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HYDROCARBON ADVANCEMENTS
THE GROWTH AND DEVELOPMENT

- Global leader of Plug-in modular HC cases
- Early 1990's started research of natural refrigerants
- 1997 first supermarket installation with propane
- 2002 started serial production with propane
- 2015 first complete market using propane
- Over 1,000,000 propane cabinets globally
- Approximately 15,000 propane cabinets in North America



- SPOT BUNKERS / ISLANDS**



- **SPOT VERTICAL COOLERS**



- **SEMI-VERTICALS**



- **MULTI-DECKS**



- **FROZEN UPRIGHTS**



- FULL STORE SYSTEM**



MODE OF OPERATION IN HEATING OPERATION WITH VERY LOW OUTDOOR TEMPERATURE.

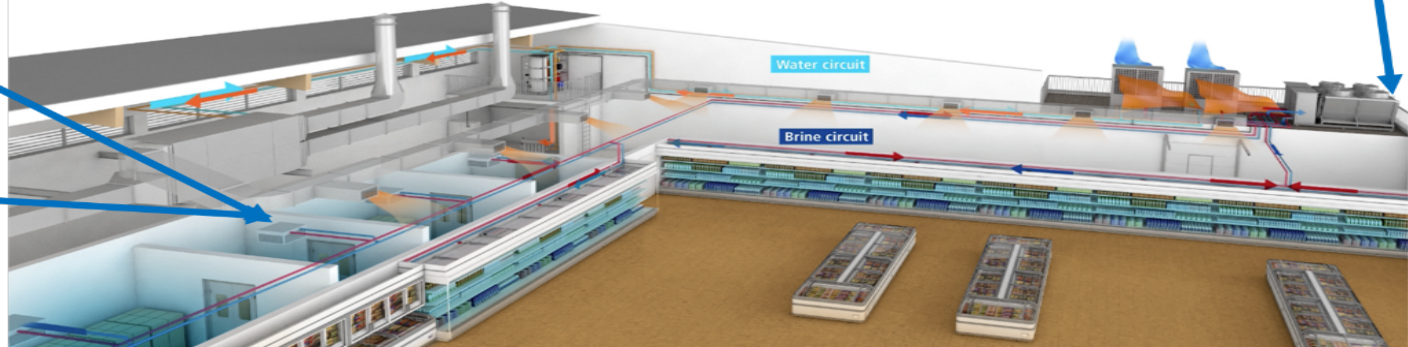
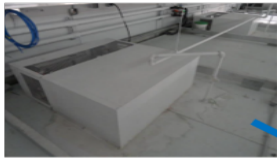
Re-cooling circuits with heat reclamation.
Waste heat usage with additional heating.



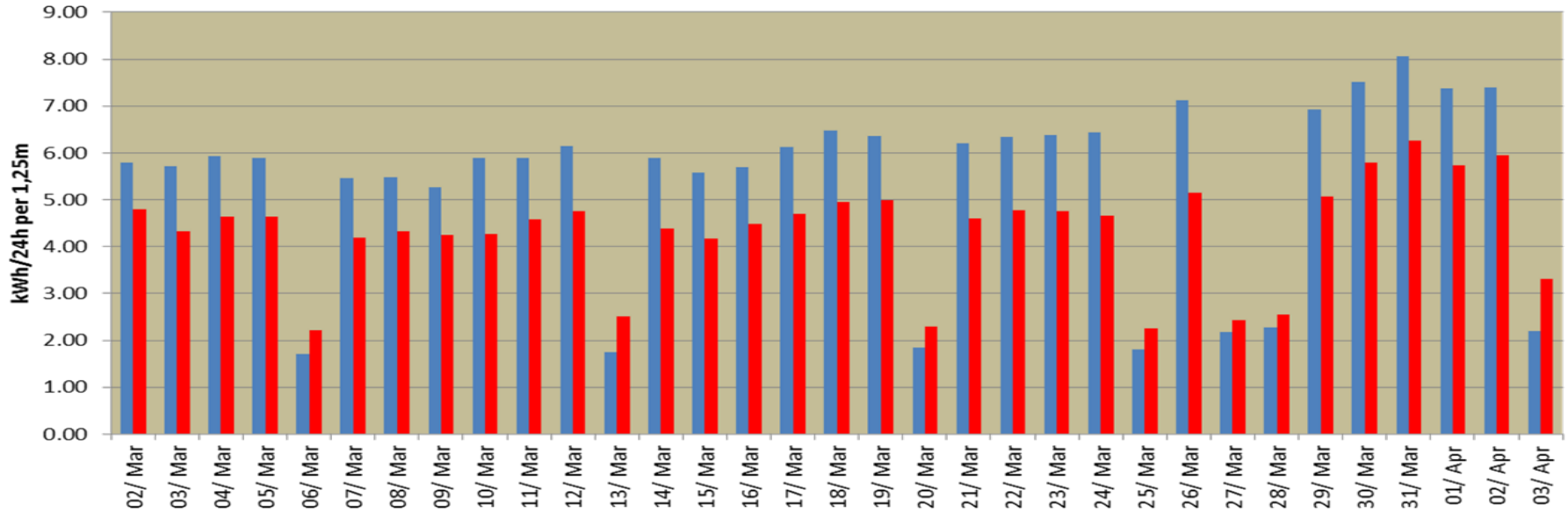
Rooms are heated.

Water circuit

Brine circuit



- ENERGY SAMPLE**



- **ADVANCEMENTS / EFFORTS**

- Raising the charge limit up to 500g
- Standards written into 2018 Building Codes
- IEC
- NFPA
- ANSI
- UL
- AHRI
- EPA



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Thank you very much!

