Claims:

1. A free-standing cable tray support structure that supports cables above an array of server racks in a building, comprising:

a plurality of vertical support posts disposed between server racks in the array, each of which has a top end extending above the server racks, and a bottom end engaging a same floor that supports the server racks;

a plurality of horizontal support members interconnecting the top ends of each of the pair of columns of vertical support posts;

a plurality of tray supports mounted on at least one of the horizontal support members, and

a side cable tray supported by the tray supports,

wherein the cable tray support structure is mechanically independent from the server racks and is supported only by the floor.

2. The free-standing cable tray support structure defined in claim 1, further comprising floor mounts for anchoring the bottom ends of the vertical support posts to the floor.

3. The free-standing cable tray support structure defined in claim 1, further comprising a plurality of coupling assemblies interconnecting the top ends of the vertical support posts and adjoining ends of the horizontal support members.

4. The free-standing cable tray support structure defined in claim 3, wherein the lengths of the horizontal members are selected such that the coupling assemblies position the vertical support posts in spaces between the server racks.

5. The free-standing cable tray support structure defined in claim 3, wherein each of the coupling assemblies includes a pair of opposing L-shaped brackets, each having a first leg mounted on the top end of one of the vertical support posts, and a second leg mounted on one of the horizontal support members.

6. The free-standing cable tray support structure defined in claim 5, wherein the each of the opposing L-shaped brackets further includes a reinforcing flange between its first and second legs, and a mounting flange extending from its second leg affixed to a side of adjoining ends of the horizontal support members.

7. The free-standing cable tray support structure defined in claim 1, wherein the vertical support posts are arranged into two columns, and the horizontal support members are arranged into two rows, and further comprising a plurality of bridging members extending across and interconnecting the pair of rows of horizontal support members, and a bridging cable tray supported by the bridging members.

8. The free-standing cable tray support structure defined in claim 1, wherein the tray supports include tray support arms that support a lower side cable tray, and tray support brackets that support an upper side cable tray.

9. The free-standing cable tray support structure defined in claim 8, wherein the horizontal support members include a plurality of tray support affixing sections for adjustably receiving and affixing the tray supports, the number of tray support affixing sections being greater than the number of tray supports.

10. A free-standing cable tray support structure that supports cables above an array of server racks in a building having a ventilation system, comprising:

a pair of columns of vertical support posts disposed between server racks in the array, each of which has a top end extending above the server racks, and a bottom end anchored to a same floor that supports the server racks;

a pair of rows of horizontal support members interconnecting the top ends of each of the pair of columns of vertical support posts;

coupling assemblies interconnecting the top ends of the vertical support posts and adjoining ends of the horizontal support members;

a plurality of tray supports mounted on at least one of the rows of horizontal support members, and

~~a side cable tray supported by the tray supports mounted on the at least one of the rows of horizontal support members,~~

~~wherein the cable tray support structure is mechanically independent from the server racks and ventilation system and is supported only by the floor, and~~

~~wherein the lengths of the horizontal members are selected such that the coupling assemblies position the vertical support posts in spaces between the server racks.~~

~~11. The free-standing cable tray support structure defined in claim 10, further comprising a plurality of bridging members extending across and interconnecting the pair of rows of horizontal support members, and a bridging cable tray supported by the bridging members.~~

~~12. The free-standing cable tray support structure defined in claim 11, wherein the tray supports include tray support arms that support a lower side cable tray, and tray support brackets that support an upper side cable tray above the lower side cable tray.~~

~~13. The free standing cable tray support structure defined in claim 10, wherein the horizontal support members include a plurality of tray support affixing sections for adjustably receiving and affixing the tray supports, the number of cable tray support affixing sections being greater than the number of tray supports.~~

~~14. The free-standing cable tray support structure defined in claim 10, wherein each of the coupling assemblies includes a pair of opposing L-shaped brackets, each having a first leg mounted on the top end of one of the vertical support posts, and a second leg mounted on one of the horizontal support members and a mounting flange extending from its second leg affixed to a side of adjoining ends of the horizontal support members.~~

~~15.~~1. A method of assembling a free-standing cable tray support structure that supports cables above an array of ~~server~~ electronic equipment racks ~~in~~ disposed on a floor of a data center, comprising the steps of:

providing a plurality of vertical support posts that are longer than the height of the ~~server~~ electronic equipment racks;

providing a plurality of horizontal support members having lengths that space the plurality of vertical support posts in spaces between the ~~server~~ electronic equipment racks of the array when the vertical support posts are coupled ~~thereto~~ to the horizontal support members;

assembling within the data center the vertical support posts and horizontal support members into a completed, free-standing cable tray support structure by:

coupling together ~~a~~ top ~~end~~ ends of ~~one of~~ the plurality of vertical support posts with ~~opposing ends of two of~~ the plurality of horizontal support members ~~arranged colinearly~~ to form a free-standing cable tray support structure supported only by ~~the~~ bottom ends of the vertical support posts engaging ~~a~~ the floor;

positioning the bottom ends of the vertical support posts of the free-standing cable tray support structure at a ~~desired~~ location on ~~a~~ the floor of ~~a~~ the data center such that the electronic equipment racks are positioned in spaces between the vertical support posts~~;~~, and

anchoring the bottom ends of the vertical support posts to the floor of the data center~~.~~.

wherein the completed free-standing cable tray support structure is mechanically independent from the array of electronic equipment racks which directly engage and are supported solely by the floor of the data center.

~~16. The method of assembling a free standing cable tray support structure defined in claim 15, wherein the free-standing cable tray support structure is mechanically independent from the array of server racks and supported solely by the floor.~~

~~17.~~2. The method of assembling a free-standing cable tray support structure defined in claim ~~15~~ 1, wherein the ~~server~~ electronic equipment racks are arranged between adjacent vertical support posts after the cable tray support structure has been assembled.

~~18.~~3. The method of assembling a free-standing cable tray support structure defined in claim ~~15~~ 1, wherein the ~~server~~ electronic equipment racks are arranged in an array on the floor of the data center before the cable tray support structure is assembled.

~~19. The method of assembling a free standing cable tray support structure defined in claim 15, wherein the coupling together of a top end of one of the plurality of vertical support posts with opposing ends of two of the plurality of horizontal support members arranged colinearly is accomplished via coupling assemblies that include a pair of opposing L-shaped brackets, each having a first leg mounted on the top end of the vertical support post, and a second leg mounted on one of the horizontal support members.~~

4. The method of assembling a free-standing cable tray support structure defined in claim 1, wherein the data center includes a ventilation system and the free-standing support structure is mechanically independent from the ventilation system.

~~20.~~5. A method of assembling a free-standing cable tray support structure that supports cables above an array of ~~server~~ electronic equipment racks disposed on a floor of ~~in~~ a data center, comprising the steps of:

providing a plurality of vertical support posts that are longer than the height of the ~~server~~ electronic equipment racks;

providing a plurality of horizontal support members having lengths that space the plurality of vertical support posts between the ~~server~~ electronic equipment racks of the array when the vertical support posts are coupled thereto;

assembling at the data center the vertical support posts and the horizontal support members by:

connecting the top ends of the vertical support posts with the horizontal support members to form a free-standing cable tray support structure supported only by the bottom ends of the vertical support posts engaging a floor;

positioning the bottom ends of the vertical support posts of the free-standing cable tray support structure at a desired location on a floor of a data center such that the electronic equipment racks are positioned in spaces between the vertical support posts;

~~anchoring~~ securing the bottom ends of the vertical support posts to the floor of the data center to form a free-standing cable tray support structure,

~~wherein the free-standing cable tray support structure is mechanically independent from the array of server racks and is supported solely by the floor.~~

wherein the electronic equipment racks engage the floor of the data center and are not mechanically supported by the completed free-standing cable tray support structure.

6. The method of assembling a free-standing cable tray support structure defined in claim 5, wherein the electronic equipment racks are arranged on the floor of the data center between adjacent vertical support posts after the cable tray support structure has been assembled.

7. The method of assembling a free-standing cable tray support structure defined in claim 5, wherein the electronic equipment racks are arranged in an array on the floor of the data center before the cable tray support structure is assembled.

8. The method of assembling a free-standing cable tray support structure defined in claim 5, wherein the data center includes a ventilation system and the free-standing support structure is mechanically independent from the ventilation system.