LAVACOAT

Advanced Sustainable Building Protective Coatings

GENERAL INFORMATION

MEZA

What is LAVACOAT

- Contains natural substances ,
- Provides Heat – Water – Sound – Fire insulation in a single product,
- Breathes,
- Lightweight,
- Longer lasting than any other standard insulation material,
- Easy to apply (1 and/or 2 steps).

Is an insulation product that insulates and protects the building or structure with an all natural based product.

GENERAL COMPARISON TO OTHER INSULATION & STUCCO

LAVACOAT	CONVENTIONAL STUCCO	EIFS	
✓			CLASS 1 FIRE RESISTANT
✓			WATER RESISTANT
✓		✓	THERMAL RESISTANT
✓			SOUND RESISTANT
✓			CRACK RESISTANT
✓			CORROSION RESISTANT
✓			MOLD RESISTANT
✓	✓		VAPOR PERMEABLE (BREATHABILITY)
✓			V.O.C. FREE
✓			U.V. REFLECTIVE
✓	✓		RODENT REPELLENT
✓			LOW CARBON FOOTPRINT
✓			LOW WATER CONSUMPTION
✓			LOW LABOR COST
✓		✓	LIGHTWEIGHT
✓			SINGLE COAT APPLICATION
✓			QUICK INSTALLATION
✓	✓		REPAIR FRIENDLY
✓	✓		SPRAY-ON OR HAND-APPLIED
✓			MADE FROM NATURAL AGGREGATES

LAVACOAT ADVANTAGES

*Before and after applying Thermolock the need of plaster and other extra coatings are **NOT** required!*

- LAVACOAT, is quick and easy to repair and recoat
- LAVACOAT, does not create thermal bridges because of its unique binding compound features
- LAVACOAT, has no need to drill or make any holes, therefore increases the resistance of the structure
- Creates and forms a "**FIRE BARRIER**",
- Provides sound insulation,
- Prevents condensation, humidity, mold, moisture,
- Since it is a light product, provides less weight and stress on the building and decreases the dangers in natural disasters,
- Does **NOT CONTAIN** any carcinogenic products,
- Eco-friendly.

When making your decision on which insulation to use, be sure to take a glance at the importance of the product you require. Check the following :

- The products' resistance values,
- The products' thickness and density,
- The products' heat resistance features,
- The sound and water resistance,
- The products' resistance to **FIRE**,
- The products' environmental benefits,
- If the products' is non-carcinogenic,
- The products' life span.

What is as important as **heat, water, sound and heat bridge** is to achieve precise **vapor balance** in wall insulation process,

Products with unresolved vapor balance damages the building and the details which we cannot see after the production through condensation; therefore shortens the building life and bears negative results against natural disasters and other side-effects,

Today we try to prevent heat transmission by means of the strength of insulation plate by insulating the external faces of buildings. However; there is a factor that we ignore. We try to heat and cool the building mass with our energy; and the warm and cool air inside the building and the warm and cool air outside the building cause condensation at the inner face of the insulating plate that we cannot see instantly, but through time. As condensation increases, it converts into vapor and causes negative outcomes such as corrosion on construction materials and weathering on plasters or coatings. When condensation increases, insulation values fall and insulation cannot provide estimated energy saving,

(Construction materials which were to be 2% wet/damp, has a loss of 9% insulation value ***OR,*** *construction materials which are 15% wet/damp has a loss of 60% insulation value.)*

A structure should provide;

- Function,
- Durability (against natural disasters),
- Comfort,
- Aesthetic,
- Economical **features.**

Physical Structure

Heat → Expansion
Heat → Heat transmission

Humidity → Water evaporation

Water → Condensation, ground and rainwater (ground, walls, roof)

Noise → Noise reduction
Noise → Room acoustics

Light → Lighting (natural and artificial)
Light → Solar control and reflectance

- Durability and long lasting
- Fire

** Provides prevention of all negative features caused by the above circumstances.*

On A Structure

- Heat,
- Humidity,
- Water,

Effects should be taken into consideration **ALL TOGETHER.**

Water types that effect structures;

1. Underground Water:

Pressurized effect from underground water levels,

2. Water Accumulated Surfaces:

Subways, terraces on which people walk, bridges, and volumes such as kitchens and bathrooms,

3. Water required as a function of building:

Water tanks, dams, etc,

4. Water That Enters Buildings Due To rain:

Rise of the ground water level due to rain ; detailing depending on meteorological data.

5. Water Leakage:

Due to incorrect detailing or implementation and lack of maintenance and repair,

6.Water That Remain Inside Building Structure's During Construction:

Mineral salts that are carried up to the surface by waters contained in concrete and plasters and left on surfaces when drying,

7. Water Formed Through Condensation:

Dispersion of water formed by sweat and condensation over the structure.

In the event when a constructional component is permeable;

i) Buildings' appearance deteriorates considerably. (Rusting caused by weathering and sweat caused by mineral salts and approach to the surface),

ii) Building ends up damp; and comfort conditions are affected negatively,

iii) Thermal conductivity rises; loss of heat increases,

iv) Water that enters inside the material's structure causes;

- *some materials to dissolve and be washed out, therefore forming a porous structure,*
- *crystallization and expansion in volume through reaction in material's structure,*
- *cracks, if frozen, in low temperatures*,

Therefore, a building/structure loses its strength

- A structure must be permeable in order to offer durability,
- In a structure there is a tight link between reinforcement corrosion and seismic loads.

Main Principles of Insulation

Water insulation;

From the direction of where the water comes from,

Heat insulation;

On the cool side of the structure,

Prevent condensation;

On the warmer side of the structure.

Building Physics Issues Of a Building

Must be discussed under the topics of

Building – user relationship: Providing vital comforts, functionality,

Building – environment relationship: Climatic data, ecology, energy saving,

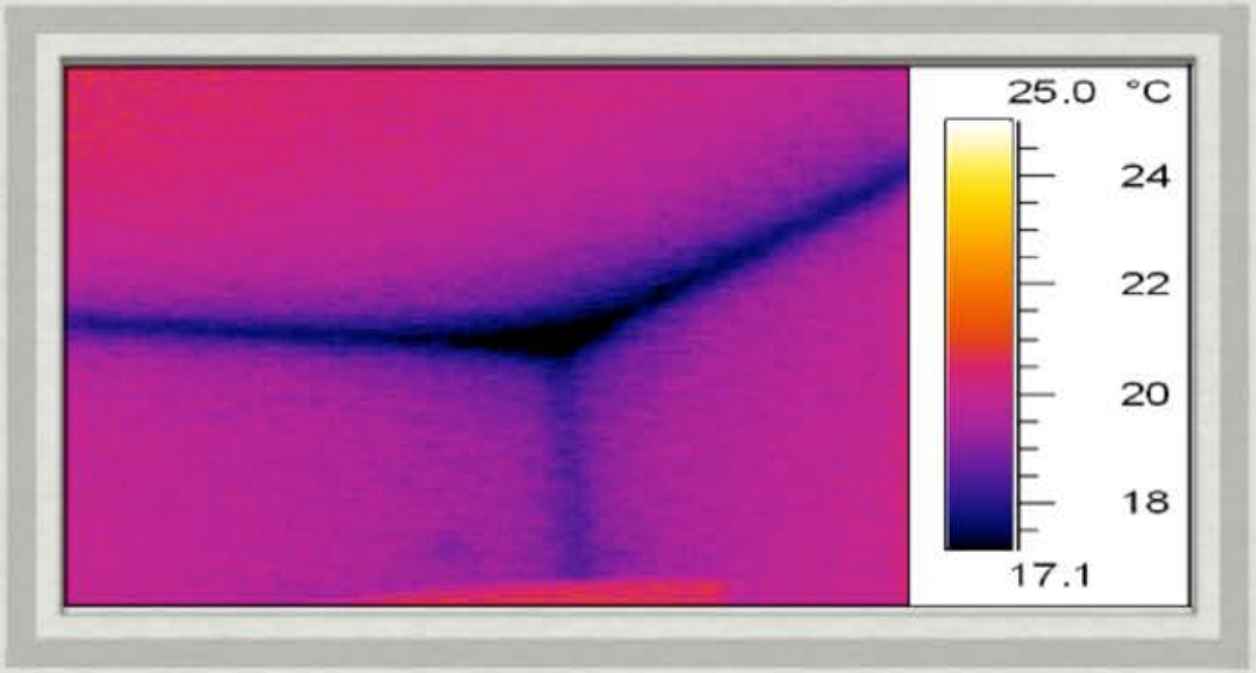
Building's life: Building's durability, minimization of maintenance-repair expenses,

Construction of a building must be in compliance with the rules of building physics and requires additional financial burden; however life comfort and building's durability increases; business costs are minimized; environment is protected and energy is saved,

An external building cover must be formed in order to maintain climatic comfort in living areas that the building must obtain minimum heat in summer, and lose minimum heat in winter,

Heat gain and heat loss in a building are equal. Heat loss must be minimized in order to minimize heating expenses.

Heat Bridges



Building corners form cool bridges due to its geometrical structure. External surfaces that give away heat, are much larger in comparison with internal surfaces that receive heat. In this respect; the heat flow formed bear negative outcomes, and internal surface temperature at corners are lower than the internal surface temperature on other sections of a wall.

Condensation

When air is cooled on condition, absolute humidity does not change, therefore its relative humidity might increase. Air becomes saturated in temperature at the moment when relative humidity reaches 100%. A certain amount of water vapor at any temperature degree below this limit leaves the air. This is because water vapor cannot remain vapor in the air,

This is called *"**condensation**"*,

There are two types of condensation in terms of Building Physics,

- Visible Condensation (Sweat): If condensation occurs on the surface of constructional components, it is called sweat,

- Hidden Condensation (Condensation): If condensation occurs inside constructional components, it is called condensation,

Water vapor disperses by means of diffusion. In this event, there is water pressure differences between top values separated by constructional components, this causes a water vapor flow from higher pressure to a lower pressure,

Water vapor diffusion occurs from inside to outside in heated volumes; and from outside to inside in cooled volumes,

Volumes under different conditions are not compared for their relative humidities. Even if relative humidity reaches 100% externally, partial vapor pressure of internal air is higher than that of external air, that is if internal air temperature is higher,

Diffusion originates from this vapor pressure difference.

Precautions For Sweat Control

- To increase constructional component's thermal strength,
- To increase surface temprature over dew point by additional heat insulation,
- To decrease internal airs' relative humidity,
- To warm up sweating surfaces artificially,
- To avoid heat bridges.

Precautions For Condensation Control

- To place layers that form the constructional component in order to comply with the diffusion technique,
- To avoid placing heat insulation components that trap air layer's to the warmer parts of the constructional component,
- To avoid placing vapor barrier layers in the cool part of the constructional component,
- To decrease internal airs' relative humidity below the critical value *(to be figured out at the end of a diffusion calculation).*

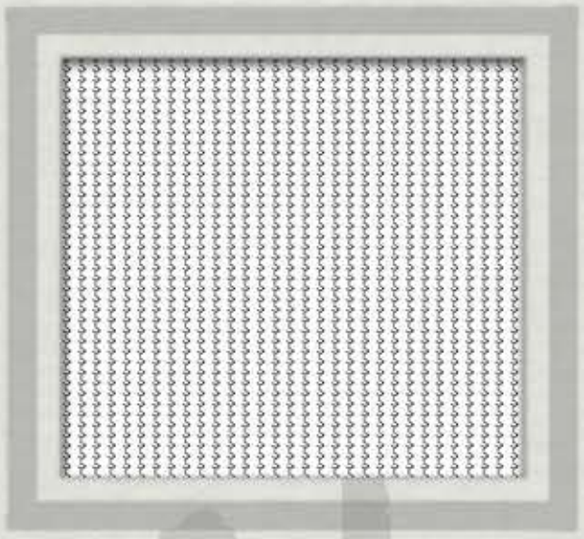
Water Insulation

Before a building is insulated against water, impermeability must be maintained within the constructional component at the joints. Such as using fluidizing additives and chemicals and mineral additives that provide impermeability during concrete and mortar manufacture,

In the event of that these precautions end up inadequate, surface water insulation materials are used additionally,

LAVACOAT provides WATER INSULATION :

It is not required to use an additional product for positive-direction water insulation due to the special water-pushing (hydro-phobic effect) structure and capillary water absorption coefficient of Lavacoat products.



Fire Insulation

Increases the resistance of constructional components against heat and flames for about 1 hour to 4 hours.
LAVACOAT functions as a fire barrier and protects buildings and structures. LAVACOAT has an A1 non combustibility, and non-flammability feature in compliance to fire regulations. It can resist up to 1000 °C (+) (1830 (+) °F) fire and heat; **NO POISONOUS GASES OR FUMES** are emitted; thus providing life security;

Implementations performed in buildings for the purpose of minimizing material losses that may occur as a consequence of fires, is called fire insulation. Since the majority of materials used in houses and workplaces are flammable, fire risks are high. Fire insulation minimizes damage;

Fire insulation delays the dispersion of the very high temperature and smoke emerging from the fire. It provides opportunities and time to leave the building safely before the building collapses. It helps to decrease life and material loss in safety areas formed inside buildings.

General Characteristics

LAVACOAT provides SOUND INSULATION:
Special structures of Thermostucco products provide sound insulation. They provide comfortable mediums for places where silence is a significant concept such as in houses, hotels and hospitals, etc,

LAVACOAT has a BREATHING feature:
Its natural and inorganic structure has a high-level vapor permeability; and it maintains insulation through preventing condensation. Since it does not hold moisture in the structure, it offers an absolute solution for **SWEAT**, **RUST, and CORROSSION,**

LAVACOAT has a LIGHT Structure:
Thermostucco Products decreases the load applied on buildings and structures with its density of 300-350 kg/m³ (19-21 lb/ft3),

LAVACOAT is a HEALTHY and an ECO-FRIENDLY product:
Lavacoat Products do not contain features that threaten human health with its' structure made from natural products. Thermostucco forms a healthy living area preventing formations such as moist, rust and fungi.