COMPOSITE RCC/FERROCEMENT GRID SLAB

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ABSTRACT
A RCC/FERROCEMENT grid slab wherein the grid beams are made up of hollow circular cross sections of preferably mild steel and hollow slabs are repared by using foreign material like HDPE balls/pods and concrete. The said grid slab has strength, impermeability, light weight, good appearance, reversal load carrying capacity, more moment carrying capacity, more shearing capacity, ductility and can be used for large column free area. The skeletal steel can also be used for beams and slabs in the form of alternate triangular trough, trapezoidal trough, rectangular trough, corrugated trough in both the directions of the slab.
The said grid slab which provides fast construction, economical and cost effective along with impartibility and can also be used for residential buildings, public buildings, raft foundations, water tanks, retaining walls etc.

INVENTION:

Present invention provides the novel method of a composite RCC/FERROCEMENT grid slab wherein the grid beams are made up of hollow circular cross sections of preferably mild steel and hollow slabs are prepared by using foreign material like HDPE balls/pods and concrete. The said grid slab have strength, impermeability, light weight, good appearance, reversal load carrying capacity, more moment carrying capacity, more shearing capacity, ductility and can be used for large column free area. The skeletal steel can also be used for beams and slabs in the form of alternate triangular trough, trapezoidal trough, rectangular trough, corrugated trough in both the directions of the slab.

The said grid slab which provides fast construction, economical and cost effective along with impartibility and can also be used for residential buildings, public buildings, raft foundations, water tanks, retaining walls, etc.

OBJETIVES

Principal object of the invention is to provide the novel method of composite grid slab wherein the grid beams are made up of hollow circular cross sections of preferably mild steel and hollow slabs are prepared by using foreign material like HDPE balls/pods and concrete.

Another object of the invention is that the said grid slab have strength, impermeability, light weight, good appearance, reversal load carrying capacity, more moment carrying capacity, more shearing capacity, ductility and can be used for large column free area.

Still another object of the invention is that In RCC or ferrocement the slab is doubly reinforced.

Still another object of the invention is that the skeletal steel can also be used for beams and slabs in the form of alternate triangular trough, trapezoidal trough, rectangular trough, corrugated trough in both the directions of the slab.

Still another object of the invention is that the said grid slab which provides fast construction, economical and cost effective along with impartibility and can also be used for residential buildings, public buildings, raft foundations, water tanks, retaining walls, etc.

DETAILED DESCRIPTION

Grid floor systems consisting of beams spaced at regular intervals in perpendicular directions, monolithic with slab. They are generally employed for architectural reasons for large rooms such as auditoriums, vestibules, theatre halls, show rooms of shops where column free space is often the main requirement.

Present invention provides the novel method of a composite RCC/FERROCEMENT grid slab wherein the grid beams are made up of hollow circular cross sections of preferably mild steel and hollow slabs are prepared by using foreign material like HDPE balls/pods and concrete. The said grid slab have strength, impermeability, light weight, good appearance, reversal load carrying capacity, more moment carrying capacity, more shearing capacity, ductility and can be used for large column free area. The skeletal steel can also be used for beams and slabs in the form of alternate

triangular trough, trapezoidal trough, rectangular trough, corrugated trough in both the directions of the slab.

The said grid slab which provides fast construction, economical and cost effective along with impartibility and can also be used for residential buildings, public buildings, raft foundations, water tanks, retaining walls, etc.

An embodiment of the invention is shown in Fig 1 to 5. Fig 1 shows the grid slab wherein the number (1) shows the slab portion which is a RCC or ferrocement with or without skeletal steel. In RCC or ferrocement the slab is doubly reinforced. The skeletal steel can also be used for beams and slabs in the form of alternate triangular trough, trapezoidal trough, rectangular trough, corrugated trough in both the directions of the slab. In fig. (1) the number (2) shows the beam with or without skeletal steel.

Fig (2) to (5) shows the various pipes fitting of mild steel material and pipe.

Fig. (2) Shows the "+" pipe fitting to connect the pipes on all the four sides, whereas the fig (3) shows the "L" pipe fitting which connects the pipes at the comers and fig. (4) Shows the "T "pipe fitting which connects three pipes at "T" junctions. Fig. (5) Shows the pipe cross section.

Fig. (6) shows the HDPE/recycled plastic balls.

ADVANTAGES

1. Large column free area
2. Economical and cost effective
3. Fast construction
4. Light weight
5. More impermeable
6. More strength
7. More load carrying capacity
8. Good appearance/ aesthetic view
9. Applicable for RCC and ferrocement.
10. Skeletal steel in alternate forms provides more ductility.
11. More load carrying capacity.
12. More moment carrying capacity.

13. More shearing capacity.
14. Reversal load carrying capacity.
15. Reduced deflections.

CONCLUSION

According to main embodiment of the invention there is provided the method of a composite RCC/FERROCEMENT grid slab wherein the grid beams are made up of hollow circular cross sections of preferably mild steel and hollow slabs are prepared by using foreign material like HDPE balls/pods and concrete. The said grid slab have strength, impermeability, light weight, good appearance, reversal load carrying capacity, more moment carrying capacity, more shearing capacity, ductility, **good sound and thermal insulation property, less shrinkage, less creep** and can be used for large column free area. The skeletal steel can also be used for beams and slabs in the form of alternate triangular trough, trapezoidal trough, rectangular trough, corrugated trough in both the directions of the slab.

The said grid slab which provides fast construction, economical and cost effective along with impartibility and can also be used for residential buildings, public buildings, raft foundations, water tanks, retaining walls, **cavity walls, shear wall,** etc.

REFERENCES

Sidramappa Shivashankar Dharane , Saikiran Sidramappa Dharane & Siddhi Sidramappa Dharane, Patent Application Number 202021045037 dated 16/10/2020