

TechTalk



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SMA RELEASES 2024 STUCCO MARKET STUDY

The first SMA Stucco Market Study was in 2016 and was the response to a University of Kentucky report on residential claddings. That report was based on US Census data that showed stucco as a more popular cladding in the south and more specifically in the southwestern US. They could not understand why stucco was more regionally popular and offered the opinion it may be due to climate. The SMA knew that is not the real reason for stucco being popular in the southwestern US. If it was true that stucco could not work in cold climates, how can central Europe be 75% stucco? The 2016 report explained the real reason and the 2024 report goes more in depth on that issue.

The report also covers CI (Continuous Insulation) stucco and how that market is growing faster than expected. CI is considered stucco on framed walls with rigid insulation, typically plastic foam, sheathing. This market will continue to expand and see one-coat become the dominant stucco used on single-family homes. Three-coat stucco can also be used on rigid insulation sheathing, but there is often no need for a scratch coat and the brown coat, with a proprietary mix, and a finish coat can be functional, provide insulation, rain screen drainage and be cost effective. The dominance of one-coat stucco, which is really a two-coat system, is inevitable to dominate.

The 2024 Stucco Study is also the first SMA report where stucco, per the US Census Bureau, is the first SMA report where stucco became the number one primary cladding on new homes in the USA.



The Study is free to the public and can be downloaded from the SMA website (www.stuccomfgassoc.com). Nonmembers are encouraged to join and help support your industry to keep stucco as the favored cladding in America.

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TYPES OF CONSTRUCTION

The building code provisions control the classification of buildings as to the type of construction. The TYPE of construction dictates fire resistance of the structure or it can be looked at as the allowable height and floor size per story. In other words, if a designer wants to go high, the fire-resistance must increase. There are FIVE types as defined in Chapter 6 of the building code. Fire resistivity is paramount to plans examiners and inspectors as it is a life/safety issue.

The Types Construction are Type I, Type II, Type III, Type IV and Type V with requirements listed in Chapter 5 and 6 of the building code. Type I construction requires the highest fire-resistance with Type V having the lowest requirement of fire-resistivity. The fire resistance rating can largely be governed by the structural elements of the building. This is where Chapter 5 ties into the requirements of Chapter 6. Chapter 5 provisions and limitations control the height and area of structures. Chapter 5 also has limits on allowable floor area, occupancy classification based on the type of construction. The requirements for the five types is then sub labeled into A or B categories.

Type I and II construction are classified as “non - combustible” and this type of construction is required for tall buildings. Generally, Type I and II are for structures over 5 floors, considered over 55 feet. NOTE: this limit can vary slightly per municipality. Type III is non-combustible/protected combustible; examples are structures with structural masonry exterior walls or 2 hour rated metal framed walls with an allowance for fire-treated wood framing. Type IIIA requires one-hour protected wooden floors and roofs. Type IIIB removes the restriction of protected floors and roofs. Type IV is for heavy timber structures. Type V is the most commonly used type of construction and limited to 40 or 50 feet in height. Any local code may mandate one-hour fire rated wall assemblies. The Evaluation Service Report for products or systems often include fire ratings. However, you must note the Report may limit systems or products to only Type V construction. Portland cement plaster (stucco) is noncombustible and may be used in all Types of Construction. Adjustments may be made for types of fasteners and their spacing. This is for extreme wind or loads or seismic design.



NON-COMBUSTIBLE: Cement plaster (stucco) is recognized by code authorities as a noncombustible material. Even with a layer of building paper or house wrap, stucco is still considered noncombustible. The 2018 International Building Code (IBC) Section 1402.5 covers Vertical and Lateral flame propagation and was renamed in 2021 as Water-Resistive Barriers. This section essentially states noncombustible construction may contain a combustible water-resistive barrier if tested per NFPA 285.

Then under “Exceptions” the code further explains that exterior walls requiring noncombustible construction and the water-resistive barrier is the only combustible component with a covering of brick, concrete, stone, terra cotta, or stucco with a minimum thickness in accordance with Table 1404.2, the water resistant barrier is exempt from the NFPA testing requirements.

The required thickness for three-coat cement plaster (stucco) is 0.875 (7/8 inch) for framed walls and .0625 (5/8 inch) for concrete/masonry walls. The building codes have historically recognized the fire-resistive properties of cement plaster walls incorporating asphaltic paper since the codes inception. The cement plaster is noncombustible and been used for a century on all type of buildings as a durable cladding providing fire and water resistance. Virtually all tested “assemblies” with stucco over framing that are referenced in the code include asphaltic paper or a felt. The use of gypsum wall board with a combustible face paper is also allowed in Type I construction. The water-resistive barrier may be a synthetic sheet good or fluid applied products without compromising the noncombustible status. Foam plastic sheathing under the cement plaster typically requires additional testing to satisfy building department requirements.

CONTROL JOINTS

Control joints in stucco continue to be a controversial subject. Are they required, is spacing mandated, must lath be discontinuous and should vertically oriented joints pass through horizontal joints? These are all great questions and have complex answers. The SMA has a Tech Times paper with many answers and the Committee is in the process of revising this paper.

One issue that comes up is the concern when the one-piece control joint becomes deformed as shown. ASTM defines a control joint as a joint that accommodates movement of plaster shrinkage and curing along predetermined, usually, straight lines. This condition has little to do with



cement shrinkage and curing and more likely the result of structural movement. Context is important and we should not jump to conclusions from a single picture without knowing the full scope of the issue. However, when this occurs at a floorline, it can often be attributed to compression at the floorline resulting in the vertically oriented joint becoming deformed or twisted out of shape. This is when the fingers start pointing and often the plasterer is blamed. But is it really their fault? One expert suggests that horizontal joints should pass through the vertical joints. However, this could create a water intrusion issue as water that flows freely down the vertical joint would hit the horizontal joint and could be directed laterally and not down and out. What is the answer? The practice of installing a two-piece expansion joint at floor line solves a multitude of potential problems. Shrinkage or compression is handled, water is directed out and the concern of cutting the lath is solved. These two-piece joints cost money and many architects do not like them. They may also not be needed. The plastering contractor is not the structural engineer or architect of record as should not be making that decision. They also should not be blamed for failing to meet an owner's expectations for perfection. This is tricky issue and the SMA tries to help when members need assistance.

SMA TECH COMMITTEE

The SMA Technical Committee has had several virtual meetings so far. They meet on the last Thursday of each month to discuss issues and work on various Tech Times papers. The SMA is inclusive of all members that want to join and participate in this committee. This wide-reaching group has members from all over the United States making the resulting technical papers a collective voice of the industry. To push this further, the SMA committee has opted to reconstitute **the Plaster Council**. This Council was a gathering of all the bureaus and associations involved with cement plaster from across the US and can be considered what is defined as accepted "Industry Practice". No trade needs this more than lath and plastering. Many groups have vanished since the last Council meetings.

Microsoft 365: This is a productivity platform purchased by the SMA to make the Tech Committee truly productive. 365 has a website sharing platform that allows committee members to work on projects as a group and not just during the committee meetings. Documents become collaborative efforts with members all participating at times that suit them best. In addition, the Share Point site has a library for members to deposit studies reports and other research data on the subject matter. This makes it easy and convenient to work on technical paper with all the resources at your fingertips. The program is very new and SMA is still working out some glitches, but it will be the future of collaboration.

Stucco, per US Census Data, is the number one primary cladding on all new homes for the United States. This fact makes stucco a target for competitive claddings as well as plaintiff experts looking for perceived defects in stucco. With so many variables and regional options, we believe the plaster council is needed more than ever. The SMA board thanks all the SMA members for their support and help to make stucco number one. To join the committee, contact the SMA office. An SMA promotional committee will also be under shortly.

TWO LAYERS WRB

The 2021 I codes introduced us to the Energy Code and the three Climate Zones (Dry-B, Moist-A and Marine-C). Starting in 1982 the code required two layers of a water resistive barrier (Grade D paper) when cement plaster was applied over wood-based sheathing.



In 2021, the code added language to initiate the requirement of “rainscreen” for stucco. Rainscreen is a gap that allows for drainage and air flow behind the cladding, ventilation.

The presumption was the second layer of water-resistant barrier was added in 1982 for enhanced water drainage. The late Walt Pruter of the old Plaster Bureau, was instrumental in getting the two-layers grade D paper into the code. He shared his history on how this came about before his retirement.

Mr. Pruter explained that a single layer of 10-minute paper allowed wood sheathing to get damp from the freshly applied scratch coat. This damp plywood often swelled and buckled putting pressure on the uncured “green” cement plaster. This often resulted in excessive cracking. A second layer of grade D paper proved to help keep the plywood drier, it likely helped with water drainage as well. But that was not the main concern in 1982.

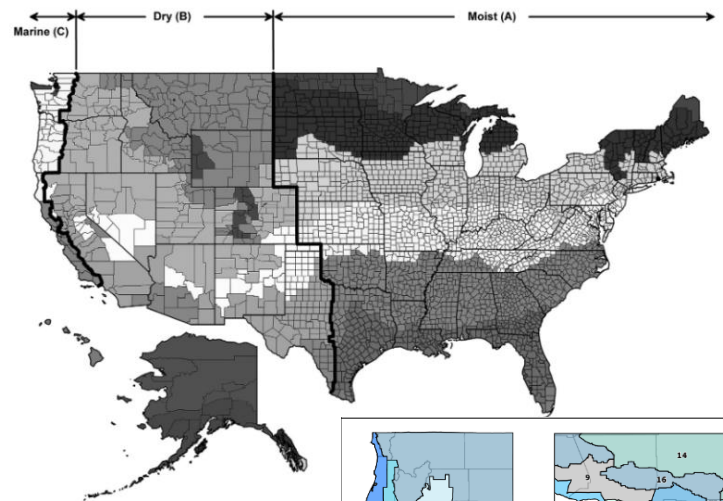
Oak Ridge National Labs (ORNL) in 2002 verified the drainage ability of two layers water-resistive barriers. The space or gap was not needed, but a gap does help to keep wood sheathing drier and can minimize cracking of cement plaster. This makes drain mats a good addition for a stucco assemblies over wood sheathing. The SMA and many building departments familiar with stucco know that two layers of building paper meet the intent of the code requirements for drainage. The real issue is are penetrations flashed properly with a final weep point? California has a long history of proven success with two-layer water-resistant barriers on wood sheathing. **NOTE:** Any system that provides 90% drainage per ASTM E2273 or E2295 is deemed code compliant for Moist and Marine Zones.

CALIFORNIA

The state of California has unique and special instructions. The map below defines Dry, Moist and Marine Zones by county lines. California, who has its own Climate Zone map, that is by Zip code and not county lines. California has moisture regime zones that may not align with International lines. California, similar to International, has two building codes, Residential and Commercial.

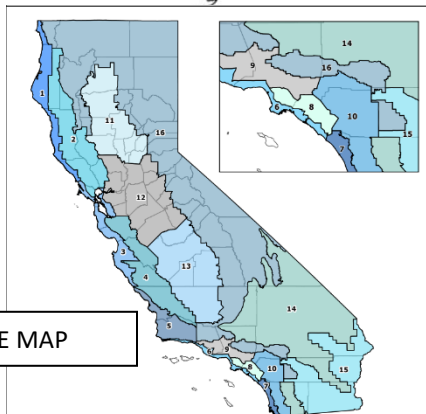
Both International Codes reference Figure (Map) N1101.7. The 2022 California “Residential” Code (Title 24) also references the N1101.7 map. The California code for multi-family and commercial structures in Section 2510.6 instead makes note that the maps for the US and California are different. They explain that *to determine applicability of energy efficiency measures, please refer to Chapter 12 Table 1202.3.1 of the California Energy Code.*

Since section (2510.6) deals with water-resistive barriers “and” foam plastic insulated sheathing. It is possible the footnote placed by the state of California is directing building departments to the California Table when determining foam plastic sheathing issues, and not the water-resistive barrier requirements. Commercial projects should contact local building departments for code clarification.

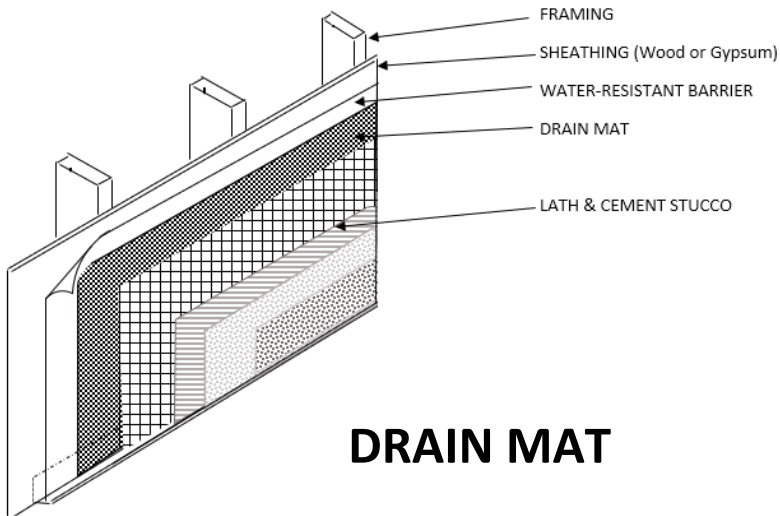


N1101.7 MOISTURE MAP

CALIFORNIA ENERGY CODE MAP



WHAT IS CODE COMPLIANT

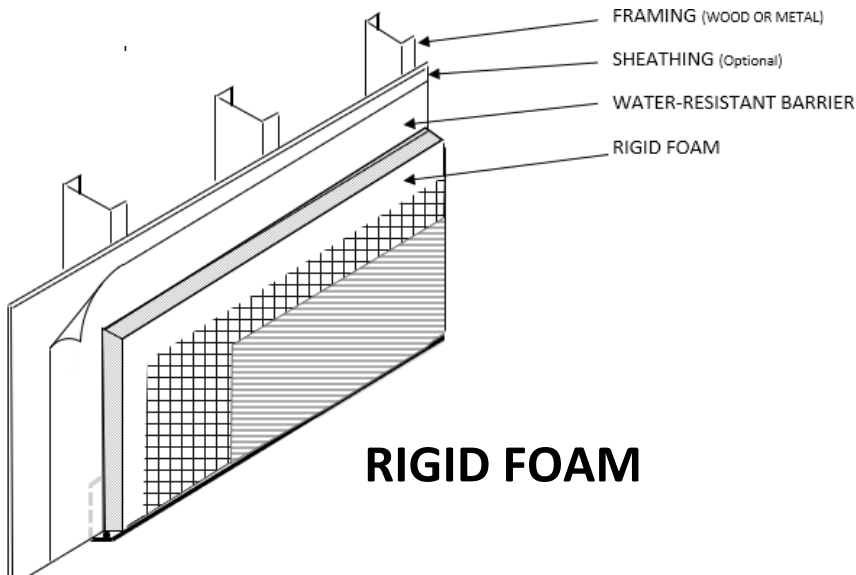


DRAIN MAT

DRAIN MAT: (ALL CLIMATE ZONES)

Water-Resistant Barrier (WRB) may be a fluid applied OR a single layer sheet good product as long as it meets or exceeds 60-minute rating. WRB is covered with a 3/16 drainage mat made for stucco. Thinner drainage mats may be used if they pass ASTM E2273 or E2925 with 90% drainage efficiency. Weep screed flange may be under or over the drainage mat. Fluid applied products must have the joints of sheathing treated per manufacturers recommendations.

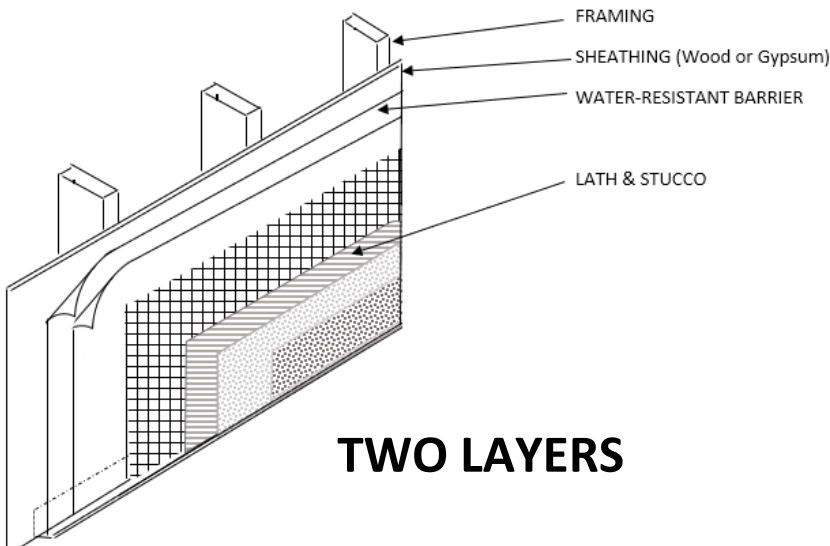
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RIGID FOAM

RIGID FOAM: A single layer WRB (fluid or

sheet good) equal to or exceeding a Grade D 60-minute grade D paper. CLIMATE ZONE B, This WRB may be covered with a flat stock layer of foam. NOTE: One-coat stucco systems must adhere to the manufacturers ESR (Evaluation Report) and typically requires a grooved foam. Grooved foam for drainage over a **single** layer of WRB (fluid or sheet good) product is code compliant in ALL CLIMATE ZONES. Weep screed should be under WRB and the rigid foam. Grooves in the foam need not align to drain effectively. Flat stock foam with any drainage mat or an approved WRB passing ASTM E2273 or E2925 comply for CLIMATE ZONES A and C.



TWO LAYERS

TWO-LAYERS: Two layers 10-minute WRB

is compliant for CLIMATE ZONE B. 3/16 inch drain mat with one layer 60-minute (fluid or sheet) is for CLIMATE ZONES A&C. The code also allows for a single layer 60-minute (fluid or sheet) and space that allows for drainage passing the 90% drainage efficiency of ASTM E2273 or E2925. **SMA COMMENTARY:** WRB layers should lap over the weep screed flange to direct water down and out. Many WRB manufacturers have testing to verify passing the drainage per ASTM test requirements of 90%. The space is less relevant than the effective drainage.

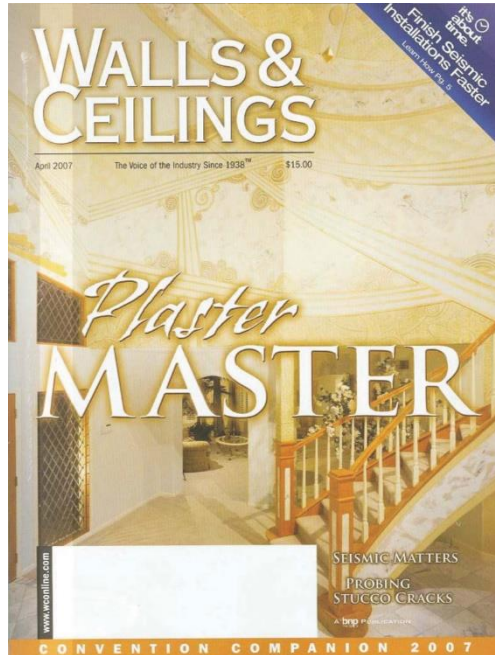
MEMBERSHIP MEETINGS

The SMA met in Texas and Southern California on the code issue of water-resistant barriers for stucco over wood-based sheathings. The SMA plans a live online webinar on the subject in the near future that will be free to all members.



YOUR MEMBERSHIP DUES AT WORK

On December 4, the SMA will be part of a two-day symposium about exterior claddings for architects across the USA and Canada. The SMA will be handling the stucco cladding sessions. This symposium is hosted by BNP media (Walls & Ceilings Magazine). They have the most extensive reach for architectural AIA accreditation classes, which should be a significant event. These classes provide credits to architects and fulfill the continued education required to maintain their AIA license. SMA did this event in 2021 and had over 2000 designers log on. This should be a major event and why SMA board of directors invested in this program to promote stucco and educated architects.



There are other regional associations; some represent plaster only, while others represent other crafts, such as lath and plaster. The SMA is working with many of these groups all over the United States.



The SMA office is open and staffed most regular business hours. The phone number is (714) 473-9579. If we are unavailable, please leave a message and we will call you back at our earliest opportunity. Email is another good option:

Marlene@stuccomfgassoc.com for accounts receivable, SMA training videos and a personalized Silica Exposure Plan

Mark@stuccomfgassoc.com for technical assistance with lath and plaster or other industry related issues.

STUCCO MANUFACTURERS ASSOCIATION is GROWING

The SMA had more contractors join SMA than in any year since SMA introduced the Silica Dust Exposure Plan. This is inspiring to see the plastering industry taking an interest to preserve and promote the use of lath and plaster. While most applicants are from the southwest, there are new members from other states as well. The SMA is unique in that we serve the entire United States and not just one regional area. In addition, the SMA is only focused on lath and plaster.

Lath and plaster is a highly skilled trade with the option of using generic products such as basic asphaltic paper, cement and washed sands. This generic approach allows contractors to pick and choose what products they prefer to best suit their needs on a particular project

The other option is to use a full system approach that can have many other benefits, such as testing, warranties and support from technical experts from that particular manufacturer. With either option, the SMA is here to help you. The dealer and the installer of products related to lath and plaster. Of course we work a lot with designers and building departments on all things related to stucco.