GLOW IN THE DARK PAINT

WATERBORNE PHOTO LUMINESCENT COATING

GD-100

Glow in the dark Photo Luminescent Coating is the solution to several safety and evacuation problems that are not answered by other means. For example, 1) If power fails and there is no emergency lighting, or 2) The emergency lighting does not work, or 3) Smoke obscures the emergency lights.

The application of Glow in the dark as visual directional indicators at ground level can help ensure a safe, orderly evacuation caused by lack of visibility and dis-orientation in smoke conditions.

Glow in the dark absorbs and stores light energy from natural and artificial lighting, then emits this energy as a bright glow in total darkness. This glow diminishes with time, but is visible to eyes adapted to darkness for 8 to 10 hours or more. When the energy from Glow in the dark is diminished it only takes about 10 minutes of light to fully recharge the film. However, Glow in the dark can store a considerable amount of light in just a few minutes of exposure. The intensity of the coating reduces at about the same rate as the human eye adapts to the darkness.

Evacuation of a building can be necessary for several reasons, i.e. fire alarm or an actual breakout of fire, blackout, power failure, public emergency, and most evacuations are carried out in daylight or with artificial lighting. This does not necessarily present a problem if the occupants have undertaken regular practice evacuations. However, evacuation of a building in darkness or smoke is another matter, often quite difficult and frequently hazardous.

When a fire is present, a more critical situation exists, because smoke greatly reduces visibility, even if emergency or normal lighting is operating. Walking speed is very much dependent on visibility, which is affected by the amount of available light and by smoke in the air. Fires thick smoke rises to the ceiling, forming a layer of smoke beneath the ceiling. The lights or emergency lamps are now covered in a blanket of smoke which greatly diminishes the ability to see. The only visibility left exists on the bottom layer of a room. For this reason, the major elements in a luminous system are always installed either on the floor or on the walls directly above the skirting boards.

Glow in the dark makes visible essential objects - floors, walls, stairs, signs, equipment etc. - to create an escape route and guidance system. Glow in the dark differs from reflective materials (road signs, car licensee plates) which glow only when light is applied or fluorescent materials which amplify light and increase brightness in certain inks and paints.

The object of a Photo Luminescent system is to provide for every occupant in every part of a building - an easy to follow glow in the dark Glow in the dark route that will guide them to safety. A secondary objective is to make it possible to locate and operate essential equipment such as fire extinguishers, alarms, telephones, valves and switches, and to complete essential tasks.

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Below are examples of where Glow in the dark is applied in a building

1 When lights fail, a person in an internal room can see the exit and door with sign door handle area.
2 The passage wall has a luminous band.
3 In the main passage, a band and arrows show the direction of an exit. A fire extinguisher is identified with a sign and panel. The exit door is surrounded by a luminous band (non exit door unmarked). In the stairwell, bands illuminate stairs, a floor arrow gives direction. At ground level, an exit marked with an arrow, surround the sign.
4 A luminous exit route plan shows the nearest exit and alternative route.
5 In the basement car parking floor direction stripes are used - columns are marked for orientation.
6 An often used ladder to machinery area is luminous; a stripe leads to the main route, the hazardous area is marked off.
7 In the control room, light panels over controls enable a technician to shut down the plant.

A totally safe evacuation system can only be achieved if:

* The illumination, signs and symbols are not dependent upon any mechanical device.
* The system does not rely on the assistance of safety coordinators who may not be present when the need occurs - nor dependent upon the trained responses of the building's occupants.
* The system is functional under any conditions, including heavy smoke.

The major benefits of luminous systems are:

* They make possible the safe, orderly and speedy evacuation of buildings in blackout conditions.
* They require no wiring, no maintenance, and are unaffected by heat and cold, explosion to a great degree, vandalism.
* They are simple and economical to install in any buildings, and especially suitable for existing buildings.
* Provided they have been exposed to normal lighting levels prior to a blackout, they are incapable of failure.
* They function even in heavy smoke that would obscure electrically operated systems (unless these are installed near floor level).

The use of photo luminescent materials, although not yet fully introduced into codes and standards, if properly applied, can be more effective than emergency lighting in terms of costs, maintenance and as an aid to evacuation.