CLAIMS

1. A hydrocarbon processing plant, comprising:

a liquefied natural gas processing plant in the form of a liquefied natural gas (LNG) train having a major axis;

a piperack structure having a major axis that is parallel to the major axis of the train;

a first multipurpose module and a second module, wherein the first multipurpose module is configured to be substantially pre-assembled prior to being transported to an operating location, the first multipurpose module having a major axis that is parallel to the major axis of the piperack,

the first multipurpose module containing

process components that perform a function related to hydrocarbon processing, piping systems that connect the process components directly to the second module, where the second module is adjacent the first multipurpose module, and wherein at least part of the piping systems are aligned with the major axis of the piperack structure, and

at least one heat exchanger located in the first multipurpose module and operationally connected to process components in the hydrocarbon processing plant,

wherein the function performed by the process components contained in the first multipurpose module is removal of water from a natural gas stream, and wherein the process components contained in the first multipurpose module comprise molecular sieve adsorption beds arranged in a sequence that is parallel to the major axis of the pipeline structure, and further

wherein the molecular sieve adsorption beds are first molecular sieve adsorption beds, and further comprising second molecular sieve adsorption beds located in the first multipurpose module and associated with extraction of C_6^+ components from a natural gas stream, wherein the first and second molecular sieve adsorption beds are arranged in a sequence that is parallel to the major axis of the piperack structure.

2. The hydrocarbon processing plant of claim 1, wherein a function performed by the second module is removal of acid gas from a natural gas stream.

3. The hydrocarbon processing plant of claim 2, further comprising an amine solvent unit used for the removal of acid gas.

4. The hydrocarbon processing plant of claim 2, further comprising an amine absorber and at least one amine regenerator column, wherein the amine absorber and the at least one amine regenerator column are configured to be erected and connected to the process components at an installation site of the hydrocarbon processing plant.

5. The hydrocarbon processing plant of claim 1, wherein the process components contained in the first multipurpose module comprise one or more of a scrub column, a molecular sieve adsorption bed, and a Joule-Thompson assembly.

6. The hydrocarbon processing plant of claim 1, wherein the function performed by the process components contained in the first multipurpose module is mechanical refrigeration of a natural gas stream accomplished in part by rejecting heat to an ambient using one or more air and/or water- cooled heat exchangers.

7. The hydrocarbon processing plant of claim 6, wherein the mechanical refrigeration is accomplished in part by

a refrigerant comprising propane and/or propylene, or

a mixed refrigerant comprising methane, ethane and/or ethylene, and propane and/or propylene.

8. The hydrocarbon processing plant of claim 7, wherein the mixed refrigerant further comprises butane.

9. The hydrocarbon processing plant of any one of claims 1-8, further comprising operating site-built or operating site-assembled components connected to the first multipurpose module, the operating site-built or operating site-assembled components performing part of the function associated with the process components contained in the first multipurpose module.

10. The hydrocarbon processing plant of any one of claims 1-9, wherein the second module

is a second multipurpose module configured to be substantially pre-assembled prior to being transported to the operating location, the second multipurpose module containing process components that perform a function related to hydrocarbon processing or handling different from the function performed by the process components of the first multipurpose module.

11. The hydrocarbon processing plant of any one of claims 1-10, wherein the second module is a piperack module configured to be substantially pre-assembled prior to being transported to the operating location.

12. The hydrocarbon processing plant of any one of claims 1-11, wherein the second module has a major axis that is one of parallel and perpendicular to the major axis of the piperack structure.

13. The hydrocarbon processing plant of claim 1, further comprising a heat exchanger bank running along the major axis of the train.

14. The hydrocarbon processing plant of claim 1, wherein the at least one heat exchanger is aligned with the major axis of the first multipurpose module.

15. A method of constructing a hydrocarbon processing plant, wherein the plant is a liquefied natural gas processing plant, comprising:

providing a liquefied natural gas processing plant in the form of a liquefied natural gas (LNG) train at an operating site, the LNG train having a major axis;

providing a piperack structure at the operating site, the piperack structure having a major axis that is parallel to the major axis of the LNG train;

providing a heat exchanger bank running along the major axis of the LNG train;

substantially pre-assembling a first multipurpose module at a manufacturing site that is separate from the operating site, the first multipurpose module including

process components that perform a function related to hydrocarbon processing,

piping systems, and

a plurality of heat exchangers operationally connected to process components in the

LNG train, wherein the plurality of heat exchangers are aligned with a major axis of the first multipurpose module;

transporting the first multipurpose module to the operating site; and

operationally connecting, at the operating site, the first multipurpose module to the LNG train such that (a) a major axis of the first multipurpose module is either parallel or substantially perpendicular to the major axis of the piperack, (b) the piping systems connect the process components directly to a second module that is adjacent the first multipurpose module, and (c) at least part of the piping systems are aligned with the major axis of the piperack structure,

wherein the function performed by the process components contained in the first multipurpose module is removing water from a natural gas stream,

wherein the process components contained in the first multipurpose module comprise molecular sieve adsorption beds, and further comprising arranging the molecular sieve adsorption beds in a sequence that is parallel to the major axis of the piperack structure,

wherein the molecular sieve adsorption beds are first molecular sieve adsorption beds for dehydration, and further comprising:

locating second molecular sieve adsorption beds in the first multipurpose module, the second molecular sieve adsorption beds being associated with extraction of C_6^+ components from a natural gas stream; and

arranging the first and second molecular sieve adsorption beds in a sequence that is parallel to the major axis of the piperack structure.

16. The method of claim 15, wherein a function performed by the process components contained in the second module is removing acid gas from a natural gas stream, and further comprising: erecting and connecting an amine absorber and at least one amine regenerator column to the process components at the operating site.

17. The method of claim 15, further comprising erecting and connecting, at the operating site, one or more components to the first multipurpose module, the one or more components performing part of the function associated with the process components contained in the first multi-purpose module.

18. The method of claim 15, wherein the function performed by the process components contained in the first multipurpose module is mechanical refrigeration of a natural gas stream that is accomplished in part by rejecting heat to an ambient using one or more air and/or water-cooled heat exchangers.

19. The method of claim 18, wherein the mechanical refrigeration is accomplished in part by

a refrigerant comprising propane and/or propylene, or

a mixed refrigerant comprising methane, ethane and/or ethylene, and propane and/or propylene.

20. The method of any one of claims 15-19, wherein the second module is a second multipurpose module containing process components that perform a function related to hydrocarbon processing or handling different from the function performed by the process components of the first multipurpose module, and further comprising:

substantially pre-assembling the second multipurpose module prior to being transported to the operating location; and

connecting the second multipurpose module to the first multipurpose module at the operating location.

21. The method of any one of claims 15-20, wherein the second module is a piperack module that forms part of the piperack structure, the method further comprising:

pre-assembling the piperack module prior to being transported to the operating location; and

connecting the piperack module to other portions of the piperack structure and to the first multipurpose module at the operating location.