A Lightweight Concrete Canopy（LCC）

Background and Field of the Invention

This invention relates to a Lightweight Concrete Canopy use to unit to unit over an opening in door and window and other particularly but not exclusively, to a Lightweight Concrete Canopy.

Traditionally, constructional canopy made of concrete are cast in situ or replaced it with steel panel or aluminium but this is expensive and time/labours consuming. The concrete canopy can be precast but they are very heavy to transport and difficult to install. Although use of steel or aluminium canopy, can be save time and light, but because of materiel too easy to rusty or too expensive. This might mean it is already cannot to keep in pace with this era of rapid growth. So, to solve those problems, we have invented LIGHTWEIGHT CONCRETE CANOPY.

Major properties of the LIGHTWEIGHT CONCRETE CANOPY are superior to the concrete and STEEL OR ALUMINIUM CANOPY, it combines their advantages. The reason lies in its lightweight, easy installation, support for industrial or residence building production, excellent bond force with other building materials, crack and water leakage phenomenon is not easy to happen and to using environmentally friendly materials.

#1 aerated lightweight concrete are made from flyash and slag and added gas foaming. The panel surface its high strength concrete role is to protect its internal aerated lightweight concrete that it can achieve the any thickness or any shape of canopy.

#2 steel member. its role in the structure force, can transfer activities loads and wind loads efficiently, which performs connection function between the building structures.

#3 Steel Mesh. Its function is to improve bonding properties between lightweight concrete and steel member, and strengthen tensile properties of lightweight concrete.

#4 Joint mortar. Its function is to joint concrete and aerated lightweight concrete, get more strengthen of canopy. As a whole. Prevent water seepage.

Summary of the Invention

The present invention incorporates a steel structure encased in lightweight concrete.
The invention comprises:
(1) An aerated lightweight concrete outer layer made from fly-ash and slag and added gas foam to make panel as lightweight.
(2) A steel member inner layer to give structural support and efficient transfer of live loads

and wind loads and to provide needed connection surface between the canopy and RC.

(3) A steel mesh strengthen tensile properties of canopy panel.

(4) Fibreglass mesh between outer lightweight concrete and inner steel member layer to give added bonding between the lightweight concrete and steel member and strengthen the tensile properties of the lightweight concrete.

(5) Fire-resistant materials.

Advantages of the Invention

The invention brings together benefits of steel and aerated lightweight concrete in one composite product.

The advantages of this invention are;

(1) The new product is sustainable and environmentally friendly as the aerated lightweight concrete are made from recycled material.

(2) The outer lightweight concrete encasing the inner steel member, can be a finished canopy by itself or if other finishes is needed, provides a good base for other material.

(3) The canopy panel is able to bond with the structure and other materiel

(4) The inner steel member, being encased in lightweight concrete, is protected while at the same time provides the structural support for the canopy panel.

(5) The outer lightweight concrete friendly with steel member, improved wall fire, waterproof and sound transmission.

(6) The whole assembly is lightweight to enable ease of transport and installation.

Brief Description of the Drawings

An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings in which.

Figure 1 is an end view of a lightweight concrete canopy according to a preferred embodiment of the present invention;

And Figure 2 shows internal structure of Figure 1 and structural design and easy to connation and install of present invention;

Figure 3 shows a plan view of a variation of the preferred embodiment of Figure 1 which is adapted to connect to building of a different dimension.

Detailed Description of the Preferred Embodiment

LIGHTWEIGHT CONCRETE CANOPY mainly used for the connection above door or window at external building wall, reflecting the stability of the building wall and systematic and integrity.

Figure 1 shows the section of the invention illustrating the installation method of the invention as a lightweight concrete canopy support by vertical wall above door or window or any art of architectural modelling ("RC") beam 100.

The groove line (106) between vertical wall and lightweight concrete canopy use install water stop materiel or flexible materiel improve wall waterproof performance. As surface shape concave (107) is canopy near edge to prevent water from top along panel below through to indoor. The lightweight concrete canopy fix that joint should be use NS mortar (110) and backed rod and sealant (106) bond together.

Figure 2 shows internal structure of Figure 1 and structural design and excellent fire rated of present invention; Present invention utilizes lightweight concrete as the surface layer (103), the steel mesh (102) is used as the transmit structural forces, lightweight concrete (103) use as the improved wall fire, waterproof and sound transmission and lightweight. Steel mesh cage (102) can be insure lightweight concrete (103) according to the design. Steel L bracket support (101) use for steel structure member (105) transfer load from canopy there is no deformation. The steel L bracket (101) and steel structure member (105) use bolt or weld joint together.

Figure 3 shows a plan view of a variation of the preferred embodiment of Figure 1 which is adapted to support building units of a different dimension.

CLAIMS

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(1) The lightweight concrete a core, support by steel mesh and steel structure member.

(2) A lightweight concrete canopy according to claim 1, wherein the deformation is formed on profile.

(3) A lightweight concrete canopy according to claim 1 and 2 wherein deformation concrete or lightweight concrete.

(4) A lightweight concrete canopy according to claim 1 wherein any dimensions.

(5) A lightweight concrete canopy according to claim 1 wherein any PPVC components.

(6) A lightweight concrete canopy to claim 1, wherein the any lightweight materiel fill in concrete casing.