

Industrial Cold Storage Project Planning Checklist

A vendor-neutral, pre-equipment checklist for buyers running cold chain projects between USD \$250K and \$100M+. Complete every section **before** issuing an RFQ. Companion to the flagship guide: *Why Successful Cold Storage Projects Are Built Long Before Equipment Is Purchased*.

Project		Prepared by	
Site / location		Date	
Budget envelope		Target commissioning	

How to use: work through each section sequentially. A section is not "done" until every line has an owner, a status and a date. Any unchecked line is a live procurement risk.

1. Project Definition & Business Case

✓	Item	Owner	Status / Notes
[]	Business objective documented (new build / expansion / replacement / relocation)		
[]	5–10 year demand forecast agreed with commercial & supply chain leadership		
[]	Product profiles defined: temperature class, pallet type, weight, packaging, shelf life		
[]	Throughput model: pallets in/out per day, peak vs. average, seasonality curve		
[]	Budget envelope approved (capex range, contingency %, financing appetite)		
[]	Strategic constraints logged: land, grid capacity, water, permitting, timeline		

2. Site & Regulatory Due Diligence

✓	Item	Owner	Status / Notes
[]	Site survey: geotechnical, drainage, floor loading, seismic zone		
[]	Grid capacity confirmed in writing with utility (kVA available + lead time)		
[]	Water & wastewater capacity confirmed (relevant for evaporative / condenser cooling)		
[]	Local building code, fire code and refrigerant regulation reviewed by qualified engineer		
[]	Environmental permits scoped (F-gas, ammonia safety case, CO2 ventilation, HACCP)		

✓	Item	Owner	Status / Notes
[]	Neighbourhood/noise/setback constraints checked against condenser & compressor placement		

3. Requirements Document (URS)

✓	Item	Owner	Status / Notes
[]	Chambers listed: number, temperature setpoint, tolerance, internal volume		
[]	Pallet positions per chamber (racked + floor), aisle strategy, MHE compatibility		
[]	Loading dock count, dock leveller spec, air-lock / dock shelter strategy		
[]	Refrigeration duty calculated per chamber (kW) with load breakdown		
[]	Redundancy strategy defined (N, N+1, 2N) per critical system		
[]	Controls & monitoring requirements: BMS, alarms, remote access, audit trail		
[]	Data ownership and controls openness clause included (no vendor lock-in)		

4. Refrigeration Architecture Decisions

✓	Item	Owner	Status / Notes
[]	Refrigerant framework evaluated: NH3 / CO2 / HFO / HFC — decision documented		
[]	System topology chosen: central plant, distributed, cascade, transcritical CO2		
[]	Defrost strategy defined (hot gas / electric / water) per evaporator group		
[]	Heat recovery opportunity assessed (DHW, subfloor heating, office HVAC)		
[]	Floating head pressure & VFD strategy specified		
[]	Spares & service market analysis for chosen refrigerant / OEM in this region		

5. Building Envelope & Civil

✓	Item	Owner	Status / Notes
[]	Panel U-value / thickness specified per temperature class		

✓	Item	Owner	Status / Notes
☐	Floor build-up: subfloor heating, vapour barrier, insulation, wearing slab		
☐	Roof loading verified for condensers, walkways, snow, PV		
☐	Vapour sealing & thermal bridging details specified (not left to installer)		
☐	Fire compartmentation & sprinkler strategy agreed with insurer		

6. Energy, Sustainability & Metering

✓	Item	Owner	Status / Notes
☐	Energy model produced (kWh/m3/year) with base + optimistic + pessimistic scenarios		
☐	Sub-metering plan: per chamber, per compressor, per condenser, per lighting circuit		
☐	PV / battery / heat recovery evaluated on 20-year NPV, not payback only		
☐	Refrigerant leakage monitoring & annual reporting workflow defined		

7. Procurement Strategy & RFQ Pack

✓	Item	Owner	Status / Notes
☐	Bid pack structure agreed (lots, single-EPC vs. multi-package)		
☐	Evaluation matrix defined BEFORE issuing RFQ (technical / commercial / lifecycle weights)		
☐	Minimum 3 qualified independent suppliers shortlisted per lot		
☐	Standard commercial terms drafted: warranty, LDs, spares, training, uptime SLA		
☐	Clarification & Q&A; window scheduled; single point of contact appointed		

8. Commercial, Financing & Risk

✓	Item	Owner	Status / Notes
☐	TCO model built (20-year: capex + energy + maintenance + refrigerant + downtime)		
☐	Financing options mapped: cash, leasing, ECA, project finance, grants		
☐	Currency & escalation clauses reviewed on long-lead equipment		

✓	Item	Owner	Status / Notes
[]	Insurance strategy: construction all-risk, business interruption, product liability		
[]	Risk register maintained with owner + mitigation per line (min. 12 categories)		

9. Delivery, Commissioning & Handover

✓	Item	Owner	Status / Notes
[]	Master schedule with critical path (civil ↔ refrigeration ↔ controls ↔ commissioning)		
[]	Factory Acceptance Test (FAT) protocol agreed per major package		
[]	Site Acceptance Test (SAT) and pull-down test protocol agreed		
[]	Temperature mapping plan (loaded + unloaded) — mandatory for pharma / GDP		
[]	As-built documentation, O&M; manuals, spares list, training log delivered		
[]	12-month performance review scheduled with energy & uptime KPIs		

10. Governance & Documentation

✓	Item	Owner	Status / Notes
[]	Single project directory with version control (URS, drawings, RFQs, minutes)		
[]	Decision log maintained (what was decided, by whom, on what date, why)		
[]	Change control procedure defined before contract award		
[]	Escalation path & steering committee cadence agreed		

Sign-off

Role	Name	Signature	Date
Project sponsor			
Project manager			
Lead refrigeration engineer			
Procurement lead			
Quality / compliance (pharma / food)			

About this checklist — ColdMatch Group is the industrial cold chain platform of GlobalB2BGroup. We do not sell refrigeration equipment and we do not represent manufacturers. This checklist is distributed free to help buyers plan cold storage projects on a vendor-neutral basis. For a structured RFQ builder, TCO planner and financing assessment based on the same methodology, visit coldmatchgroup.com.