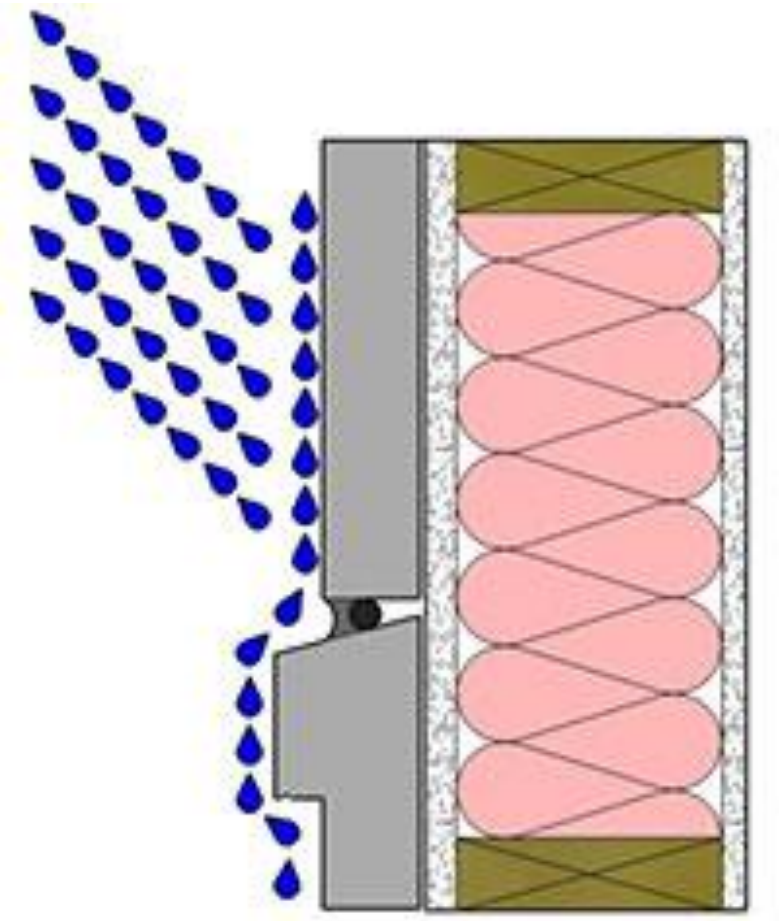
Wall Strategy

- ***Concealed Barrier*** : Is an approach to enclosure rain control that employs a single waterproof barrier to rain penetration. The barrier is not on the exposed face of the assembly but concealed behind the cladding and other material layers, which reduces the amount of rainwater reaching the barrier.

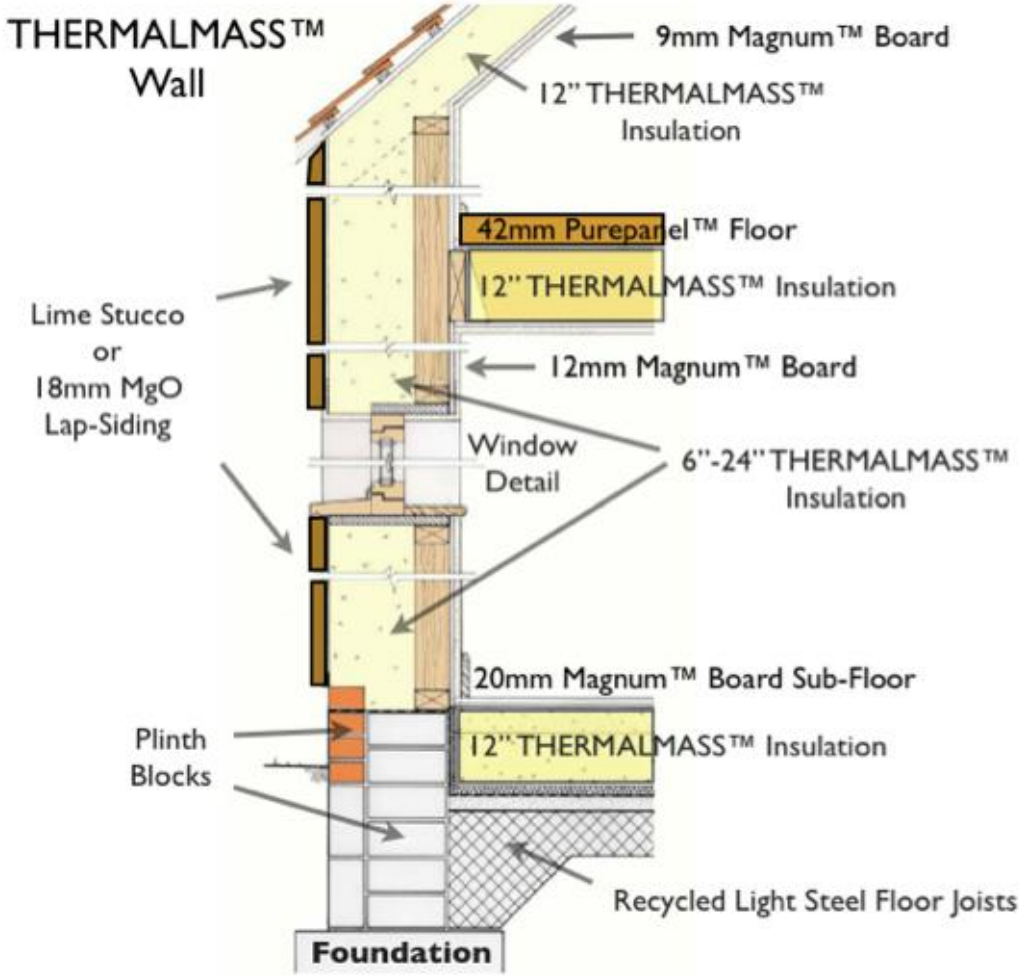


B Water Management at Concealed Barrier EIFS

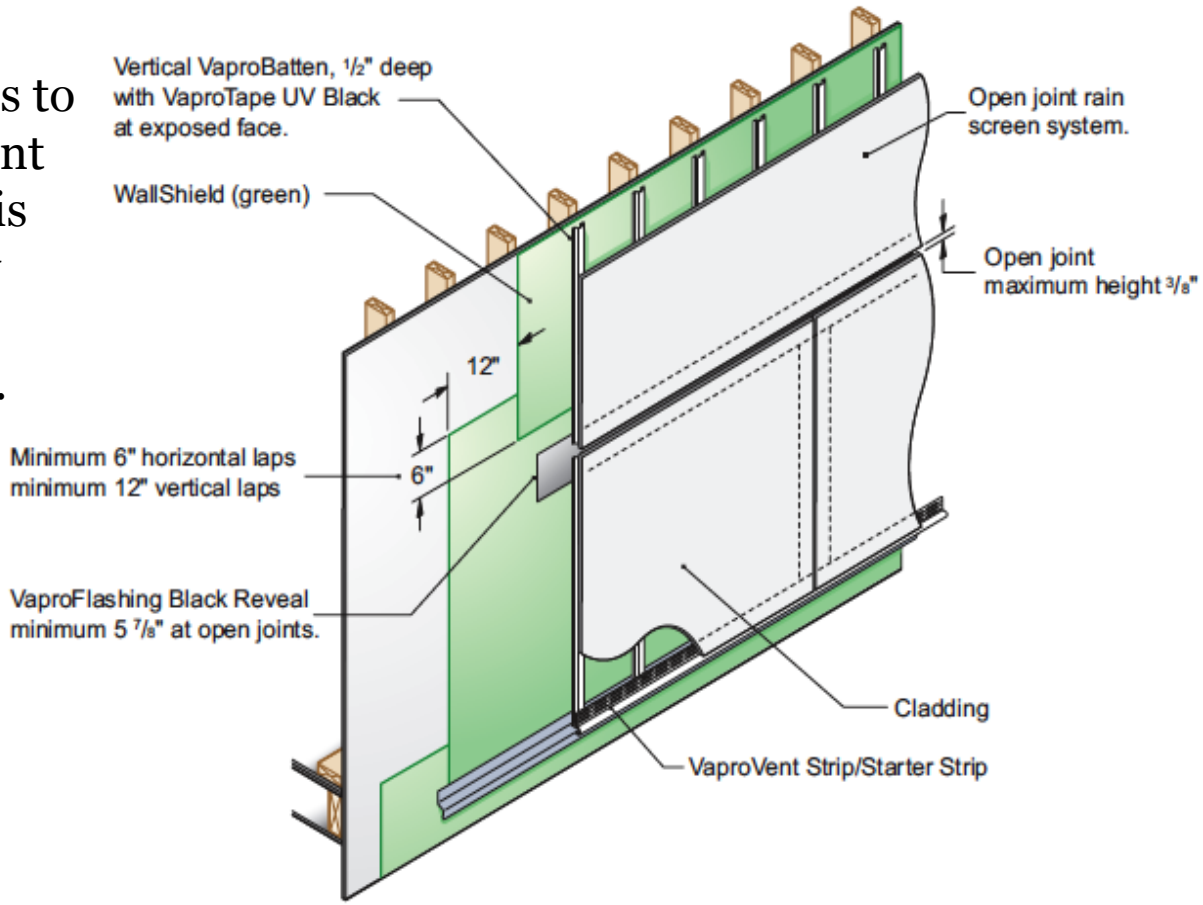
Face seal : A building enclosure rain control strategy that relies on the exterior face of the enclosure to act as a perfect barrier to rain penetration. This method typically relies on exposed sealants to provide rain tight joints, and hence is highly reliant on workmanship and maintenance to achieve performance.



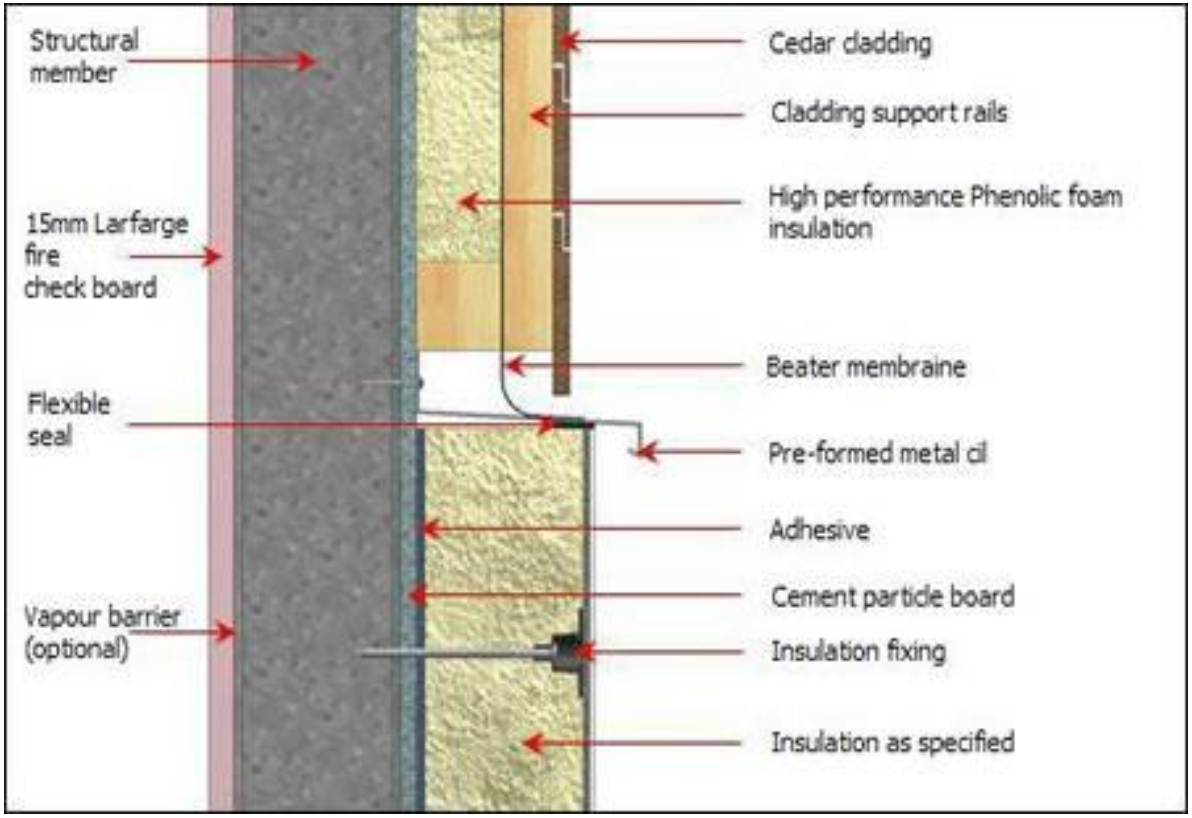
***Mass Wall* :** mass walls define as walls that are made of concrete block, concrete, insulated concrete form, masonry cavity, brick, earth, adobe and solid timber or logs. The insulation must be at least 50% on the exterior or integral to the wall to count.



***Rain screen* :** A rain screen is an exterior cladding infrastructure that sits away from a building's outside wall's weather-resistant barrier, creating an air cavity directly behind the cladding that helps to protect the buildings important weather-resistant barrier. This allows any moisture that may pass by the cladding to easily drain away from the building.



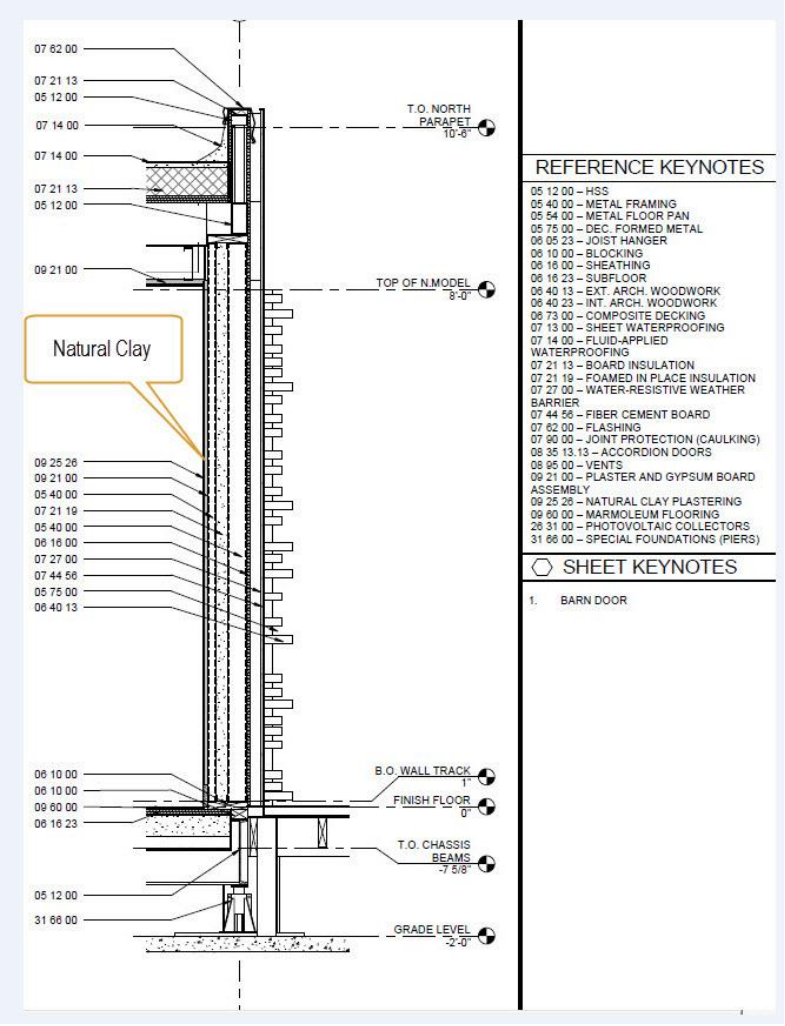
Vapor barrier: The function of a vapor barrier is to retard the migration of water vapor. Where it is located in an assembly and its permeability is a function of climate, the characteristics of the materials that comprise the assembly.



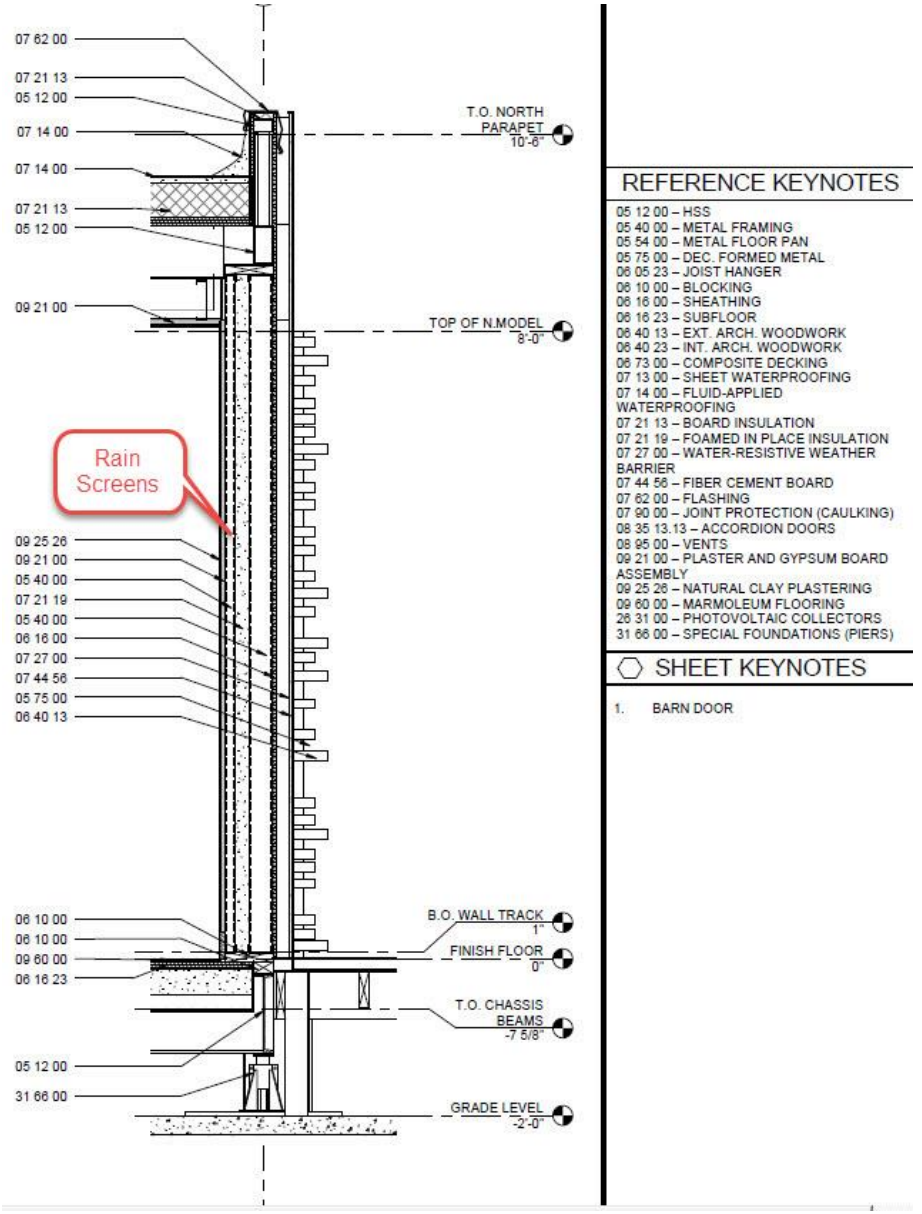
Arizona State University and The University of New Mexico

Wall Strategies

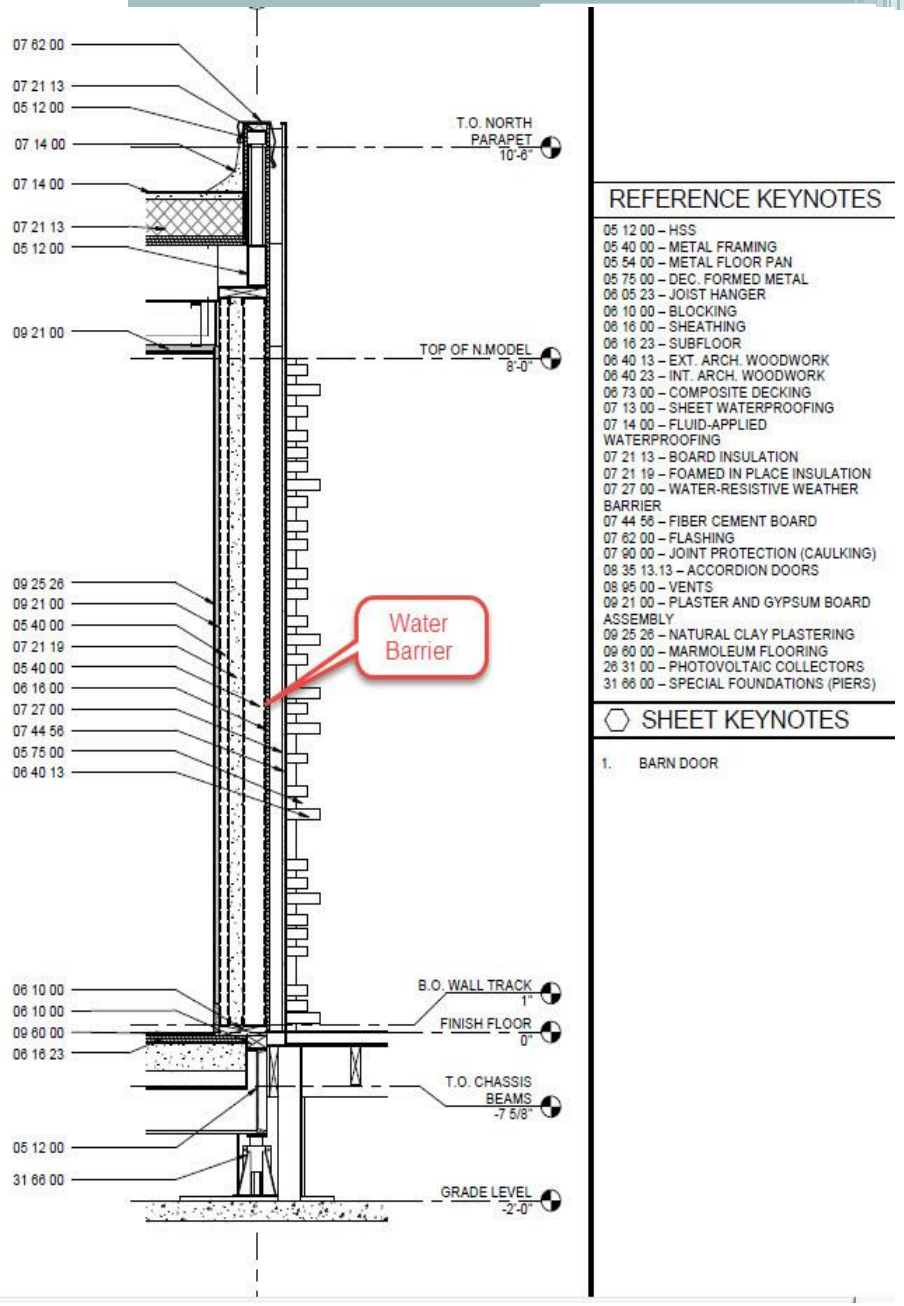
There is natural clay on interior wall that helps to control the humidity.



Rain screens provide a climate barrier.

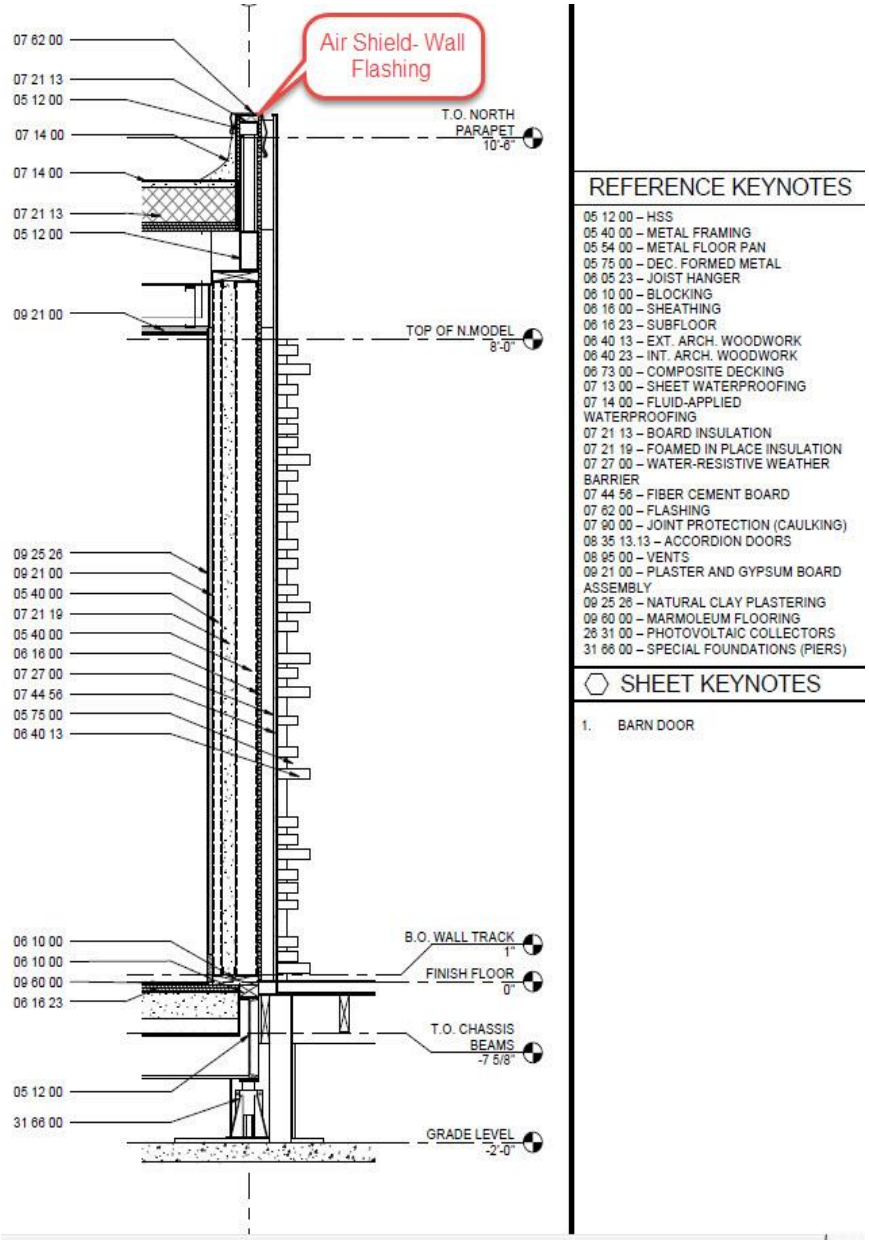


Air barrier : Air will move through the building if there is a pressure difference across the building envelope



Air Movement Prevent

Air Shield – Wall Flashing: A self-adhering, flexible membrane flashing. This material is an air, vapor and liquid moisture barrier. *Air Shield – Wall Flashing* is designed for use as a through wall flashing and damp proofing course.



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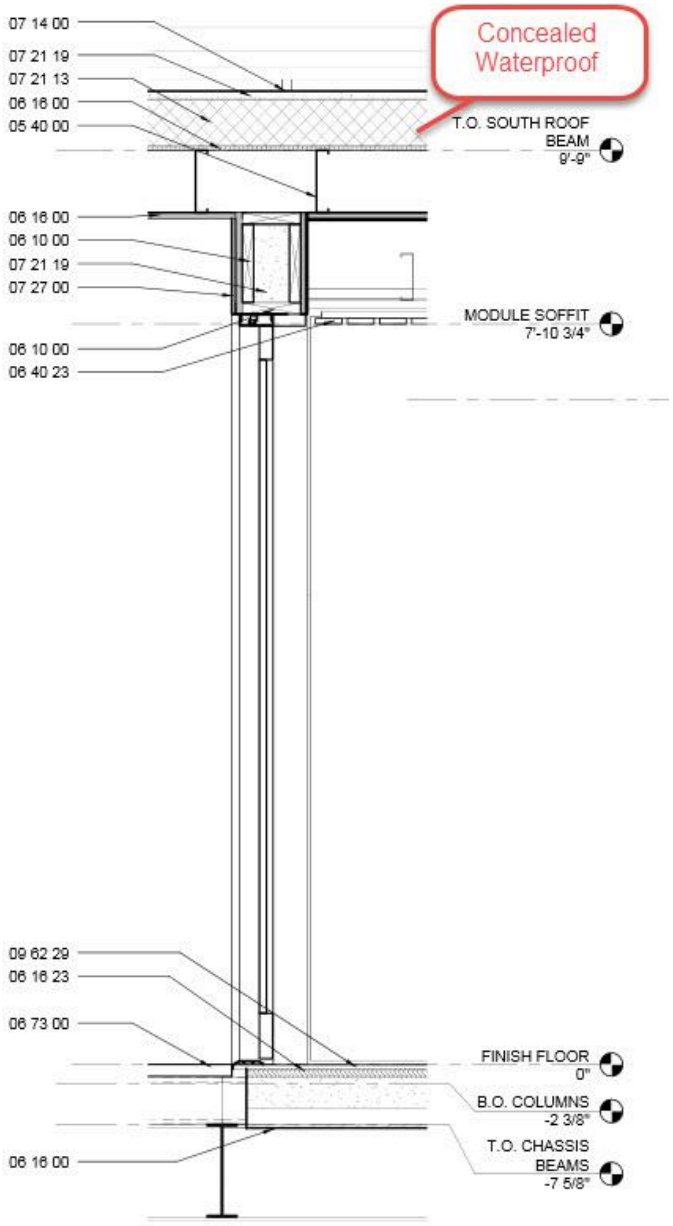

Wall Insulation is a simple and effective tool to increase the comfort and cost efficiency of any building, helping to regulate the internal temperature by restricting the transfer of heat in or out of the building.