ENGINEERING GUIDE / UAE

COLD ROOM DESIGN

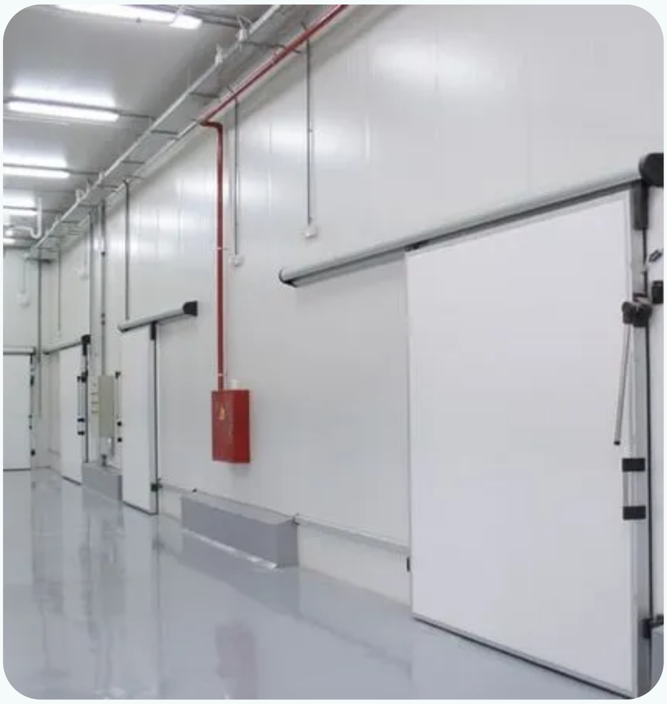
Consulting, Engineering, Contracting, Installation & Commissioning

A practical engineering guide to planning, designing, delivering and commissioning commercial and industrial cold rooms for UAE operating conditions.

- Consultation
- Cooling Load
- Refrigeration
- Insulation
- Airflow
- Controls
- Installation
- Commissioning

Afzali Technical Services

Engineering-led cold room support across the UAE



Complete Project Lifecycle

From project definition and technical consultation to design review, equipment selection, contractor coordination, installation support, testing, commissioning and handover.

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01 / PROJECT OVERVIEW

Cold Room Design Starts With the Operating Requirement

A cold room is not simply an insulated enclosure with a refrigeration unit. Reliable performance depends on the room envelope, refrigeration system, airflow, controls, operating workflow and maintenance access being engineered as one coordinated system.

1

Consulting

Define product requirements, target conditions, site constraints, capacity, workflow, risk and project priorities before equipment or construction decisions are frozen.

2

Engineering

Calculate cooling loads, develop the thermal envelope, size the refrigeration system, coordinate airflow, controls, drainage, power and interfaces.

3

Delivery

Translate design intent into installation, inspection, functional testing, commissioning, documentation, training and operational handover.

Afzali Project Approach

Afzali supports cold room projects as an engineering-led consultant and, where required, as a contractor. The design basis is built around the stored product, operating conditions, room geometry, usage pattern, maintainability and UAE ambient conditions.

Core design objectives

- Maintain the required product temperature and humidity conditions.
- Provide sufficient capacity for expected operating scenarios.
- Limit unnecessary heat gain and air infiltration.
- Maintain practical access for loading, cleaning and maintenance.

Operational objectives

- Deliver uniform airflow without persistent hot or cold zones.
- Provide clear alarms, controls and operating visibility.
- Coordinate safety, drainage, power and service clearances.
- Support reliable long-term operation rather than catalog-capacity selection alone.

> **Design principle:** the cold room should be engineered around the actual operating requirement, not around a preselected compressor, condensing unit or panel thickness.

02 / CONSULTATION & DESIGN BASIS

What Must Be Defined Before Cold Room Design Begins

Consultation converts business requirements into measurable engineering inputs. A clear design basis reduces the risk of incorrect capacity, unsuitable components, poor workflow and costly redesign during construction.

Design Input	Information to Confirm	Why It Matters
Stored product	Commodity, packaging, sensitivity, storage method, desired holding period.	Defines product-specific temperature, humidity and airflow needs.
Product throughput	Daily mass entering, entry temperature, peak arrivals, loading pattern and pull-down expectations.	Often drives product load and required recovery capacity.
Room condition	Target temperature, allowable variation, humidity requirement and operating schedule.	Defines thermal duty and control strategy.
Room geometry	Internal dimensions, clear height, adjacent spaces, ceiling constraints, racking and access.	Influences envelope area, airflow and equipment placement.
Door activity	Door size, type, openings per hour, duration and traffic pattern.	Controls infiltration load and moisture entry.
Internal loads	Lighting, people, motors, forklifts, process equipment and defrost heat.	Adds sensible and latent heat inside the room.
Site conditions	Outdoor conditions, condenser location, ventilation, dust exposure, utilities and access.	Critical for equipment selection and reliable UAE operation.
Business constraints	Uptime target, redundancy, budget framework, expansion plans and construction phasing.	Shapes system architecture and delivery strategy.

Consulting Outputs

- Project requirement schedule
- Preliminary room zoning and layout concept
- Design criteria and operating assumptions
- Risk and constraint register
- Concept refrigeration architecture
- Scope split between client, consultant and contractor

Decision Gate

Do not freeze equipment capacity, panel specification, door selection or plant layout before the design basis is agreed. These decisions are interdependent and should follow the calculated thermal and operational requirements.

New Build | Expansion | Retrofit | Design Review

03 / COOLING LOAD CALCULATION

Cooling Capacity Must Be Calculated From the Real Heat Loads

Refrigeration duty should be built from the heat loads acting on the room, rather than estimated from room volume alone. Different loads peak at different times, so the operating profile matters as much as the peak total.

Cooling load basis: transmission + product + infiltration + internal loads + fans/defrost + project-appropriate allowance. The calculation method and assumptions should be documented and checked against the expected operating schedule.

Transmission Load

Heat entering through walls, ceiling and floor. Driven by surface area, temperature difference, U-value, thermal bridges and adjacent-space conditions.

Product Load

Heat removed from incoming product and packaging, including sensible cooling and, where applicable, freezing or post-freezing duty.

Infiltration Load

Warm, humid air entering through doors, gaps or pressure differences. Door size, opening time, traffic and protective measures materially affect this load.

Internal Load

Lighting, people, motors, forklifts and process equipment operating inside the cooled space.

Fans & Defrost

Evaporator fan motor heat and defrost energy can be significant, especially in low-temperature applications.

Operating Profile

Account for pull-down periods, door activity, defrost schedule, product arrival pattern and available compressor run time.

01 Inputs	02 Loads	03 Profile	04 Capacity	05 Select	06 Verify
Product, room, doors, ambient, hours	Calculate each heat gain	Evaluate peak and daily duty	Apply realistic run-time basis	Match evaporator and plant	Check part-load and worst case

Engineering principle: oversizing is not automatically safer. Excess capacity can cause short cycling and unstable control; undersizing can lead to slow recovery and failure to maintain target conditions.

04 / REFRIGERATION SYSTEM

Refrigeration System Design & Equipment Selection

A reliable cold room requires coordinated selection of the evaporator, compressor or condensing unit, condenser, expansion device, controls and safety components. Selection should be checked at the actual design conditions, not at nominal catalog ratings alone.

Evaporator

- Capacity at the actual evaporating condition
- Air throw and room geometry
- Coil temperature difference and humidity effect
- Fin spacing and frost behavior
- Defrost method and drainage
- Service access and fan energy

Compressor / Condensing Unit

- Capacity at project suction and condensing conditions
- Part-load performance and cycling strategy
- Oil return and operating envelope
- Redundancy where loss of cooling is business-critical
- Maintenance access and service support

Industrial refrigeration plant - equipment must be evaluated at project operating conditions.

Condenser

- Selected for UAE ambient conditions and installation location
- Air recirculation and discharge clearance checked
- Dust exposure and cleaning access considered
- Fan staging or variable-speed control coordinated with head-pressure strategy

Expansion Control

Stable superheat control, correct valve capacity and proper sensor placement support evaporator utilization and compressor protection.

Refrigerant Circuit

Piping should respect pressure-drop limits, oil return, serviceability, insulation continuity and applicable refrigerant safety requirements.

System Architecture

Single systems, multiple circuits or centralized arrangements should be selected around load profile, resilience, maintenance and future expansion.

Project-specific selection: final equipment and refrigerant choices must be checked against manufacturer data, the actual operating envelope, safety requirements and applicable project regulations.

05 / THERMAL ENVELOPE

Insulation, Panels, Vapor Control & Thermal Bridges

The envelope determines how much external heat and moisture the refrigeration system must continuously reject. Panel and floor construction should be selected from thermal performance, moisture control, fire and hygiene requirements - not from a single thickness rule.

Insulated envelope performance depends on continuity at joints, doors, penetrations and floor interfaces.

Envelope Design Checks

- Required U-value / thermal resistance
- Indoor and outdoor temperature and humidity
- Vapor-pressure direction and condensation risk
- Panel joint continuity and sealing
- Door perimeter and structural penetrations
- Floor thermal performance and moisture protection
- Fire, hygiene, finish and project approval requirements

PIR / PUR Panels

Select panel systems by thermal performance, fire characteristics, joint quality, facing durability, cleanability and project approval requirements.

Vapor Control

Continuity is critical. Small discontinuities can allow moisture migration, condensation, ice formation and long-term envelope degradation.

Thermal Bridges

Door frames, structural supports, floor transitions and penetrations should be detailed to reduce conductive heat paths and surface condensation.

Freezer-specific considerations

- Evaluate floor insulation and vapor-barrier continuity.
- Assess sub-floor frost-heave protection where project conditions require it.
- Use door and threshold details suited to low-temperature operation.
- Coordinate defrost-water drainage to avoid refreezing hazards.
- Seal penetrations after electrical and refrigeration installation.
- Confirm pressure-relief needs for tightly sealed low-temperature rooms.

06 / AIRFLOW & ROOM LAYOUT

Airflow Is Part of the Refrigeration Design

Cooling capacity alone does not guarantee uniform product temperature. Evaporator position, air throw, return-air path and storage layout must work together so conditioned air reaches the occupied volume and returns without short-circuiting.

Evaporator Positioning

- Provide clear discharge and return paths.
- Avoid obstructions from racks or stacked product.
- Consider door location and infiltration path.
- Keep service access practical.
- Avoid direct discharge onto sensitive product where inappropriate.

Storage Layout

- Maintain air gaps at walls and ceiling where required.
- Preserve return-air corridors.
- Coordinate pallet and rack heights with air throw.
- Prevent product from blocking coils or drains.
- Design traffic flow without encouraging doors to remain open.

Air Throw

Must reach the intended room zone without excessive velocity at product level.

Return Air

Requires an unobstructed path back to the evaporator to avoid recirculation short-circuits.

Dead Zones

Should be identified during design and verified during commissioning or temperature mapping when required.

Humidity connection: coil temperature, runtime, door infiltration and defrost strategy affect moisture removal. For humidity-sensitive products, airflow and refrigeration design should be coordinated with the required storage humidity.

07 / ARCHITECTURAL & STRUCTURAL INTERFACES

Cold Room Doors, Flooring & Construction Interfaces


Door selection directly affects infiltration, workflow, safety and refrigeration load.

Door Selection Checklist

- Clear opening and traffic type
- Hinged or sliding arrangement
- Insulation and perimeter seals
- Threshold and floor transition
- Anti-sweat or heated-frame provisions where required
- Internal release and safety requirements
- High-cycle opening strategy
- Strip curtains, air curtains or vestibules where justified

Flooring

Coordinate insulation, vapor control, structural loading, surface finish, hygiene, slip resistance, drainage and forklift or pallet traffic.

Drainage

Evaporator condensate and defrost water must drain reliably without freezing, backflow or creating hygiene problems.

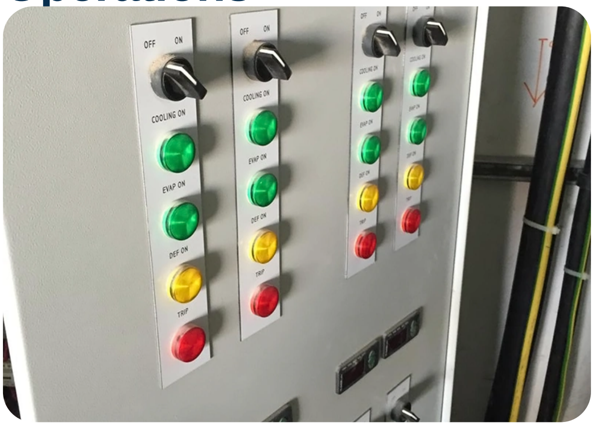
Structure

Panel supports, ceiling suspension, equipment loads, pipe supports and penetrations require coordination with the building structure.

Interface	Coordinate Before Construction
MEP penetrations	Locations, sleeves, sealing, vapor-barrier continuity and fire-stopping where applicable.
Electrical	Power routes, isolators, lighting, emergency systems, controls and panel locations.
Refrigeration piping	Route, support, insulation, valves, oil return and access for maintenance.
Drainage	Fall, trap strategy, heat tracing where required and safe discharge point.
Operations	Racking, forklift paths, cleaning access, loading doors and maintenance clearances.

08 / CONTROLS & MONITORING

Controls Should Protect Product, Equipment and Operations



Typical Control Functions

- Room temperature control
- Evaporator fan sequencing
- Defrost initiation and termination
- Compressor staging or capacity control
- Condenser fan or head-pressure control
- Door and high-temperature alarms
- Sensor failure and equipment trip alarms
- Manual / automatic operating modes

Sensors

Temperature, humidity, pressure and status points should be selected for the control and monitoring purpose.

Data Logging

Creates traceable records for operations, troubleshooting and compliance where required.

Alarms

Prioritized alarms with appropriate delay and escalation logic reduce nuisance alerts and missed events.

Integration

PLC, BMS, SCADA or remote dashboards can be integrated when centralized visibility is required.

Alarm Philosophy

Define what constitutes a warning, critical alarm and equipment trip. Include setpoint, time delay, notification path, operator action and reset method. Alarm logic should reflect product risk and system behavior rather than report every transient

Recommended monitoring points for critical rooms

- Room temperature at representative locations
- Door-open status and excessive duration
- Compressor and evaporator operating status
- High / low pressure or refrigeration fault status
- Power failure or control-supply failure
- Humidity where product or process requires it

09 / INSTALLATION & SITE EXECUTION

Installation Must Preserve the Engineering Design Intent

Good design can underperform if the envelope is poorly sealed, piping is incorrectly routed, sensors are misplaced or airflow paths are blocked. Installation quality should therefore be controlled against approved drawings and technical requirements.

Panel & Envelope Works

- Verify floor level and room dimensions before erection.
- Check panel joints, alignment and sealing.
- Maintain vapor-barrier continuity.
- Seal penetrations after services are installed.
- Inspect doors, frames, gaskets and hardware.
- Protect finishes during construction.

Refrigeration Installation

- Maintain equipment service clearances.
- Support piping independently and correctly.
- Apply insulation continuously with sealed joints.
- Protect system cleanliness during fabrication.
- Locate valves and service points for safe access.
- Coordinate drains and defrost-water routing.

Electrical & Controls

- Use approved cable sizes and protective devices.
- Confirm sensor locations and wiring segregation.
- Provide equipment isolators and clear labeling.
- Verify earthing, bonding and panel documentation.
- Check functional interlocks before operation.

Site Quality Records

- Material approvals and inspection records
- Pressure and leak-test records
- Insulation and panel inspection checklists
- Electrical test results
- Non-conformance and close-out records

01 Survey	02 Envelope	03 Equipment	04 Services	05 QA/QC	06 Pre-Cx
Confirm dimensions & interfaces	Floor, panels, ceiling, doors	Evaporators, plant, supports	Piping, drains, power, controls	Inspect, test, rectify	Prepare for commissioning

10 / TESTING & COMMISSIONING

Commissioning Proves That the Cold Room Works as Designed

Commissioning should verify the refrigeration circuit, controls, safety functions, room performance and documentation before operational handover. It is a structured engineering process, not simply switching the system on.

1

Pre-Commissioning

- Visual inspection
- Electrical checks
- Pressure / leak testing
- Evacuation and system preparation
- Sensor and actuator checks

2

Functional Testing

- Start-up sequence
- Compressor and fan operation
- Defrost sequence
- Safety trips and interlocks
- Alarm and communication tests

3

Performance Verification

- Pull-down behavior
- Temperature stability
- Airflow and room distribution
- Door recovery performance
- Operating pressures and temperatures

Temperature Mapping / Verification

Where product, client or regulatory requirements call for demonstrated temperature uniformity, sensor locations and test duration should be defined in the test plan. Mapping can reveal warm spots, airflow limitations or control issues before full operational loading.

Commissioning Record	Minimum Information to Retain
Equipment start-up sheets	Model and serial details, operating readings, control settings and protection status.
Control sequence test	Setpoints, differential logic, defrost, alarms, safeties and communication points.
Room performance	Temperature trend, recovery observations, airflow concerns and corrective actions.
Deficiency close-out	Outstanding issues, responsible party, retest evidence and acceptance status.
Training & handover	Operator training record, emergency actions and maintenance responsibilities.

11 / UAE DESIGN CONSIDERATIONS

Designing for High Ambient Temperature, Humidity & Dust

UAE operating conditions can increase condenser duty, heat gain and infiltration moisture. The design should therefore consider site-specific outdoor conditions, equipment location and maintenance requirements from the beginning.

High Ambient Temperature

Condenser selection and compressor operating envelope should be checked at the project design condition, with appropriate airflow clearance and recirculation control.

Humidity & Infiltration

Warm, moist air entering at doors creates both sensible and latent load. Door strategy, sealing and traffic management are part of the refrigeration design.

Dust Exposure

Outdoor coils and plant areas should be arranged for inspection and cleaning so heat-rejection performance can be maintained.

Heat Gain

Envelope U-values, solar exposure, adjacent-space temperature and thermal bridges should be included in the design basis.

Plant Load

Heat-rejection equipment should be assessed at realistic ambient conditions, not selected from low-ambient catalog points.

Energy-efficiency hierarchy

1. Reduce Load
Envelope, doors, workflow

2. Size Correctly
Design conditions, load profile

3. Efficient Plant
Compressor, condenser, fans

4. Control
Setpoints, staging, defrost

5. Monitor
Trends, alarms, faults

6. Maintain
Cleaning, tuning, inspection

> **Lifecycle view:** energy performance depends on both design and operation. Accessible equipment, cleanable condensers, stable controls and sensible door management support long-term efficiency.

12 / APPLICATION ENGINEERING

Cold Rooms Are Engineered Around the Product and Operation

Different products and workflows create different temperature, humidity, airflow, hygiene and monitoring requirements. The storage application should therefore drive the design decisions.

Application	Typical Design Priorities	Engineering Focus
Food & Beverage	Product condition, hygiene, throughput, door traffic	Stable temperature, practical cleaning, airflow and loading workflow
Pharmaceutical	Tight temperature control, traceability, alarms	Monitoring, documentation, risk-based redundancy where required
Meat & Poultry	Low temperature, hygiene, product load	Coil selection, defrost, drainage, cleanability and recovery capacity
Seafood	Product quality, low temperature, moisture control	Rapid recovery, corrosion-aware materials and robust drainage
Fruit & Vegetables	Temperature, humidity, product respiration	Humidity-sensitive coil selection and airflow suited to the commodity
Hospitality / Kitchens	Frequent access, compact layouts, hygiene	Door management, maintainability and practical storage zoning
Logistics / Distribution	High throughput, multiple zones, traffic	Door strategy, recovery, scalable controls and operational visibility

Chiller Rooms

Positive-temperature storage where product sensitivity, humidity and access patterns often drive coil and control choices.

Freezer Rooms

Low-temperature rooms requiring stronger envelope detailing, frost management, defrost coordination and floor considerations.

Multi-Temperature Rooms

Projects with multiple zones require coordinated loads, doors, airflow, controls and refrigeration architecture.

Important: storage temperatures and humidity targets are product- and process-specific. Final setpoints should follow the client's product requirements and applicable sector guidance.

13 / CONSULTING & CONTRACTING

Where Consulting Ends - and Contracting Begins

Cold room projects often fail at the interface between design, procurement and construction. Clear responsibility and coordinated technical review reduce gaps between the engineering intent and the work installed on site.

Consultant Role

- Requirements definition
- Design calculations and criteria
- Technical drawings and specifications
- Vendor-neutral equipment review
- Submittal and shop-drawing review
- Site inspections and technical responses
- Commissioning witness and acceptance support

Contractor Role

- Procurement and logistics
- Site planning and coordination
- Panel and refrigeration installation
- Electrical and control works
- Testing preparation and rectification
- As-built documentation
- Handover implementation

Integrated Support

Where Afzali supports both engineering and project execution, the scope should still be clearly documented so design review, quality control, construction responsibilities and acceptance criteria remain transparent.

Typical project stages and ownership

Stage	Primary Engineering Activity	Typical Coordination
Concept	Requirements, layout concept, design basis	Client + consultant
Detailed Design	Loads, equipment selection, controls, drawings, interfaces	Consultant + specialist disciplines
Procurement	Technical review, compliance, approved-equivalent assessment	Client + contractor + consultant
Construction	Installation inspections, QA/QC, coordination and issue resolution	Contractor + consultant
Commissioning	Functional testing, performance verification, close-out	Contractor + consultant + client
Handover	Training, O&M, as-builts, settings and responsibilities	All parties

14 / EXISTING COLD ROOMS

Retrofit and Upgrade Projects Need Diagnosis Before Replacement

Existing cold rooms should be assessed as a complete system. Replacing equipment may not solve poor insulation, blocked airflow, incorrect controls, door infiltration, drainage problems or operating practices that create the underlying performance issue.

Condition Assessment

- Review historical temperature and alarm trends
- Inspect current plant capacity and operating condition
- Check doors, seals, panels and thermal bridges
- Assess evaporator placement and airflow
- Review defrost, drainage and moisture issues
- Verify control logic, sensors and monitoring
- Compare system performance with current operating needs

Upgrade Options

- Capacity correction or equipment replacement
- Controls and sensor improvements
- Door or infiltration-control measures
- Airflow modifications and evaporator changes
- Panel, joint or floor-envelope repairs
- Monitoring and alarm upgrades
- Phased works to protect ongoing operations

Long Run Time

Can indicate high load, reduced heat rejection, low system capacity or control issues.

Uneven Temperature

May indicate airflow restrictions, poor evaporator position or storage-layout conflicts.

Excess Frost

Can be linked to moisture infiltration, defrost problems or door-management issues.

High Energy Use

May result from excessive load, poor heat rejection, incorrect control or maintenance issues.

Condensation

Often points to vapor-control failures, thermal bridges or uncontrolled infiltration.

Frequent Alarms

Should be investigated as system behavior, not simply reset as an operational nuisance.

Retrofit principle: diagnose the root cause before selecting the remedy. A targeted upgrade is usually more defensible than replacing major equipment without evidence.

15 / ENGINEERING DELIVERABLES

What a Complete Cold Room Engineering Package Can Include

The exact deliverables depend on project scope, procurement route and consultant responsibilities. A well-defined document package creates a common technical reference for the client, contractor, supplier and commissioning team.

Design Documents

- Design basis and criteria
- Cooling load calculations
- Room layout and zoning drawings
- Equipment selection and technical schedules
- Refrigeration schematic / flow diagram
- Piping and equipment layouts
- Panel, door and insulation requirements
- Control philosophy and sequence of operation

Construction Documents

- Coordinated shop drawings
- Submittals and material approvals
- Electrical single-line / control diagrams as applicable
- Installation details and coordination drawings
- Inspection and test plans
- Commissioning procedures
- As-built drawing requirements

Handover Package

- Approved as-built drawings
- Equipment data and serial records
- Final setpoints and alarm matrix
- Commissioning and test reports
- Warranty / service information
- Preventive-maintenance schedule
- Operator training records

Documentation Is Part of Reliability

A cold room can operate on day one while remaining difficult to maintain for years if the documentation is incomplete. Clear records support troubleshooting, future expansion, safe maintenance and accountability.

Basis	Design	Submittal	Site	Test	Handover
Inputs & assumptions	Calculations & layouts	Vendor data	Inspections & records	Commissioning	O&M & training

16 / OPERATIONS & MAINTENANCE

Reliable Operation Continues After Project Handover

Cold room performance changes as doors wear, coils collect dust, sensors drift, operating patterns change and maintenance is deferred. A practical handover should define routine operating checks, alarm actions and planned maintenance responsibilities.

Daily / Routine

- Check room temperature and alarms
- Observe doors and gaskets
- Inspect evaporator airflow
- Review unusual sounds or visible icing

Planned Maintenance

- Clean condenser and evaporator coils
- Inspect fans, belts and motors where applicable
- Check electrical connections and control panels
- Review refrigeration circuit condition

Performance Review

- Trend room temperatures and alarms
- Review runtime and energy changes
- Reassess operating assumptions after process changes
- Investigate repeated alarms rather than normalizing them

Operator Training Topics

- Normal setpoints and allowed changes
- Door-management and loading practices
- Alarm response and escalation
- Defrost and drainage awareness
- Emergency shutdown / restart actions
- When to call refrigeration service support

Performance Item	What to Review
Room temperature trend	Stability during normal duty, recovery after door events and product loading.
Alarm history	Recurring alarms, nuisance alarms and unresolved equipment faults.
Energy / run time	Changes that may indicate increased heat load, fouling, control drift or plant deterioration.
Condition review	Doors, insulation joints, drainage, ice formation, sensors and accessibility for service.

17 / SCOPE DEFINITION

Cold Room Design vs Cold Storage Facility Design

The two scopes are related, but they operate at different engineering levels. Cold room design focuses on an individual temperature-controlled room; cold storage facility design covers the wider facility that may contain multiple cold rooms and supporting infrastructure.

Engineering Scope	Cold Room Design	Cold Storage Facility Design
Primary focus	Individual refrigerated room	Complete cold storage facility
Cooling load	Room-specific cooling load and operating profile	Combined facility demand and overall refrigeration strategy
Refrigeration	System and equipment serving the room	Central plant or multi-system strategy across the facility
Envelope	Panels, floor, ceiling, doors and vapor control	Building envelope plus multiple refrigerated zones
Airflow	Evaporator position, air throw and room uniformity	Coordination across multiple storage and operational areas
Layout	Room dimensions, racks, doors and product arrangement	Warehouse, loading areas, circulation and logistics flow
Controls	Room sensors, alarms and local control	Integrated monitoring, automation and facility-level systems
Infrastructure	Requirements directly associated with the cold room	Utilities, plant areas, electrical systems and supporting infrastructure

Choose Cold Room Design When...

The project concerns a specific chiller room, freezer room, walk-in room or industrial refrigerated room, including its refrigeration, envelope, airflow and controls.

Choose Facility-Level Design When...

The project includes multiple cold rooms, warehouse functions, loading operations, central refrigeration infrastructure, utilities or complete cold-chain facility planning.

Afzali consultation: the project scope can be defined at the consultation stage so room-level and facility-level engineering responsibilities are clear before design and procurement begin.

18 / START THE PROJECT CORRECTLY

Plan the Project Before You Commit to Equipment

A cold room should be designed around the product, operating condition and actual project constraints. Early engineering consultation helps establish a defensible design basis before equipment, panel and construction decisions are finalized.

A project discussion can cover:

- New cold room design
- Existing cold room review
- Cooling load and system sizing
- Equipment selection and technical review
- Consultant / contractor coordination
- Installation supervision and quality review
- Testing, commissioning and handover strategy

> **From consultation and engineering design to installation support and commissioning, the objective is a cold room that performs under its real operating conditions.**

Request a Consultation

COMPANY	Afzali Technical Services
OFFICE	Office 804, MM Towers, Al Makthoum Street, Deira, Dubai, P.O. Box 385120
PHONE	+971 4 288 6161
MOBILE	+971 50 6348 577
EMAIL	info@afzali.ae
WEBSITE	afzali.ae

Engineering Note
This guide summarizes typical cold room engineering considerations. Final loads, equipment selections, setpoints, construction details and compliance requirements must be confirmed for the specific project, site, product and applicable authority requirements.