Claims

What I claim is:

1. A cooled enclosure of the type which cools installed equipment by thermal contact, the cooled enclosure comprising a plurality of channels each comprising a coolable surface and a plurality of multi-port coolant guides, each one of the plurality of channels being configured to structurally support a rail portion of installed equipment, each one of the plurality of multi-port coolant guides being in thermal contact with relevant one of the coolable surface of each one of the plurality of channels.

2. A wall of a cooled enclosure, the cooled enclosure of the type which cools installed equipment by thermal contact, the wall comprising:

- a plurality of channels, each one of the plurality of channels comprising a coolable surface and being configured to structurally support a rail portion of installed equipment;
- a plurality of first coolant guides, each one of the plurality of first coolant guides comprising inlet and outlet apertures, and;
- a plurality of thermally conductive features being disposed within each one of the plurality of first coolant guides, the plurality of thermally conductive features being in thermal contact with relevant one of the coolable surface of each one of the plurality of channels, the plurality of thermally conductive features being in such a way that a coolant flowing between the inlet and the outlet apertures flows across at least some portion of the thermally conductive features.

3. The wall of claim 2, wherein the plurality of thermally conductive features are fins.

4. The wall of claim 2, wherein the plurality of thermally conductive features are pins.

5. The wall of claim 2, wherein the plurality of thermally conductive features are projections projecting from a plurality of surfaces each in thermal contact with relevant one of the coolable surface.

6. The wall of any one of claims 2 to 5, wherein the plurality of first coolant guides is

manufactured by an extrusion process.

7. The wall of any one of claims 2 to 5, wherein each one of the plurality of first coolant guides is a multi-port extrusion and the plurality of thermally conductive features comprise a wall of the multi-port extrusion.

8. The wall of any one of claims 2 to 7, wherein each one of the plurality of first coolant guides comprises a first guideway and a second guideway, each one of the plurality of first coolant guides being configured such that coolant flowing in the first guideway is separated from coolant flowing in the second guideway.

9. The wall of any of claims 2 to 8, further comprising:

- a plurality of second coolant guides, each one of the plurality of second coolant guides comprising inlet and outlet apertures, and;
- a tubing network connected to the inlet apertures of the plurality of first coolant guides and the inlet apertures of the plurality of second coolant guides.

10. The wall of claim 9, wherein the tubing network is configured to deliver an approximately similar rate of coolant flow to the plurality of first coolant guides and the plurality of second coolant guides.

11. The wall of claim 10, wherein the tubing network is bifurcated.

12. The wall of any one of claims 2 to 11, the wall further comprising a coolant distribution system comprising:

- a tubing network connected to the inlet apertures of the plurality of first coolant guides, and;
- an automatic air-vent connected to the tubing network.

13. A wall of a cooled enclosure, the wall comprising:

- a plurality of channels comprising a coolable surface, each channel configured to receive a rail portion of installed equipment;
- a coolant distribution system;

- one or more coolant guides, each having an inlet and an outlet which are both connected to the coolant distribution system, the coolant guides being configured to guide the flow of a coolant entering the guide from the inlet to allow the cooling of at least a portion of the coolable surface of at least one of the channels before exiting via the outlet, and;
- a lid component being adapted to be joined to the plurality of channels in such a way that the space enclosed by the lid component and the plurality of channels contains at least a part of the coolant distribution system and the inlet and outlet of the one or more coolant guides.

14. The wall of claim 13, the space enclosed by the lid component and the plurality of channels being sufficiently sealed to allow a modified pressure environment.

15. The wall of claim 13, the modified pressure environment being created by evacuating air.

16. The wall of any one of claims 14 or 15, the wall further comprising a pressure sensitive switch configured to change state when the state of the modified pressure environment is changed.

17. The wall of any one of claims 13 to 16, wherein at least two of the one or more coolant guides are configured to independently cool a portion of the same coolable surface.

18. A cooled enclosure which cools installed equipment by thermal contact between a surface of a portion of installed equipment and a surface of the cooled enclosure, the cooled enclosure being configured such that the surface of the cooled enclosure is maintained at a temperature below a dry bulb temperature of surrounding air.

19. The cooled enclosure of claim 18, the cooled enclosure being further configured such that the surface of the cooled enclosure is further maintained at a temperature above a dew point of the surrounding air.

20. The cooled enclosure of any one of claims 18 or 19, the cooled enclosure comprising at least one wall.

21. The cooled enclosure of claim 20, the at least one wall comprising:

- a plurality of channels, each one of the plurality of channels comprising a coolable surface and being configured to structurally support a rail portion of installed equipment;
- a plurality of first coolant guides, each one of the plurality of first coolant guides comprising inlet and outlet apertures, and;

a plurality of thermally conductive features being disposed within each one of the plurality of first coolant guides, the plurality of thermally conductive features being in thermal contact with relevant one of the coolable surface of each one of the plurality of channels, the plurality of thermally conductive features being in such a way that a coolant flowing between the inlet and the outlet apertures flows across at least some portion of the thermally conductive features.

22. The cooled enclosure of claim 21, wherein the plurality of thermally conductive features are fins.

23. The cooled enclosure of claim 21, wherein the plurality of thermally conductive features are pins.

24. The cooled enclosure of claim 21, wherein the plurality of thermally conductive features are projections projecting from a plurality of surfaces each in thermal contact with relevant one of the coolable surface.

25. The cooled enclosure of any one of claims 21 to 24, wherein the plurality of first coolant guides is manufactured by an extrusion process.

26. The cooled enclosure of any one of claims 21 to 24, wherein each one of the plurality of first coolant guides is a multi-port extrusion and the plurality of thermally conductive features comprise a wall of the multi-port extrusion.

27. The cooled enclosure of any one of claims 21 to 26, wherein each one of the plurality of first coolant guides comprises a first guideway and a second guideway, each one of the plurality of first coolant guides being configured such that coolant flowing in the first guideway is separated from coolant flowing in the second guideway.

28. The cooled enclosure of any one of claims 21 to 27, further comprising:

- a plurality of second coolant guides, each one of the plurality of second coolant guides comprising inlet and outlet apertures, and;
- a tubing network connected to the inlet apertures of the plurality of first coolant guides and the inlet apertures of the plurality of second coolant guides.

29. The cooled enclosure of claim 28, wherein the tubing network is configured to deliver an approximately similar rate of coolant flow to the plurality of first coolant guides and the plurality of second coolant guides.

30. The cooled enclosure of claim 29, wherein the tubing network is bifurcated.

31. A cooled enclosure which cools installed equipment by thermal contact between a surface of a portion of installed equipment and a surface of the cooled enclosure, the cooled enclosure being configured such that the surface of the cooled enclosure is maintained at a temperature above a dew point of surrounding air.

32. The cooled enclosure of claim 31, the cooled enclosure being further configured such that the surface of the cooled enclosure is further maintained at a temperature below a dry bulb temperature of the surrounding air.

33. The cooled enclosure of any one of claims 31 or 32, the cooled enclosure comprising at least one wall.

34. The cooled enclosure of claim 33, the at least one wall comprising:

- a plurality of channels, each one of the plurality of channels comprising a coolable surface and being configured to structurally support a rail portion of installed equipment;
- a plurality of first coolant guides, each one of the plurality of first coolant guides comprising inlet and outlet apertures, and;

a plurality of thermally conductive features being disposed within each one of the plurality of first coolant guides, the plurality of thermally conductive features being in thermal contact with relevant one of the coolable surface of each one of the plurality of channels, the plurality of thermally conductive features being in such a way that a coolant flowing between the inlet

and the outlet apertures flows across at least some portion of the thermally conductive features.

35. The cooled enclosure of claim 34, wherein the plurality of thermally conductive features are fins.

36. The cooled enclosure of claim 34, wherein the plurality of thermally conductive features are pins.

37. The cooled enclosure of claim 34, wherein the plurality of thermally conductive features are projections projecting from a plurality of surfaces each in thermal contact with relevant one of the coolable surface.

38. The cooled enclosure of any one of claims 34 to 37, wherein the plurality of first coolant guides is manufactured by an extrusion process.

39. The cooled enclosure of any one of claims 34 to 37, wherein each one of the plurality of first coolant guides is a multi-port extrusion and the plurality of thermally conductive features comprise a wall of the multi-port extrusion.

40. The cooled enclosure of any one of claims 34 to 39, wherein each one of the plurality of first coolant guides comprises a first guideway and a second guideway, each one of the plurality of first coolant guides being configured such that coolant flowing in the first guideway is separated from coolant flowing in the second guideway.

41. The cooled enclosure of any one of claims 34 to 40, further comprising:

- a plurality of second coolant guides, each one of the plurality of second coolant guides comprising inlet and outlet apertures, and;
- a tubing network connected to the inlet apertures of the plurality of first coolant guides and the inlet apertures of the plurality of second coolant guides.

42. The cooled enclosure of claim 41, wherein the tubing network is configured to deliver an approximately similar rate of coolant flow to the plurality of first coolant guides and the

plurality of second coolant guides.

43. The cooled enclosure of claim 42, wherein the tubing network is bifurcated.