

Efflorescence

*What it is: A chalky substance that can be found on concrete, brick, or other porous building material. If you try to wipe the substance or rub it between your fingers, it will turn into powder. It is typically white, yellow or brown.

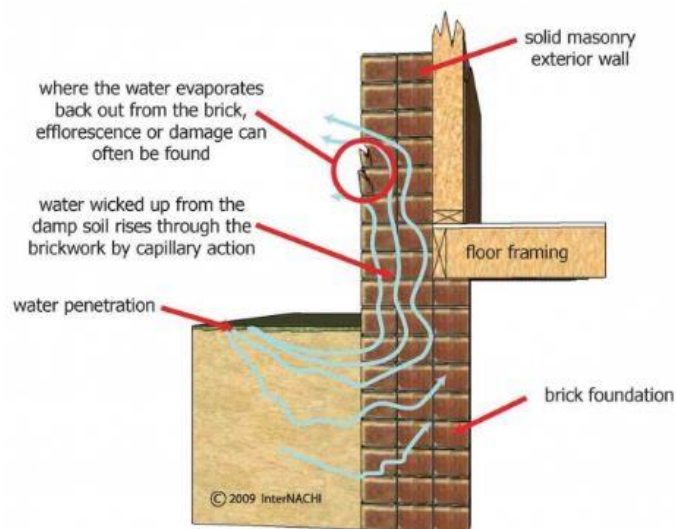
The powder is the dissolved salts that have been deposited onto a surface after the water that transported it there has evaporated.

*How it forms: Many building materials such as brick, concrete, wood and mortar all have various amounts of salt in them as well as the ground they are installed on. That is the first ingredient. The second is water, which is in both the ground as well as the environment, such as rain water. The third is a porous material that will allow the dissolved salt to travel through.

Using capillary action, the water and dissolved salts travel up, through both the ground and any porous material. Capillary action is the process of liquid flowing through a narrow space without the assistance of, or even in opposition to, any external forces such as gravity. A tree's roots use capillary action to transport water through its roots. The same method is used when the water carrying dissolved salts move through the ground and then, in turn, through porous material to reach to surface. The water then dissolves, leaving the chalky salt behind.

*The dangers of efflorescence: It causes no health concerns for people or pets. However, the presence of it should alert the homeowner of potential problems. As the capillary flow continues, the salt concentration increases and creates an imbalance. Nature will try to correct this imbalance through osmosis. To re-establish equilibrium through osmosis, water rushes toward the salt deposit to dilute the deposit. This water movement can create hydrostatic pressures within the porous materials. That pressure can exceed the strength of building materials, including concrete, causing it to crack and break.

Damage to Masonry Wall Caused by Rising Moisture



*How to prevent it: Use hydrophobic sealers should be applied to a surface to prevent the intrusion of water and prevent it from absorbing and traveling through the material. Using grout admixtures as well as paying close attention when adding water to grout is another preventative measure. Install capillary breaks, such as polyethylene sheeting, between the soil and building materials.

*How to remove it: Pressurized water can remove efflorescence, but note that the water must be wiped off and the area dried after procedure to ensure efflorescence does not start to occur from the cleaning. At times, a strong-bristled brush can wipe efflorescence off. A diluted muriatic acid can dissolve the efflorescence. Water should be applied first to prevent discoloration of the building material. After the application, baking soda can be used to neutralize the acid. Diluted vinegar is another method used to remove the efflorescence.

