CLAIMS

1. A panelboard assembly for use in environments in which combustible or ignitable materials are present comprising:

a main breaker assembly configured to be electrically connected to a three-phase power supply;

a first subpanel assembly comprising:

a first contactor assembly electrically connected to a load side of the main breaker assembly; and

a first branch breaker assembly electrically connected to a load side of the first contactor assembly and configured to be electrically connected to a first group of loads, the first branch breaker assembly including a plurality of first branch circuit breakers, and each of the plurality of first branch circuit breakers is configured to switch on or off an electrical connection to a respective one or more loads in the first group of loads,

wherein the first contactor assembly is configured to connect or disconnect power to the first branch breaker assembly and to the first group of loads all at once;

a second subpanel assembly electrically connected in parallel to the first subpanel assembly and comprising:

a second contactor assembly electrically connected to the load side of the main breaker assembly; and

a second branch breaker assembly electrically connected to a load side of the second contractor assembly and configured to be electrically connected to a second group of loads, the second branch breaker assembly including a plurality of second branch circuit breakers, and each of the plurality of second branch circuit breakers is configured to switch on or off an electrical connection to a respective one or more loads in the second group of loads,

wherein the second contactor assembly is configured to connect or disconnect power to the second branch breaker assembly and to the second group of loads all at once; and

a first power distribution block (PDB), a second PDB, and a third PDB each electrically connected to the main breaker assembly, the first contactor assembly, and the second contactor assembly, wherein each of the first PDB, the second PDB, and the third PDB is disposed downstream of the main breaker assembly and upstream of both the first contactor assembly and the second contactor assembly, wherein each of the first PDB, the second PDB, and the third PDB is associated with a phase of the three-phase power supply, wherein each of the first PDB, the second PDB, and the third PDB is configured to receive single phase electrical power through a single bus and distribute the received single phase electrical power to the first contactor assembly and the second contactor assembly via separate buses.

2. The panelboard assembly of Claim 1, further comprising an enclosure enclosing the main breaker assembly, the first subpanel assembly, and the second subpanel assembly.

3. The panelboard assembly of Claim 1, wherein at least one of the first contactor assembly or the second contactor assembly is switched on and off through a photoresistor.

4. The panelboard assembly of Claim 1, further comprising a branch panel dead front covering at least a portion of the first branch breaker assembly and at least a portion of the second branch breaker assembly, wherein the branch panel dead front further includes one or more slots providing access to at least one of the first branch breaker assembly or the second branch breaker assembly.

5. The panelboard assembly of Claim 1, further comprising a main panel dead front covering at least a portion of the main breaker assembly, wherein the main panel dead front further includes one or more slots providing access to the main breaker assembly.

6. The panelboard assembly of Claim 1, further comprising a mounting board, wherein the main breaker assembly, the first subpanel assembly, and the second subpanel assembly are mounted on the mounting board.

7. A panelboard assembly for use in environments in which combustible or ignitable materials are present comprising:

a first subpanel assembly comprising:

a first contactor assembly configured to be electrically connected to a three-phase power supply; and

a first branch breaker assembly electrically connected to a load side of the first contactor assembly and configured to be electrically connected to a first group of loads, the first branch breaker assembly including a plurality of first branch circuit breakers, and each of the plurality of first branch circuit breakers is configured to switch on or off an electrical connection to a respective one or more loads in the first group of loads,

wherein the first contactor assembly is configured to connect or disconnect power to the first branch breaker assembly and to the first group of loads all at once;

a second subpanel assembly electrically connected in parallel to the first subpanel assembly, the second subpanel assembly comprising:

a second contactor assembly configured to be electrically connected to the three-phase power supply; and

a second branch breaker assembly electrically connected to a load side of the second contactor assembly and configured to be electrically connected to a second group of loads, the second branch breaker assembly including a plurality of second branch circuit breakers, and each of the plurality of second branch circuit breakers is configured to switch on or off an electrical connection to a respective one or more loads in the second group of loads,

wherein the second contactor assembly is configured to connect or disconnect power to the second branch breaker assembly and to the second group of loads all at once;

an enclosure enclosing the first subpanel assembly and the second subpanel assembly; and

a first power distribution block (PDB), a second PDB, and a third PDB each electrically connected to a main breaker assembly, the first contactor assembly, and the second contactor assembly, wherein each of the first PDB, the second PDB, and the third PDB is disposed downstream of the main breaker assembly and upstream of both the first contactor assembly and the second contactor assembly, wherein each of the first PDB, the second PDB, and the third PDB is associated with a phase of the three-phase power supply, wherein each of the first PDB, the second PDB, and the third PDB is configured to receive single phase electrical power through a single bus and distribute the received single phase electrical power to the first contactor assembly and the second contactor assembly via separate buses.

8. The panelboard assembly of claim 7, wherein the main breaker assembly is electrically connected to the first subpanel assembly and the second subpanel assembly, the main breaker assembly configured to switch on or off an electrical connection to the three-phase power supply.

9. The panelboard assembly of claim 8, further comprising a main panel dead front covering at least a portion of the main breaker assembly, wherein the main panel dead front further includes one or more slots providing access to the main breaker assembly.

10. The panelboard assembly of claim 7, further comprising a mounting board, wherein the first subpanel assembly and the second subpanel assembly are mounted on the mounting board.

11. The panelboard assembly of claim 7, wherein at least one of the first contactor assembly or the second contactor assembly is switched on and off through a photoresistor.

12. The panelboard assembly of claim 7, further comprising a branch panel dead front covering at least a portion of the first branch breaker assembly and at least a portion of the second branch breaker assembly, wherein the branch panel dead front further includes one or more slots providing access to at least one of the first branch breaker assembly or the second branch breaker assembly.

13. A method of assembling an electrical assembly for use in environments in which combustible or ignitable materials are present, the method comprising:

providing a panelboard assembly, the panelboard assembly including:

a main breaker assembly configured to be electrically connected to a three-phase power supply;

a first subpanel assembly including:

a first contactor assembly electrically connected to the main breaker assembly; and

a first branch breaker assembly electrically connected to a load side of the first contactor assembly and configured to be electrically connected to a first group of loads, the first branch breaker assembly including a plurality of first branch circuit breakers, and each of the plurality of first branch circuit breakers is configured to switch on or off an electrical connection to a respective one or more loads in the first group of loads,

wherein the first contactor assembly is configured to connect or disconnect power to the first branch breaker assembly and to the first group of loads all at once;

a second subpanel assembly electrically connected in parallel to the first subpanel assembly and including:

a second contactor assembly electrically connected to the main breaker assembly; and

a second branch breaker assembly electrically connected to a load side of the second contactor assembly and configured to be electrically connected to a second group of loads, the second branch breaker assembly including a plurality of second branch circuit breakers, and each of the plurality of second branch circuit breakers is configured to switch on or off an electrical connection to a respective one or more loads in the second group of loads,

wherein the second contactor assembly is configured to connect or disconnect power to the second branch breaker assembly and to the second group of loads all at once; and

a first power distribution block (PDB), a second PDB, and a third PDB each electrically connected to the main breaker assembly, the first contactor assembly, and the second contactor assembly, wherein each of the first PDB, the second PDB, and the third PDB is disposed downstream of the main breaker assembly and upstream of both the first contactor assembly and the second contactor assembly, wherein each of the first PDB, the second PDB, and the third PDB is associated with a phase of the three-phase power supply, wherein each of the first PDB, the second PDB, and the third PDB is configured to receive electrical power through a single bus and distribute the received electrical power to the first contactor assembly and the second contactor assembly via separate buses;

electrically connecting the panelboard assembly to the three-phase power supply by electrically connecting the main breaker assembly to the three-phase power supply;

electrically connecting the first group of loads to the first branch breaker assembly by electrically connecting one of the plurality of first branch circuit breakers of the first branch breaker assembly with the one or more loads in the first group of loads; and

electrically connecting the second group of loads to the second branch breaker assembly by electrically connecting one of the plurality of second branch circuit breakers of the second branch breaker assembly with the one or more loads in the second group of loads.

14. The method of claim 13, wherein the panelboard assembly further includes an enclosure enclosing the main breaker assembly, the first subpanel assembly, and the second subpanel assembly.

15. The method of claim 13, wherein at least one of the first contactor assembly or the second contactor assembly is switched on and off through a photoresistor.

16. The method of claim 13, wherein the panelboard assembly further includes a branch panel dead front covering at least a portion of the first branch breaker assembly and at least a portion of the second branch breaker assembly, and the branch panel dead front further includes one or more slots providing access to at least one of the first branch breaker assembly or the second branch breaker assembly.

17. The method of claim 13, wherein the panelboard assembly further includes a main panel dead front covering at least a portion of the main breaker assembly, wherein the main panel dead front further includes one or more slots providing access to the main breaker assembly.

18. The method of claim 13, wherein the panelboard assembly further includes a mounting board, wherein the main breaker assembly, the first subpanel assembly, and the second subpanel assembly are mounted on the mounting board.