been cooled by the tower. Due to the size of the cold water basin, it is costly to transport it in pre-assembled form to a job site. In cooling towers with a single cold water basin, the size of the cold water basin also increases as the towers increase in cooling capacity. While a solution may be to ship the cold water basin in multiple components to a job site for final assembly, such leads to greater labor costs and inconsistent quality in assembly due to on-site conditions such as those described above. Moreover, it oftentimes is difficult to ensure that the various components of the cold water basin are fully sealed to one another at a job site.

[0007] Therefore, it is desirable to have a cooling tower that is assembled using components that can be manufactured in a factory and transported to a job site. In particular, it is desirable to have a cooling tower that can be assembled with modular components, including components that have pre-assembled cold water basins.

SUMMARY OF THE INVENTION

[0008] Embodiments of the present disclosure advantageously provide for modular heat exchange towers and methods of assembling such modular heat exchange towers.

[0008a] According to a first aspect of the present invention, there is provided a modular heat exchange tower that extends vertically along a longitudinal axis, comprising: a first module; a second module; a third module, wherein the third module is positioned vertically adjacent to the first module along the longitudinal axis; a fourth module, wherein the fourth module is positioned vertically adjacent to the second module along the longitudinal axis; a fifth module; a plenum; a first heat exchange section disposed in the first module and the third module; a second heat exchange section disposed in the second module and the fourth module; an air current generator having at least one fan blade, wherein the fifth module comprises at least a portion of the air current generator and wherein said at least one blade extends from said fifth module over said first module; and a basin.

[0008b] According to a second aspect of the present invention, there is provided a modular heat exchange tower, comprising: a first module, wherein the first module comprises a first heat exchange portion; a second module, wherein the second module comprises a second heat exchange portion; a plenum module; a basin; and a fan module, wherein said fan module comprises an air current generator having at least one fan blade that extends over said first module.

[0008c] According to a third aspect of the present invention, there is provided a modular heat exchange tower, comprising: a first module, wherein the first module comprises a first heat exchange portion; a second module, wherein the second module comprises a second heat exchange portion; a basin; a fan module, wherein said fan module comprises an air current generator having at least one fan blade that extends over said first module; and a plenum.

[0008d] There is provided modular heat exchange tower that extends vertically along a longitudinal axis, comprising: a first module comprising a first basin delimited by four side walls disposed therein; a second module comprising a second basin delimited by four side walls disposed therein; a plenum between the first module and the second module; a first heat exchange section; and an air current generator, wherein the plenum is open-sided towards the first module and the second module.

[0009] An embodiment of the disclosure is a modular heat exchange tower, comprising: a first module comprising a first basin disposed therein; a second module comprising a second basin disposed therein; a plenum; a first heat exchange section; and an air current generator.

[0010] Another embodiment is a modular heat exchange tower, comprising: a first collection basin module, wherein the first collection basin module comprises a first heat exchange portion and a first collection basin; a second collection basin module, wherein the second collection basin module comprises a second heat exchange portion and a second

CLAIMS

1. A modular heat exchange tower that extends vertically along a longitudinal axis, comprising:

a first module;

a second module;

a third module, wherein the third module is positioned vertically adjacent to the first module along the longitudinal axis;

a fourth module, wherein the fourth module is positioned vertically adjacent to the second module along the longitudinal axis;

a fifth module;

a plenum;

a first heat exchange section disposed in the first module and the third module;

a second heat exchange section disposed in the second module and the fourth module;

an air current generator having at least one fan blade, wherein the fifth module comprises at least a portion of the air current generator and wherein said at least one blade extends from said fifth module over said first module; and

a basin.

2. The modular heat exchange tower according to claim 1, wherein the fifth module is disposed between the third module and the fourth module along an axis perpendicular to the longitudinal axis.

3. The modular heat exchange tower according to claim 1, where said basin is a first basin and a second basin.

4. The modular heat exchange tower according to claim 3, further comprising a third basin and a fourth basin.

5. The modular heat exchange tower according to claim 4, wherein said first basin is disposed in said first module and said second basin is disposed in said second module.

6. The modular heat exchange tower according to claim 5, wherein the third basin and the fourth basin are configured to receive separate streams of liquid,

wherein the third basin is disposed vertically adjacent to the first heat exchange section along the longitudinal axis such that the stream of water received by the third basin flows into the first heat exchange section and into the first basin,

wherein the fourth basin is disposed vertically adjacent to the second heat exchange section along the longitudinal axis such that the stream of water received by the fourth basin flows into the first heat exchange section and into the second basin.

7. The modular heat exchange tower according to claim 1, wherein at least the first heat exchange section comprises cross-flow fill.

8. The modular heat exchange tower according to claim 1, wherein the air current generator is a fan assembly.

9. The modular heat exchange tower according to claim 5, wherein the first basin and the second basin are separately sealed.

10. A modular heat exchange tower, comprising:

a first module, wherein the first module comprises a first heat exchange portion;

a second module, wherein the second module comprises a second heat exchange portion;

a plenum module;

a basin; and

a fan module, wherein said fan module comprises an air current generator having at least one fan blade that extends over said first module.

11. A modular heat exchange tower according to claim 10, wherein said basin comprises a first collection basin and a second collection basin.

12. A modular heat exchange tower according to claim 11, wherein said first collection basin is disposed in said first module and said second collection basin is disposed in said second module.

13. The modular heat exchange tower according to claim 10, wherein the fan module is positioned vertically adjacent to the plenum module.

14. The modular heat exchange tower according to claim 10, wherein at least the first heat exchange portion comprises cross-flow fill.

15. The modular heat exchange tower according to claim 11, wherein the first collection basin and the second collection basin are separately sealed.

16. A modular heat exchange tower, comprising:

a first module, wherein the first module comprises a first heat exchange portion;

a second module, wherein the second module comprises a second heat exchange portion;

a basin;

a fan module, wherein said fan module comprises an air current generator having at least one fan blade that extends over said first module; and

a plenum module disposed adjacent said first module and disposed adjacent said fan module.

17. A modular heat exchange tower according to claim 16, wherein said basin comprises a first collection basin and a second collection basin.

18. A modular heat exchange tower according to claim 17, wherein said first collection basin is disposed in said first module and said second collection basin is disposed in said second module.

19. The modular heat exchange tower according to claim 16, wherein the fan module is positioned vertically adjacent to the plenum module.