Summary

According to a first aspect of the present invention, there is provided a floor system positionable on a floor surface. In one example embodiment the system comprises at least one distribution plate comprising a distribution plate surface supported in spaced relation above the floor surface on a plurality of first support elements. A plurality of base units are positionable in spaced relation to one another on the floor surface thereby defining a plurality of channels therebetween. Each of the base units comprises a base plate supported in spaced relation above the floor surface on a plurality of second support elements. At least a portion of the base units are positioned adjacent to the at least one distribution plate. A plurality of channel covers are positioned overlying the plurality of channels. The channel covers are supported by adjacent ones of the base units. A plurality of corner covers overlie a space formed where at least two of the channels intersect one another. The corner covers are supported by adjacent ones of the base units. The at least one distribution plate has a greater surface area than any one of the base units, the channel covers and the corner covers.

In an example embodiment at least one of the first support elements comprises a pin engaged with the at least one distribution plate. By way of further example, each one of the first support elements comprises a pin engaged with the at least one distribution plate. In an example embodiment, the pin comprises a nipple extending from one end thereof, the nipple engaging a hole in the at least one distribution plate. In a particular example, the nipple is threaded and the hole is threaded. Further by way of example, the pin comprises a threaded hole positioned at one end, the threaded hole receiving a threaded fastener extending through a hole in the at least one distribution plate for attaching the pin thereto.

An example system may further comprise a foundation plate attached to the plurality of first support elements in spaced relation to the distribution plate. The foundation plate is positionable on the floor surface. Further by way of example, at least one of the first support elements comprises a pin attached to the foundation plate. In another example, each one of the first support elements comprises a pin attached to the

An example floor system may further comprise at least one radio frequency transmitter positioned within one of the base units, one of the channel covers or one of the corner covers.

An example floor system may further comprise a cable management boot for supporting a plurality of cables. In an example embodiment, the boot comprises a duct having an entrance opening and an exit opening oriented transversely to the entrance opening. The duct comprises a back wall having a first edge positioned at the entrance opening and a second edge positioned at the exit opening. The back wall defines a path between the entrance opening and the exit opening. A front wall is positioned in spaced relation to the back wall. The front wall has a first edge positioned at the entrance opening and cooperating with said first edge of said back wall to define said entrance opening the entrance opening. The front wall further comprises a second edge positioned in spaced relation to the second edge of the back wall. The second edges of the front and back walls define the exit opening. In an example system the boot may be positioned adjacent to the at least one distribution plate.

According to a second aspect of the present invention, there is provided a floor system positionable on a floor surface. In an example embodiment the system comprises a plurality of base units positionable in spaced relation to one another on the floor surface thereby defining a plurality of channels therebetween. Each base unit comprises a base plate supported in spaced relation above the floor surface on a plurality of support elements. The system also comprises an under plate underlying said base plate, said under plate being larger than said base plate; an electrically insulating substrate positioned between said underplate and said base plate. A plurality of channel covers are positioned overlying the plurality of channels. The channel covers are supported by adjacent ones of the base units. A plurality of corner covers overlie a space formed where at least two of the channels intersect one another. The corner covers are supported by adjacent ones of the base units. For at least one of the base units, the support elements comprise a plurality of pins engaged with the base plate and projecting transversely thereto.

In an example embodiment the pins are distributed in spaced apart relation across the base plate. Further by way of example, at least one of the pins comprises a nipple

electrical conductor connecting the second set of electrical contacts to the first set of electrical contacts.

In another example embodiment at least one terminal box is associated with one of the base units. The at least one terminal box comprises a container, a first set of electrical contacts positioned within the container, a second set of electrical contacts and an electrical conductor connecting the second set of electrical contacts to the first set of electrical contacts.

By way of example, the floor system may further comprise at least one radio frequency transmitter positioned within one of the base units. Further by way of example, at least one distribution plate comprising a distribution plate surface is supported in spaced relation above the floor surface on a plurality of first support elements. The at least one distribution plate has a greater surface area than any one of the base units, the channel covers and the corner covers.

There is also disclosed a cable management boot for supporting a plurality of cables. In an example embodiment the boot comprises a duct having an entrance opening and an exit opening oriented transversely to the entrance opening. The duct in this example comprises a back wall having a first edge positioned at the entrance opening and a second edge positioned at the exit opening. The back wall defines a path between the entrance opening and the exit opening. A front wall is positioned in spaced relation to the back wall. The front wall has a first edge positioned at the entrance opening and, with the first edge of the back wall, thereby defines the entrance opening. The front wall further comprises a second edge positioned in spaced relation to the second edge of the back wall. The second edges of the front and back walls define the exit opening.

In an example embodiment, the boot is positioned adjacent to the at least one distribution plate.

According to a third aspect of the present invention, there is provided a floor system positionable on a floor surface. The system comprises at least one distribution plate comprising a distribution plate surface supported in spaced relation above said floor surface on a plurality of first support elements. The system also comprises a plurality of base units positionable in spaced relation to one another on the floor surface thereby defining a plurality of channels therebetween. Each base unit comprises a base plate supported in spaced relation above the floor surface on a plurality of second support elements. A plurality of channel covers are positioned overlying the plurality of channels. The channel covers are supported by adjacent ones of the base units. A plurality of corner covers overlie a space formed where at least two of the channels intersect one another. The corner covers are supported by adjacent ones of the base units. Said at least one distribution plate has a greater surface area than any one of said base units, said channel covers and said corner covers. For at least one of said base units, said second support elements comprise a plurality of pins engaged with said base plate and projecting transversely thereto. At least one feed module positioned in at least one of the channels. By way of example the at least one feed module comprises a cable connectable to a source of electrical power, a first set of contacts electrically connected to the cable, a second set of contacts electrically connected to the first set of contacts and a container enclosing the first set of contacts. The container is sized to fit within the at least one channel.

In a further example of a floor system positionable on a floor surface, the system comprises a plurality of base units positionable in spaced relation to one another on the floor surface thereby defining a plurality of channels therebetween. Each base unit comprises a base plate supported in spaced relation above the floor surface on a plurality of support elements. A plurality of channel covers are positioned overlying the plurality of channels. The channel covers are supported by adjacent ones of the base units. A plurality of corner covers overlie a space formed where at least two of the channels intersect one another. The corner covers are supported by adjacent ones of the base units. At least one bus bar is positioned in at least one of the channels. The at least one bus bar comprises at least two elongate electrical conductor, at least a first and a second set of contacts electrically connected to the elongate electrical conductors and a container enclosing the elongate electrical conductors and the first and second sets of contacts. The container is sized to fit within the at least one channel.

Another example floor system positionable on a floor surface comprises a plurality of base units positionable in spaced relation to one another on the floor surface

thereby defining a plurality of channels therebetween. Each base unit comprises a base plate supported in spaced relation above the floor surface on a plurality of support elements. A plurality of channel covers are positioned overlying the plurality of channels. The channel covers are supported by adjacent ones of the base units. A plurality of corner covers overlying a space formed where at least two of the channels intersect one another. The corner covers are supported by adjacent ones of the base units. At least one terminal box is positioned within one of the base units. By way of example the at least one terminal box comprises a container, a first set of electrical contacts positioned within the container, a second set of electrical contacts and an electrical conductor connecting the second set of electrical contacts to the first set of electrical contacts.

In a further example of a floor system positionable on a floor surface, the system comprises a plurality of base units positionable in spaced relation to one another on the floor surface thereby defining a plurality of channels therebetween. Each base unit comprising a base plate supported in spaced relation above the floor surface on a plurality of support elements. A plurality of channel covers are positioned overlying the plurality of channels. The channel covers are supported by adjacent ones of the base units. A plurality of corner covers overlie a space formed where at least two of the channels intersect one another. The corner covers are supported by adjacent ones of the base units. At least one terminal box is associated with one of the base units. The at least one terminal box comprises a container, a first set of electrical contacts positioned within the container, a second set of electrical contacts and an electrical conductor connecting the second set of electrical contacts to the first set of electrical contacts.

According to a fourth aspect of the present invention, there is provided a floor system positionable on a floor surface comprises a plurality of base units positionable in spaced relation to one another on the floor surface thereby defining a plurality of channels therebetween. Each base unit comprising a base plate supported in spaced relation above the floor surface on a plurality of support elements. A plurality of channel covers are positioned overlying the plurality of channels,. The channel covers are supported by adjacent ones of the base units. A

plurality of corner covers overlie a space formed where at least two of the channels intersect one another. The corner covers are supported by adjacent ones of the base units. At least one radio frequency transmitter is positioned within one of the base units. In an example embodiment, the radio frequency transmitter comprises a motion sensor. In another example embodiment, the radio frequency transmitter comprises an identification beacon. Further by way of example, the radio frequency transmitter comprises a combination motion sensor and identification beacon.

There is also disclosed a cable management boot for supporting a plurality of cables. In an example embodiment the boot comprises a duct having an entrance opening and an exit opening oriented transversely to the entrance opening. The duct comprises a back wall having a first edge positioned at the entrance opening and a second edge positioned at the exit opening. The back wall defines a path between the entrance opening and the exit opening. A front wall is positioned in spaced relation to the back wall. The front wall has a first edge positioned at the entrance opening and, with the first edge of the back wall, thereby defines the entrance opening. The front wall further comprises a second edge positioned in spaced relation to the second edge of the back wall. The second edges of the front and back walls define the exit opening.

By way of example, the back wall comprises a concave surface facing the front wall. In a further example, the front wall comprises a convex surface facing the back wall. In an example embodiment the boot may further comprise a first sidewall extending between the front and back walls and a second sidewall extending between the front and back walls. The second sidewall is positioned in spaced relation to the first side wall. In an example embodiment the first and second sidewalls are positioned at opposite ends of the front and back walls. An example boot may further comprise at least a first flange attached to the first sidewall. The first flange extends outwardly from the first sidewall. At least a second flange may be attached to the second sidewall. The second flange extends outwardly from the second sidewall. In an example embodiment the first and second flanges are positioned adjacent to the front wall.

What is claimed is:

1. A floor system positionable on a floor surface, said system comprising:

at least one distribution plate comprising a distribution plate surface supported in spaced relation above said floor surface on a plurality of first support elements;

a plurality of base units positionable in spaced relation to one another on said floor surface thereby defining a plurality of channels therebetween, each said base unit comprising a base plate supported in spaced relation above said floor surface on a plurality of second support elements, at least a portion of said base units being positioned adjacent to said at least one distribution plate;

a plurality of channel covers positioned overlying said plurality of channels, said channel covers being supported by adjacent ones of said base units; and

a plurality of corner covers overlying a space formed where at least two of said channels intersect one another, said corner covers being supported by adjacent ones of said base units; wherein

said at least one distribution plate has a greater surface area than any one of said base units, said channel covers and said corner covers.

2. The floor system according to claim 1, wherein at least one of said first support elements comprises a pin engaged with said at least one distribution plate.

3. The floor system according to claim 1, wherein each one of said first support elements comprises a pin engaged with said at least one distribution plate.

4. The floor system according to claim 2, wherein said pin comprises a nipple extending from one end thereof, said nipple engaging a hole in said at least one distribution plate.

5. The floor system according to claim 4, wherein said nipple is threaded and said hole is threaded.

6. The floor system according to claim 2, wherein said pin comprises a threaded hole positioned at one end, said threaded hole receiving a threaded fastener extending through a hole in said at least one distribution plate for attaching said pin thereto.

7. The floor system according to claim 1, further comprising a foundation plate attached to said plurality of first support elements in spaced relation to said distribution plate, said foundation plate being positionable on said floor surface.

8. The floor system according to claim 7, wherein at least one of said first support elements comprises a pin attached to said foundation plate.

9. The floor system according to claim 7, wherein each one of said first support elements comprises a pin attached to said foundation plate.

10. The floor system according to claim 8, wherein said pin comprises a threaded hole positioned at one end, said threaded hole receiving a threaded fastener extending through a hole in said foundation plate for attaching said pin thereto.

11. The floor system according to claim 1, further comprising:

at least one feed module positioned in at least one of said channels, said at least one feed module comprising:

a cable connectable to a source of electrical power;

a first set of contacts electrically connected to said cable;

a second set of contacts electrically connected to said first set of contacts;

a container enclosing said first set of contacts, said container sized to fit within said at least one channel.

12. The floor system according to claim 1, further comprising:

at least one bus bar positioned in at least one of said channels, said at least one bus bar comprising:

at least two elongate electrical conductors;

at least a first and a second set of contacts electrically connected to said elongate electrical conductors;

a container enclosing said elongate electrical conductors and said first and second sets of contacts, said container sized to fit within said at least one channel.

13. The floor system according to claim 1, further comprising:

at least one terminal box positioned within one of said base units, said at least one terminal box comprising:

a container;

a first set of electrical contacts positioned within said container;

a second set of electrical contacts;

an electrical conductor connecting said second set of electrical contacts to said first set of electrical contacts.

14. The floor system according to claim 1, further comprising:

at least one terminal box associated with one of said base units, said at least one terminal box comprising:

a container;

a first set of electrical contacts positioned within said container;

a second set of electrical contacts;

an electrical conductor connecting said second set of electrical contacts to said first set of electrical contacts.

15. The floor system according to claim 1, further comprising at least one radio frequency transmitter positioned within one of said base units, one of said channel covers or one of said corner covers.

16. The floor system according to claim 1, further comprising:

a cable management boot for supporting a plurality of cables, said boot comprising:

a duct having an entrance opening and an exit opening oriented transversely to said entrance opening, said duct comprising:

a back wall having a first edge positioned at said entrance opening and a second edge positioned at said exit opening, said back wall defining a path between said entrance opening and said exit opening;

a front wall positioned in spaced relation to said back wall, said front wall having a first edge positioned at said entrance opening and cooperating with said first edge of said back wall to define said entrance opening, said front wall further comprising a second edge positioned in spaced relation to said second edge of said back wall, said second edges of said front and back walls defining said exit opening.

17. The floor system according to claim 16, wherein said boot is positioned adjacent to said at least one distribution plate.

18. A floor system positionable on a floor surface, said system comprising:

a plurality of base units positionable in spaced relation to one another on said floor surface thereby defining a plurality of channels therebetween, each said base

unit comprising a base plate supported in spaced relation above said floor surface on a plurality of support elements;

an under plate underlying said base plate, said under plate being larger than said base plate;

an electrically insulating substrate positioned between said underplate and said base plate;

a plurality of channel covers positioned overlying said plurality of channels, said channel covers being supported by adjacent ones of said base units; and

a plurality of corner covers overlying a space formed where at least two of said channels intersect one another, said corner covers being supported by adjacent ones of said base units; wherein

for at least one of said base units, said support elements comprise a plurality of pins engaged with said base plate and projecting transversely thereto.

19. The floor system according to claim 18, wherein said pins are distributed in spaced apart relation across said base plate.

20. The floor system according to claim 18, wherein at least one of said pins comprises a nipple extending from one end thereof, said nipple engaging a hole in said base plate.

21. The floor system according to claim 20, wherein said nipple is threaded and said hole is threaded.

22. The floor system according to claim 18, wherein at least one of said pins comprises a threaded hole positioned at one end thereof, said threaded hole receiving a threaded fastener extending through a hole in said base plate for attaching said pin thereto.

23. The floor system according to claim 18, further comprising a foundation plate attached to said plurality of pins in spaced relation to said base plate, said foundation plate being positionable on said floor surface.

24. The floor system according to claim 23, wherein at least one of said pins comprises a threaded hole positioned at one end, said threaded hole receiving a threaded fastener extending through a hole in said foundation plate for attaching said at least one pin thereto.

25. The floor system according to claim 18, further comprising:

at least one feed module positioned in at least one of said channels, said at least one feed module comprising:

a cable connectable to a source of electrical power;

a first set of contacts electrically connected to said cable;

a second set of contacts electrically connected to said first set of contacts;

a container enclosing said first set of contacts, said container sized to fit within said at least one channel.

26. The floor system according to claim 18, further comprising:

at least one bus bar positioned in at least one of said channels, said at least one bus bar comprising:

at least two elongate electrical conductors;

at least a first and a second set of contacts electrically connected to said elongate electrical conductors;

a container enclosing said elongate electrical conductors and said first and second sets of contacts, said container sized to fit within said at least one channel.

27. The floor system according to claim 18, further comprising:

at least one terminal box positioned within one of said base units, said at least one terminal box comprising:

a container;

a first set of electrical contacts positioned within said container;

a second set of electrical contacts;

an electrical conductor connecting said second set of electrical contacts to said first set of electrical contacts.

28. The floor system according to claim 18, further comprising:

at least one terminal box associated with one of said base units, said at least one terminal box comprising:

a container;

a first set of electrical contacts positioned within said container;

a second set of electrical contacts;

an electrical conductor connecting said second set of electrical contacts to said first set of electrical contacts.

29. The floor system according to claim 18, further comprising at least one radio frequency transmitter positioned within one of said base units.

30. A floor system positionable on a floor surface, said system comprising:

at least one distribution plate comprising a distribution plate surface supported in spaced relation above said floor surface on a plurality of first support elements;

a plurality of base units positionable in spaced relation to one another on said floor surface thereby defining a plurality of channels therebetween, each said base unit comprising a base plate supported in spaced relation above said floor surface on a plurality of second support elements;

a plurality of channel covers positioned overlying said plurality of channels, said channel covers being supported by adjacent ones of said base units; and

a plurality of corner covers overlying a space formed where at least two of said channels intersect one another, said corner covers being supported by adjacent ones of said base units;

wherein said at least one distribution plate has a greater surface area than any one of said base units, said channel covers and said corner covers, and

wherein for at least one of said base units, said second support elements comprise a plurality of pins engaged with said base plate and projecting transversely thereto.

31. The floor system according to claim 30, further comprising:

a cable management boot for supporting a plurality of cables, said boot comprising:

a duct having an entrance opening and an exit opening oriented transversely to said entrance opening, said duct comprising:

a back wall having a first edge positioned at said entrance opening and a second edge positioned at said exit opening, said back wall defining a path between said entrance opening and said exit opening;

a front wall positioned in spaced relation to said back wall, said front wall having a first edge positioned at said entrance opening and, with said first edge of said back wall, thereby defining said entrance opening, said front wall further comprising a second edge positioned in spaced relation to said second edge of said back wall, said second edges of said front and back walls defining said exit opening.

32. The floor system according to claim 31, wherein said boot is positioned adjacent to said at least one distribution plate.

33. A floor system positionable on a floor surface, said system comprising:

a plurality of base units positionable in spaced relation to one another on said floor surface thereby defining a plurality of channels therebetween, each said base unit comprising a base plate supported in spaced relation above said floor surface on a plurality of support elements;

a plurality of channel covers positioned overlying said plurality of channels, said channel covers being supported by adjacent ones of said base units; and

a plurality of corner covers overlying a space formed where at least two of said channels intersect one another, said corner covers being supported by adjacent ones of said base units;

at least one radio frequency transmitter positioned within one of said base units.

34. The floor system according to claim 33, wherein said radio frequency transmitter comprises a motion sensor.

35. The floor system according to claim 33, wherein said radio frequency transmitter comprises an identification beacon.

36. The floor system according to claim 33, wherein said radio frequency transmitter comprises a combination of motion sensor and identification beacon.