ALL ANNEXURES - BASIC DATASHEETS

(For reference see Engineering Guidelines & Minimum System Standards)

(RELATING TO COMPONENTS SUPPORTED BY CENTRALLY SPONSORED SCHEMES)

USE WHEN SUBMITTING COLD-CHAIN PROJECT PROPOSALS

JANUARY 2025

FORM 1: IDENTIFICATION OF THE APPLICANT

Explanations of the datasheets are provided in the NCCD System Guidelines. All applicants shall fill 'Form 1' for each project submitted for appraisal. Apart from this, relevant datasheet for individual components to be filled by beneficiary seeking subsidy.

A: Identification of the Applicant

Name of Promoter (s)			
Name of Commercial Entity/ Enterprise			
Type of Commercial Entity (Proprietorship/Partnership / Pvt. Ltd / Ltd / PSU/ State Undertaking)			
Postal address of Entity			
	Tel / Fax	Mob. No	E-mail
Present activity in brief			
Name of Contact Person		Phone: Mobile No: Email:	

B: Project Milestone

Date for application for subsidy		
Date of Project Start		
Amount of Bank Loan Sanction		
Date of Bank Loan Sanction		
Last Approval/Inspection Status		
Name of Approving Body		
PAN Number registered with bank.		
If Project Commissioned	Date of completion certificate	Issuing Authority

C: Project Identification: Cold storage / Integrated Pack-House / Reefer Vehicles etc.

Name of Project				
Type of Project (please tick)	**New Project**	**Expansion**	**Modernisation**	
Location of Project (complete address)	Address		Village/Town	
	District		State	
Manpower Employed (on rolls/on contract)				
What Business model is used (rental, captive, part of supply chain service, mixed)				
Years in business				
Components of Project submitted (please tick) **Check list for individual Data sheets submitted**	Farmgate Packhouse			
	Integrated pack house			
	Collection Aggregation Centre			
	Cold Storage Unit Type:			
	1. CS-1			
	2. CS-1-Onion			
	3. CS-2			
	4. CS-2-CA			
	5. CS-4			
	Ripening Chamber (CS-3)			
	Modernisation of Refrigeration			
	Modernisation of Insulation			
	Modernisation Bundle			
	Refrigerated Transport Vehicle			
	Undertaking for using Vacuum Cooling			
	Undertaking for Installation of Onion Cold Storage			
	Submittal for expansion project			
	Others (please name)			
Type of Products to be handled (Frozen, Chill, Mild-chill)	**Temperature Zones**			
	< -18^{O}C	**0-10^{O}C**	**10-20^{O}C**	

Fill up relevant data sheet for each project component.

FARMGATE PACKHOUSE/ STANDALONE COLD ROOM

NOMENCLATURE: _____

S. No.	Description	Unit	Details
1	Name of the Produce	NA	Please give details
2	Room size	m x m x m	
3	Vol of each room	m^3	
4	Total number of rooms	No.	
5	Total capacity of the facility	MT	
6	Room Temperature	°C	
7	Relative Humidity	%	
8	Produce loading rate	kg/day	
9	Produce incoming Temperature	°C	
10	Ambient Temperature	°C	
11	Pull Down Time	hr.	
12	Insulation- walls	mm	
13	Insulation- floor	mm	
14	Insulation- door	mm	
15	Insulation- ceiling	mm	
16	Type of Cold Room	NA	Please give details
17	Technology	NA	Please give details
18	Refrigeration capacity	kW	
19	Type of Compressor	NA	Please give details
20	Evaporating Temperature	°C	
21	Condensing Temperature	°C	
22	Type of Evaporator	NA	Please give details

23	No. of Fans in Evaporator & Size of fans	No. & mm	
24	Air Flow	CMH/CFM	
25	Available grid connection at the site & type of phase/voltage	kW	
26	Solar Panel Capacity	kW	
27	Types & No. of solar panels	No.	
28	DG Set capacity, fuel (optional as required)	kW	
29	Type of thermal storage	NA	Please give details
30	Qty. of PCM	kgs.	
31	No. of thermal storages	No.	
32	No. of batteries & capacity & type of battery	No. & VAH & NA	Please give details
33	Electrical Load Connected on batteries	kW	
34	Type of fuel for bio-mass	NA	Please give details
35	Consumption rate of bio-mass	kg/hr.	
36	Total Electrical load used in bio-mass technology	kW	
37	Refrigeration technology in bio-mass	NA	Please give details
38	Machine make & model and Number	No.	
39	Type of refrigeration system	NA	Please give details
40	Refrigerant Used	NA	Please give details
41	Secondary Refrigerant if used	NA	Please give details

42	Ante room size and capacity	m x m x m & MT	
43	Ante Room Temp. and RH	°C & %	
44	Method of stacking	NA	Please give details
45	Total Power Consumption per Day	kWh/day	
46	Unit Rate per Day	Rs./unit	
47	Cost of Energy	Rs./day	
48	Movable Handling Trolley	NA	Please give details
49	Dimension of Sorting Table	mm x mm x mm	
50	Total no. of Sorting Table	No.	

Place ……..
Date ……..

Signature and
Name of Applicant with seal

Place …….
Date…….

Name in Capital Letters
Signature & Seal of Consultant

***Follow NCCD Guidelines for the purpose of installing cold room. E.g.- Insulation, Doors, Floors, Strip Curtains, Ante Rooms, Volumetric Conversion, Refrigeration, etc.**

All mandatory rules and regulations (BIS, ISO, IS, MNRE, etc.) relevant to the item must be complied with.

Please don't leave any space blank. Write N/A at place which is not applicable.

INTEGRATED PACKHOUSE/COLLECTION AGGREGATION CENTRE

NOMENCLATURE: _____

A. SHED AREA DETAILS:

S. No.	Description	Unit	Details
1	Compound Area/Gated Plot Size	m x m	
2	Size of Shed	m x m x m	
3	Dimension of Dock Area	m x m	
4	a) Dock Leveler		
	i. Size	m x m x m	
	ii. Capacity	MT	
	iii. Make	NA	Please give details
	b) Dock Door		
	i. Size & Opening	m x m	
	ii. Type of Insulation & thickness	mm	
	iii. Make	NA	Please give details
	c) Dock Shelter		
	i. Type of Dock Shelter	NA	Please give details
	ii. Vehicle Hazard Light	No.	
	iii. Size of Dock Shelter	m x m	
	d) Packhouse shutter doors- Size & Number	m x m & No.	

B. INTEGRATED PACKHOUSE INTERNAL DETAILS:

S. No.	Description	Unit	Details
1	Washing Area Size	m x m	
2	Washing Type		
	I. Integrated with conveyor system	NA	Please give details
	II. Support washing tank with stirrer size	m x m	

3	Conveyor Capacity	MT/hr.	
4	Conveyor Size	m x m x m	
5	Type of Fruits conveyor can handle	NA	Please give details
6	Operating Method of Sorting/grading Unit	NA	Please give details
7	Total conveyor system electricity consumption	kWh	
8	Weighing Bridge Capacity	MT	
9	Dimensions of the weighing bridge	m x m	
10	MHE – HPT (capacity & make)	MT	
11	Number of MHE – HPT	No.	
12	MHE – BOPT (capacity & make)	MT	
13	Number of MHE – BOPT	No.	
14	Safe Working load of MHE	MT	

* Minimum no. of MHE – HPT to be installed- **2 No**. for Collection Aggregation Centre.

* Minimum no. of MHE – BOPT to be installed- **1 No**. for Collection Aggregation Centre.

C. PRE-COOLER DETAILS (if applicable):

S. No.	Description	Unit	Details
1	Size of the precooler	m x m x m	
2	Produce to be precooled	NA	Please give details
3	Precooler capacity	MT	
4	Temperature and Relative Humidity	°C & %RH	
5	Insulation Thickness	mm	
6	No. of Doors & thickness	No. & mm	
7	Type of Precooler Evaporator	NA	Please give details
8	Type of Condensing Unit	NA	Please give details
9	Capacity of the condensing unit	kW	
10	Loading per batch	MT/Batch	
11	Pull Down Time	hr.	

12	Air Flow inside the precooler	CMH/CFM	
13	Evaporating Temp. of the precooler	°C	
14	Ambient Temperature	°C	
15	Refrigerant Used	NA	Please give details
16	No. of Fans on the evaporator & size	No. & mm	
17	Whether forced draft or induced draft	NA	Please give details
18	No. of batches in a day	No.	
19	Type of stacking	NA	Please give details
20	Total Connected Power	kW	

D. COLD ROOM DETAILS:

S. No.	Description	Unit	Details
1	Name of the Produce	NA	Please give details
2	Room size	m x m x m	
3	Vol of each room	m^3	
4	Total number of rooms	No.	
5	Total capacity of the facility	MT	
6	Room Temperature	°C	
7	Relative Humidity	%	
8	Produce loading rate	kg/day	
9	Produce incoming Temperature	°C	
10	Ambient Temperature	°C	
11	Pull Down Time	hr.	
12	Insulation- walls	mm	
13	Insulation- floor	mm	
14	Insulation- door	mm	
15	Insulation- ceiling	mm	
16	Type of Cold Room	NA	Please give details

17	Technology Used	NA	Please give details
18	Refrigeration capacity	kW	
19	Type of Compressor, make & model	NA	Please give details
20	Evaporating Temperature	°C	
21	Condensing Temperature	°C	
22	Type of Evaporator, make & model	NA	Please give details
23	No. of Fans in Evaporator & Size of fans	No. & mm	
24	Air Flow	CMH/CFM	
25	Available grid connection at the site & type of phase/voltage	kW	
26	Solar Panel Capacity	kW	
27	Type & No. of solar panels	No.	
28	DG Set capacity (optional as required)	kW	
29	Type of thermal storage	NA	Please give details
30	Quantity of PCM	kg	
31	No. of thermal storages	No.	
32	No. of batteries, capacity & type of battery	No. & VAH & NA	
33	Electrical Load Connected on batteries	kW	
34	Type of fuel for bio-mass	NA	Please give details
35	Consumption rate of bio-mass	kg/hr.	
36	All Electrical load used in bio-mass technology	kW	
37	Refrigeration technology in bio-mass	NA	Please give details
38	Machine make & model & Number	No.	
39	Type of refrigeration system	NA	Please give details
40	Refrigerant Used	NA	Please give details
41	Secondary Refrigerant if used	NA	Please give details

42	Ante room size and capacity	m x m x m / MT	
43	Ante Room Temperature	°C	
44	Method of stacking	NA	Please give details
45	Total Power Consumption per Day	kWh	
46	Unit Rate per Day	Rs./unit	
47	Cost of Energy	Rs./day	

E. REEFER DETAILS:

S. No.	Description	Unit	Details
1	Type of Reefer Vehicle	NA	Please give details
2	Number of vehicles	No.	
3	Gross Vehicle Weight (GVW) of Chassis	MT	
4	Kerb Weight of Chassis	kg	
5	Weight of Reefer Unit	kg	
A	**Truck Chassis Details**		
1	Chassis number	NA	Please give details
2	Make and Model	NA	Please give details
3	Type of Vehicle (Diesel / CNG / Electric/ Others)	NA	Please give details
4	Engine power	kW	
5	Rated payload – carrying capacity of vehicle	MT	
6	Outer dimensions of vehicle	m x m x m	
7	Drive Cabin details (with AC / without AC)	NA	Please give details
8	Total number of tyres	No.	
B	**Insulated Container**		
1	Container dimensions	m x m x m	
2	Insulation Material Type	NA	Please give details

3	Insulation Thermal Conductivity (K Factor)	W/m.K	
4	Insulation Thickness	mm	
5	Container Type (GRP / MS/ STEEL/OTHER)	NA	Please give details
6	Weight of Container	kg	
7	Name of Container Manufacturer	NA	Please give details
8	Year of Container manufacturing	NA	Please give details
9	Application (Chilled / Frozen)	NA	Please give details
C	**Refrigeration Unit**		
1	Make and Model number	NA	Please give details
2	Unit Type (Self Powered/ Vehicle Powered/ Electric/ Eutectic/ Other)	NA	Please give details
3	Refrigerant used	NA	Please give details
4	Refrigeration capacity	kW	
5	Compressor Displacement	cm^3	
6	Defrosting system	NA	Please give details
7	Air flow	CMH/CFM	
8	Standby Motor Load	kW	
9	Diesel/ electric auto- switching used	NA	Please give details
10	Controls Type (Manual/ Automatic)	NA	Please give details
D	**Telematics**		
1	Temperature remote Monitoring & Controlling device Type	NA	Please give details
2	GPS (Make and model)	NA	Please give details
E	**Registration Details**		
1	Vehicle Registered as	NA	Please give details
2	State of Registration	NA	Please give details
3	RTO Office	NA	Please give details
4	RC Details	NA	Please give details
5	Any Other	NA	Please give details

***** Minimum no. of Reefer vehicle of load carrying capacity min. 1 MT upto 2 MT to be installed- **1 No**. for Collection Aggregation Centre.

F. AUTOMATED COMPUTERISED SYSTEM DETAILS:

S. No.	Description	Details
1	Type of Software used	Please give details
2	Name of the Software manufacturer	Please give details
3	Traceability system	Please give details
4	Labelling System & Printing details	Please give details
5	Certification details (if any)	Please give details

G. ELECTRICAL DETAILS:

S. No.	Parameters	Unit	Value	Power Utilization Ratio
1	Sanctioned Load by the Respective Board	kW		
2	Total Power Requirement at Peak Load Period	kWh		
3	Total Power Requirement at Holding Load Period	kWh		
4	Total Power Requirement at Lean Load Period	kWh		

Place ……..
Date ……..

Signature and
Name of Applicant with seal

Place …….
Date……..

Name in Capital Letters
Signature & Seal of Consultant

***Follow NCCD Guidelines for the purpose of installing components. E.g.- Insulation, Doors, Floors, Strip Curtains, Ante Rooms, Volumetric Conversion, Refrigeration, etc.**

All mandatory rules and regulations (BIS, ISO, IS, MNRE, etc.) relevant to the item must be complied with.

Please don't leave any space blank. Write N/A at place which is not applicable.

COLD STORAGE

(CS-1/CS-1-Onion/CS-2/CS-2-CA/CS-4)

NOMENCLATURE: _____

A. COLD STORE CHAMBER & PRODUCE DETAILS:

S. No.	Description	Unit	Chamber 1	Chamber 2	Chamber 3	Chamber 4
1	Name of the Produce	NA	Please give details	Please give details	Please give details	Please give details
2	Room size	m x m x m				
3	Capacity of each room	MT				
4	Number of Platforms per chamber	No.				
5	Type of platform used	NA	Please give details	Please give details	Please give details	Please give details
6	Room Temperature	°C				
7	Relative Humidity	% RH				
8	Produce incoming Temp	°C				
9	Storage Unit Used (Bags, crates, carton, bulk heap, etc.)	NA				
10	Total no. of storage unit	No.				
11	Weight per storage unit	kg				
12	Produce loading rate	kg/day				
13	Pull Down Time	hr.				
14	Loading Period	days or weeks				
15	Maximum Storage Period	weeks or months				
16	Total capacity of the facility	MT				
17	Ambient Temperature	°C				
18	Refrigerant Used	NA	Please give details			

19	Secondary Refrigerant if used	NA	Please give details
20	Ante room size and capacity	m x m x m / MT	
21	Ante Room Temp	°C	
22	CO_2 Concentration Control	PPM	
23	Fresh Air Changes	Changes / day	
24	Air Flow Rate	CMH/CFM	
25	Description of Fresh Air Ventilation System	NA	Please give details
26	Humidification controls	NA	Please give details
27	Type of Defrost	NA	Please give details

B. BUILDING & CONSTRUCTION DETAILS:

S. No.	Description	Unit	Details
1	Type of building construction	NA	Please give details
2	External/Internal Walls of cold chambers	NA	Please give details
3	Roof Specification	NA	Please give details
4	Lighting Fixtures	NA	Please give details
5	Compound Area Specification	NA	Please give details
6	Machine room area and height	m^2 & m	
7	Generator room area and height (if applicable)	m^2 & m	
8	Admin Block area and height	m^2 & m	
9	Describe Handling, receiving area (covered, open shed)	m^2 & m	

C. INSULATION DETAILS:

S. No.	Description	Unit	Details
1	Type of Insulation	NA	Please give details

2	Density of Insulation	kg/m^3	
3	Insulation- walls & U-Value	mm & W/m^2K	
4	Insulation- floor & U-Value	mm & W/m^2K	
5	Insulation- door & U-Value	mm & W/m^2K	
6	Insulation- ceiling & U-Value	mm & W/m^2K	
7	Thermal Conductivity	W/m.K	
8	Fire Resistance of Insulation	NA	Please give details
9	Water Absorption after 24 hr. immersion	% by mass	
10	Water vapour transmission rate	ng/Pa.sm	
11	Material of Sheet	PP/SS	
12	Sheet thickness	mm	
13	Joining of panels	NA	Please give details
14	Area of Floor Insulation	m^2	
15	No. of Layers of floor insulation	No.	
16	Type of vapour barrier on floor insulation	NA	Please give details
17	Number of layers of Vapour barrier	No.	
18	Finish floor Type	NA	Please give details

D. DOOR DETAILS:

S. No.	Description	Unit	Details
1	Type of Door	NA	Please give details
2	No. of Doors per chamber	No.	
3	Total no. of Doors	No.	
4	Total no. of Ante Room Doors	No.	
5	Thickness of Door	mm	
6	U-Value	W/m^2K	

7	Heater Tapes/Door Frame	NA	Please give details (Type, material, thickness)
8	Size of Door	m x m	
9	Door Skin type	NA	Please give details
10	Handle type	NA	Please give details
11	View Port	mm x mm	
12	Type of Curtain used	NA	Please give details
13	Number of Strip/Air curtains	No.	

E. HEAT LOAD CALCULATION:

S. No.	Refrigeration Load	During Loading (kW)	During Holding (kW)
1	Transmission Load (kW)		
2	Product Load (kW)		
3	Lighting load		
4	Occupancy load		
5	Infiltration Load (kW)		
6	Ventilation/Fresh Air load (kW)		
7	Equipment Load - Evap. Fan motors, MHEs etc.		

	Peak Period (kW)	Holding Period (kW)
Total Load		
Compressor Operation Hours/Day	Pull Down Period	
	Holding period	
	Defrosting Period	

F. REFRIGERATION EQUIPMENT DETAILS:

I. COMPRESSOR DETAILS

S. No.	Description	Unit	COMPRESSOR 1	COMPRESSOR 2	COMPRESSOR 3
1	Compressor Type	NA	Please give details	Please give details	Please give details

2	Make & Model	NA	Please give details	Please give details	Please give details
3	Compressor Capacity at Design conditions	kW			
4	Refrigerant used	NA	Please give details	Please give details	Please give details
5	Saturation Suction Temperature	°C			
6	Design Ambient Temperature	°C			
7	Total Cooling Capacity	kW			
8	RPM	RPM			
9	Status of compressors (Working/Standby)	NA	Please give details	Please give details	Please give details

II. CONDENSER DETAILS

S. No.	Description	Unit	Details
1	Condenser Type	NA	Please give details
2	Make & Model	NA	Please give details
3	No. of stands/rows	No.	
4	Diameter of coils/tubes	mm	
5	Heat Rejection Capacity at Design conditions	kW	
6	Condensing Temperature	°C	
7	Water in/out Temperature	°C	
8	Pump Motor rating	kW	

III. COOLING TOWER DETAILS (if applicable):

S. No.	Description	Unit	Details
1	Cooling Tower Type	NA	Please give details
2	Make & Model	NA	Please give details
3	Quantity	No.	
4	Dry Bulb & Wet Bulb Temperature	°C	

5	Cooling Capacity	kW	
6	Water in/out Temperature	°C	
7	Fan & Pump Capacity	CMH/LPS	

IV. PRESSURE VESSELS DETAILS:

S. No.	Description	Unit	Details (Low Pressure)	Details (High Pressure)
1	Type of Vessel	NA		
2	Refrigerant	NA		
3	Operating Temp & Pressure	°C & Bar		
4	Construction Shell, Dish Ends & Nozzles	NA		
5	Thickness of vessel	mm		
6	Total Refrigeration load	kW		
7	Holding Volume	m^3		

Note: The design and testing of the pressure vessel should comply with ASME Sec VIII Div 1.

V. EVAPORATOR DETAILS

S. No.	Description	Unit	Details
1	Make & Model	NA	Please give details
2	Number of cooling units/chamber	No.	
3	Number of Fans/cooling units	No.	
4	Cooling capacity/chamber	kW	
5	Room Temperature	°C	
6	Evaporating Temperature	°C	
7	Delta T ($\triangle$ T)	°C	
8	Refrigerant used	NA	Please give details
9	Total no. of evaporators installed in facility	No.	
10	Total no. of evaporators installed in Ante Room	No.	
11	Air Flow Rate	CMH/CFM	

12	Fin Spacing	mm	

VI. PRE-COOLER DETAILS (if applicable):

S. No.	Description	Unit	Details
1	Size of the precooler	m x m x m	
2	Produce to be precooled	NA	Please give details
3	Precooler capacity	MT	
4	Temperature and Relative Humidity	°C & %RH	
5	Insulation Thickness	mm	
6	No. of Doors & thickness	No. & mm	
7	Type of Precooler Evaporator	NA	Please give details
8	Type of Condensing Unit	NA	Please give details
9	Capacity of the condensing unit	kW	
10	Loading per batch	MT/Batch	
11	Pull Down Time	hr.	
12	Air Flow inside the precooler	CMH/CFM	
13	Evaporating Temp. of the precooler	°C	
14	Ambient Temperature	°C	
15	Refrigerant Used	NA	Please give details
16	No. of Fans on the evaporator & size	No. & mm	
17	Whether forced draft or induced draft	NA	Please give details
18	No. of batches in a day	No.	
19	Type of stacking	NA	Please give details
20	Total Connected Power	kW	

G. DOCK LEVELER SYSTEM DETAILS:

S. No.	Description	Unit	Details
A	**DOCK LEVELERS**		
1	Name of Manufacturer and model	NA	Please give details
2	Platform size	m x m	

3	Max. vertical Lift up & down	mm	
4	Load capacity	MT	
5	Plinth height of facility	m	
6	Standard safety provisions	NA	Please give details
7	Emergency stop switch (Yes/No)	NA	Please give details
8	Dock pit dimensions	m	
B	**DOCK DOORS**		
1	Manufacturer and model	NA	Please give details
2	Dimension of Door opening	m x m	
3	Loading area temperature	°C	
4	Insulation-material, thickness and U value.	mm & W/m^2K	
5	Safety Provision	NA	Please give details
C	**DOCK SHELTER**		
1	Name of Manufacturer and model	NA	Please give details
2	Dimensions	m x m x m	
3	Sealing Material & type	NA	Please give details
4	Size/Dimension of Bumper	m x m x m	
5	Safety Provision	NA	Please give details

H. CO_2 SCRUBBER DETAILS:

S. No.	Description	Unit	Details
1	CO_2 Scrubber make & model	NA	Please give details
2	Justify the use of CO_2 Scrubber for the proposed commodity*	NA	Please give details
3	Monitoring System for removal of CO_2	NA	Please give details

*Please ensure that CO_2 Scrubber is only used for those commodities which generates lot of CO_2, e.g. Potato, Onion, Apple etc.

I. CONVEYING/HOIST SYSTEM DETAILS:

S. No.	Description	Unit	Details
1	Make & Model	NA	Please give details
2	Load carrying capacity	kW	
3	Any other Specification	NA	Please give details

J. MATERIAL HANDLING EQUIPMENT DETAILS:

S. No.	Description	Unit	Details
1	Make & Model of HPT	NA	Please give details
2	Load carrying capacity of HPT	kW	
3	Number of HPTs	No.	
4	Make & Model of BOPT	NA	Please give details
5	Load carrying capacity of BOPT	kW	
6	Number of BOPTs	No.	
7	Make & Model of Fork Lift	NA	Please give details
8	Load carrying capacity of Fork Lift	kW	
9	Number of Fork Lifts	No.	
10	Mast height	m	
11	Turning Radius	m	
12	Any other Specification	NA	Please give details

* Minimum no. of MHE – HPT to be installed- **2 No**. for Cold Storage (CS-1 & 2) & **1 No**. for Cold Storage (CS-2-CA).

* Minimum no. of MHE – BOPT to be installed- **1 No**. for Cold Storage.

K. AUTOMATED COMPUTERISED SYSTEM DETAILS:

S. No.	Description	Unit	Details
1	Type of Software used	NA	Please give details
2	Name of the Software manufacturer	NA	Please give details
3	Traceability system	NA	Please give details
4	Labelling System & Printing details	NA	Please give details

5	Certification details (if any)	NA	Please give details

***To be filled only if Controlled Atmosphere is used: (Mention NA if not applicable)**

L. CA GENERATOR DETAILS:

S. No.	Description	Unit	Details
A	**Nitrogen Generator**		
1	Make and Model number	NA	Please give details
2	Type	NA	Please give details
3	Estimated volume of Nitrogen/chamber	m^3	
4	Total capacity of Generator	m^3/hr.	
5	Free Volume	m^3	
6	Nitrogen Buffer Tank capacity	m^3	
7	Capacity of breather bags (if installed)	m^3	
B	**CO_2 Absorber**		
1	Make and Model Number.	NA	Please give details
2	Total capacity of Absorber	kg	
3	Control Valves	NA	Please give details
4	Number of CO_2 Absorber	No.	
C	CA Analyser	NA	Please give details
D	**Gas Tightening System**		
1	CA Primer Details for walls & floor	NA	Please give details
2	Film/Fleece material and thickness	mm	
3	Details of Elastomeric paint used	NA	Please give details
4	Estimated volume of paint used per room	L	

***To be filled only if Controlled Atmosphere is used: (Mention NA if not applicable)**

M. CA DOORS:

S. No.	Description	Unit	Details
1	Name of Manufacturer	NA	Please give details
2	Size of the door (Height, Width, Leaf Thickness)	m, m, mm	
3	Insulation material thickness along with its 'U- value'	mm & W/m^2K	
4	Sealing type	NA	Please give details
5	Viewing ports	NA	Please give details
6	Emergency Door release fitted (Yes/No)	NA	Please give details

***To be filled only if Controlled Atmosphere is used: (Mention NA if not applicable)**

N. ADVANCED GRADER DETAILS:

S. No.	Description	Unit	Details
1	Produce	NA	Please give details
2	Dimensions of the machine	m x m x m	
3	Weight Sorting / Grading	NA	Please give details
4	Colour Sorting / Grading	NA	Please give details
5	Optical/Acoustic Diameter Grading	NA	Please give details
6	IQS (Intelligent quality Sorting/Grading)	NA	Please give details
7	Safety Precautions	NA	Please give details
8	Output capacity	Units/hr. or MT/hr.	
9	Name of manufacturer	NA	Please give details
10	Year of manufacturing	year	
11	Place of Origin	NA	Please give details

O. STACKING SYSTEM DETAILS:

S. No.	Description	Unit	Details
A	**Bins**		

1	Name of Manufacturer	NA	Please give details
2	Material of construction	NA	Please give details
3	Load capacity	kg	
4	Storage volume	m x m x m	
5	Stacking Height	m	
B	**Pallets**		
1	Material & working load	MT	
2	Dimensions	m x m x m	
3	Number of cartons per pallet	No.	
4	Type of access	NA	Please give details
C	**Racking System/ Vertical Stacking**		
1	Name of Manufacturer	NA	Please give details
2	Type of system (selective pallet/double deep, pushback, etc.)	NA	Please give details
3	Material of construction	NA	Please give details
4	Number of tiers	No.	
5	Net storage capacity	MT	

P. INTEGRATED SPECIALISED PACKAGING MACHINES DETAILS:

S. No.	Description	Unit	Details
1	Briefly describe about the Integrated Specialised Packaging Machines proposed	NA	Please give details
2	Name of Manufacturer	NA	Please give details
3	Capacity of machine	pkts/hr.	
4	Year of manufacturing	year	
5	Place of Origin	NA	Please give details
8	Labelling System on boxes (Yes/No)	NA	Please give details
9	Throughput capacity	MT	

Q. SAFETY PROVISION DETAILS:

S. No.	Description	Details
1	Fire Fighting equipment installed as per Fire safety standards of State Fire Department	Please give details
2	Handling measures for Refrigerants & Leaks installed.	Please give details
3	Safety devices – LP/HP cut outs, safety valves, shut off valves etc. installed	Please give details
4	Emergency lighting in Cold chambers & other areas installed	Please give details
5	Lightening arrestors installed (Y/N)	
6	Any other safety provisions (describe)	Please give details

Place …….. **Signature and**
Date …….. **Name of Applicant with seal**

Place ……. **Name in Capital Letters**
Date…….. **Signature & Seal of Consultant**

***Follow NCCD Guidelines for the purpose of installing cold storage. E.g.- Insulation, Doors, Floors, Strip Curtains, Ante Rooms, Volumetric Conversion, Refrigeration, etc.**

Please add or subtract columns as per proposed number of chambers for the project.

Please submit Basic Datasheet for Energy Efficiency along with the datasheet for cold storages.

All mandatory rules and regulations (BIS, ISO, IS, MNRE, etc.) relevant to the item must be complied with.

Please don't leave any space blank. Write N/A at place which is not applicable.

RIPENING CHAMBER (CS-3)

NOMENCLATURE: _____

A. COMPONENT DETAILS:

S. No.	Description	Units	Chamber 1	Chamber 2	Chamber 3
A	**Capacity Details**				
1	Holding Capacity	MT			
2	Room Volume	m^3			
3	Room Size	m x m x m			
4	Number of ripening rooms	No.			
5	Peak ambient temperature	°C			
B	**Pallets**				
1	Size of Pallet	mm x mm x mm			
2	Size of crate/box	mm x mm x mm			
3	Crates/boxes per pallet	No.			
4	Pallets in each chamber	No.			
5	Number of tiers	No.			
6	Pallet Lifting System	NA	Please give details	Please give details	Please give details
C	**Ripening Parameters**				
1	Ripening room temp.	°C			
2	Relative Humidity	%RH			
3	CO_2 concentration	PPM			
4	Ethylene concentration	PPM			
5	Air flow	CMH/CFM			
6	Product incoming temp.	°C			
7	Pull down period	hr.			

D	**Insulation details**				
1	Walls, ceiling and partition (material, PP/SS & thickness)	mm			
2	Floor-Type (material & thickness of insulation)	mm			
3	Area of Floor Insulation	m^2			
4	No. of Layers of floor insulation	No.			
5	Finish floor Type	NA	Please give details	Please give details	Please give details
6	Density of Insulation	Kg/m^3			
7	Exterior wall construction (material and type)	NA	Please give details	Please give details	Please give details
E	**Doors**				
1	Size of door	mm x mm			
2	Type of door used	NA	Please give details		
3	Total number of doors	No.			
4	Emergency measures (alarm, exit system)	NA	Please give details		
F	**Refrigeration load**				
1	Estimated refrigeration load per chamber	kW			
2	Total refrigeration load	kW			
G	**Refrigeration system/ Condensing Unit Details**				
1	Refrigerant used	NA	Please give details		
2	Refrigeration system	NA	Please give details		
3	Refrigeration capacity	kW			
4	Capacity of Compressors	kW			
5	Total No. of Condensing Units / with or without compressors	No.	Please give details		
6	COP of refrigeration system	NA	Please give details		

7	Number of Evaporators	NA	Please give details	Please give details	Please give details
8	Air flow	CMH/CFM			
9	Static pressure & fan rating	Pa & kW			
10	Manufacturer name	NA	Please give details		
J	**Ripening system**				
1	Ethylene applicator (Make)	NA	Please give details		
2	Portable or Centralized	NA	Please give details		
3	Number of cylinders	No.			
4	Capacity per cylinder	m^3			
5	Type of controller and Ethylene range	NA	Please give details		
6	CO_2 exhaust system	NA	Please give details		
7	Humidifier system details	NA	Please give details		
K	**Electrical load**				
1	Lighting load	kW			
2	Refrigeration load	kW			
3	Any other miscellaneous load	kW			

B. ELECTRICAL DETAILS:

S. No.	Parameters	Unit	Value	Power Utilisation Ratio
1	Sanctioned Load by the Respective Board	kW		
2	Total Power Requirement at Peak Load Period	kWh		
3	Total Power Requirement at Holding Load Period	kWh		

4	Total Power Requirement at Lean Load Period	kWh		

Place ……..
Date ……..

Signature and
Name of Applicant with seal

Place …….
Date……..

Name in Capital Letters
Signature & Seal of Consultant

***Follow NCCD Guidelines for the purpose of installing Ripening Chamber. E.g.- Insulation, Doors, Floors, Strip Curtains, Ante Rooms, Volumetric Conversion, Refrigeration, etc.**

Please add or subtract columns as per proposed number of chambers for the project.

All mandatory rules and regulations (BIS, ISO, IS, MNRE, etc.) relevant to the item must be complied with.

Please don't leave any space blank. Write N/A where not applicable.

MODERNISATION OF REFRIGERATION

A. COMPRESSOR DETAILS:

S. No.	Description	Unit	Details (Old)	Details (New)
1	Name of Manufacturer	NA	Please give details	Please give details
2	Type of Compressor	NA	Please give details	Please give details
3	Refrigerant	NA	Please give details	Please give details
4	Operating Parameters Suction Temp. /Cond. Temp.	°C		
5	Refrigeration capacity	kW		
6	Power Consumption	kW		
7	Coefficient of Performance	NA	Please give details	Please give details
8	Capacity control	NA	Please give details	Please give details
9	Motor Rating	kW		
10	Safety cut outs & Gauges	NA	Please give details	Please give details
11	Total Refrigeration load of facility	kW		

A. EVAPORATOR DETAILS:

S. No.	Description	Unit	Details (Old)	Details (New)
1	Name of Manufacturer	NA	Please give details	Please give details
2	Model number	NA	Please give details	Please give details
3	Refrigerant	NA	Please give details	Please give details
4	Refrigeration system	NA	Please give details	Please give details
5	Type of Evaporator	NA	Please give details	Please give details
6	Capacity and delta temp. (Δ T)	kW & °C		
7	Room temperature	$^{\circ}$C		

8	Air flow	CMH		
9	Volume of chamber	m^3		
10	External Static Pressure	Pa		
11	Power consumption	kW		
Valves, Controls and Instrumentation				
12	Control Valves	NA	Please give details	
13	Expansion valve	NA	Please give details	
14	Room temperature and RH monitoring	NA	Please give details	
15	Monitoring and Control	NA	Please give details	

Place ……..
Date ……..

Signature and
Name of Applicant with seal

Place …….
Date……..

Name in Capital Letters
Signature & Seal of Consultant

All mandatory rules and regulations (BIS, ISO, IS, MNRE, etc.) relevant to the item must be complied with.

Please don't leave any space blank. Write N/A where not applicable

MODERNISATION OF INSULATION

S. No.	Description	Unit	Details (Old)	Details (New)
1	Name of Manufacturer	NA	Please give details	Please give details
2	Total wall/ ceiling/ partition areas	m^2		
3	Floor area	m^2		
4	Insulating material and thickness	mm		
5	U value	W/m^2K		
6	Density	kg/m^3		
7	Thermal diffusivity	$m^2/hr.$		
8	Type of vapour barrier and thickness	mm		
9	Type of skin (if applicable)	NA	Please give details	Please give details
10	Joint type	NA	Please give details	Please give details
11	Fire resistance characteristic	NA	Please give details	Please give details
12	Substrate Used (if applicable)	NA	Please give details	Please give details
13	Adhesive to fix with substrate	NA	Please give details	Please give details

Place …….
Date ……..

Signature and
Name of Applicant with seal

Place …….
Date…….

Name in Capital Letters
Signature & Seal of Consultant

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Please don't leave any space blank. Write N/A where not applicable

MODERNISATION OF REFRIGERANT

S. No.	Description	Unit	Details (Old)	Details (New)
1	Details of system	NA	Please give details	Please give details
2	Capacity of system	kW		
3	COP of system	NA	Please give details	Please give details
4	Refrigerant used in system	NA	Please give details	Please give details
5	Refrigerant charge of system	kg		
6	GWP of the refrigerant	kg CO_2e		
7	Efficiency of the refrigerant	NA	Please give details	Please give details
8	Amount of Refrigerant gas used	kg		
9	Enclosed photograph of the system with label on the compressor showing gas used	NA	(Yes/ No)	
10	Certificate from the compressor manufacturer	NA	Please give details	
11	Expected life of the system after modernisation	Years		

Place …….. **Signature and**
Date …….. **Name of Applicant with seal**

Place ……. **Name in Capital Letters**
Date…….. **Signature & Seal of Consultant**

All mandatory rules and regulations (BIS, ISO, IS, MNRE, etc.) relevant to the item must be complied with.

Please don't leave any space blank. Write N/A where not applicable

MODERNISATION BUNDLE

(ALTERNATE TECHNOLOGY + LABELLING AND TRACEABILITY SYSTEM + UNIFIED CONTROL SYSTEM)

A. Alternate Technology:

I. Solar Photo Voltaic

S. No.	Description	Unit	Details
1	Make and model no.	NA	Please give details
2	Total area occupied by PV panels	m^2	
3	Total Load to be energized	kW	
4	Storage battery capacity	Ah	
5	Battery Backup	Hrs.	
6	Energy generation	kWh	
7	Grid Electricity Availability	Hrs.	
8	Total SPV Capacity	kW	
9	Power of single PV panel and total number of panels installed	Watt and no.	

II. Thermal Banks

S. No.	Description	Unit	Details
1	Name of System provider	NA	Please give details
2	Describe system design	NA	Please give details
3	PCM material	NA	Please give details
4	Phase change temperature and latent energy	°C & kW	
5	Type of Tank Material and thickness	mm	
6	Backup period	Hrs.	

7	Mass of PCM	kg or MT	
8	Total Thermal Energy Bank	kW	
9	Time to fully Charge the PCM	Hrs.	
10	External energy input (if any)	NA	Please give details

III. Vapour Absorption

S. No.	Description	Unit	Details
1	Make and model no.	NA	Please give details
2	Capacity	kW	
3	Refrigerant used	NA	Please give details
4	Absorbent used	NA	Please give details
5	Temperature of Chilled water	°C	
6	Temperature of hot water	°C	
7	Temperature of condensate	°C	
8	Describe Heat Source & heat energy	kW	
9	Inlet/outlet Pressure drop	kPa	
10	Electrical Consumption	kW	
11	Type of vapor absorption machine.	NA	Please give details
12	System use (describe total load required and application of this system)	NA	Please give details

B. Automated Computerised System Details (Labelling and Traceability System):

S. No.	Description	Unit	Details
1	Type of Software used	NA	Please give details
2	Name of the Software manufacturer	NA	Please give details

3	Traceability system	NA	Please give details
4	Labelling System & Printing details	NA	Please give details
5	Certification details (if any)	NA	Please give details

C. Unified Control System:

Component	**Description**	**Make/Model & Details**
VFD / Electronic Technology for Compressors	Please specify the Upper limit & Lower limit of the Frequency	
Power Factor Controller		
PLC Control & Data Acquisition	1. Processor system 2. Number of Input (IU)/ Number of Output (OU) 3. Type of Report generation	
IoT based monitoring system		
Senser based temperature control & alert		
Measurement Systems		
SMS & Email Alerts		
Online Stock details		
Online Air Monitoring System		
Monthly Inventory report		
Monthly monitoring Data logger sheet		
Phone app		
Inventory Day report		

Note: Component B and C can be availed as individual components under modernisation.

REFRIGERATED TRANSPORT

S. No.	Description	Unit	Details
A	**Truck Chassis Details**		
1	Chassis number	NA	Please give details
2	Make and Model	NA	Please give details
3	Type of Vehicle (Diesel / CNG / Electric/ Others)	NA	Please give details
4	Engine power	kW	
5	Rated payload – carrying capacity of vehicle	MT	
6	Outer dimensions of vehicle	m x m x m	
7	Driver Cabin details (with AC / without AC)	NA	Please give details
8	Total number of tyres	No.	
B	**Insulated Container**		
1	Container dimensions	m x m x m	
2	Insulation Material Type	NA	Please give details
3	Insulation Thermal Conductivity	W/m.K	
4	Insulation Thickness	mm	
5	Container Type (GRP / MS/ STEEL/OTHER)	NA	Please give details
6	Weight of Container	kg.	
7	Name of Container Manufacturer	NA	Please give details
8	Container manufacturing year	Year	
9	Application (Chilled / Frozen)	NA	Please give details
C	**Refrigeration Unit**		
1	Make and Model number	NA	Please give details
2	Unit Type (Self Powered/ Vehicle Powered/ Electric/ Eutectic/ Other)	NA	Please give details
3	Refrigerant used	NA	Please give details
4	Refrigeration capacity	kW	

5	Compressor Displacement (CC)	cm^3	
6	Defrosting system	NA	Please give details
7	Air flow	CMH/CFM	
8	Standby Motor Load	kW	
9	Diesel/ electric auto- switching used	NA	Please give details
10	Controls Type (Manual/ Automatic)	NA	Please give details
D	**Telematics**		
1	Temperature remote Monitoring & Controlling device Type	NA	Please give details
2	GPS (Make and model)	NA	Please give details
E	**Registration Details**		
1	Vehicle Registered as	NA	Please give details
2	State of Registration	NA	Please give details
3	RTO Office	NA	Please give details
4	RC Details	NA	Please give details
5	Any Other	NA	Please give details
F	**Details of Existing Vehicles**		
1	No. of vehicles availed previously	No.	
2	Capacity of availed vehicles	MT	
3	Date of claiming previous subsidy	NA	Please give details
4	Board/ Organization from where subsidy released	NA	Please give details

Place …….. **Signature and**
Date …….. **Name of Applicant with seal**

Place ……. **Name in Capital Letters**
Date…….. **Signature & Seal of Consultant**

All mandatory rules and regulations (BIS, ISO, IS, MNRE, etc.) relevant to the item must be complied with.

Please don't leave any space blank. Write N/A at place which is not applicable.

ENERGY EFFICIENCY

1. Proposed List of Electrical Equipment Installed:

S. No.	Equipment	Make & Model	Quantity	Capacity of Transformer
1	Transformer			

S. No.	Equipment	Make & Model	Quantity
1	Compressor		
2	Evaporator		
3	Mechanized Conveyors/Lifts		
4	Sorting & Grading Lines		
5	Ammonia Pumps		
6	CA Generator		
7	Water Pumps		
8	Mechanized Doors		
9	Ventilation Fans		
10	Lights		
11	Air Curtains		
12	D.G. Set		
13	CO_2 Scrubber		
14	Recovery Wheel		
15	Dock Levelers		

2. Electrical Load Details:

S. No.	Description	Unit (kW)	Value	Power Utilization Ratio
1	Sanctioned Load by the Respective Board		Please specify load that you are going to install	

2	Total Power Requirement at Peak Load Period			Power requirement at peak load / Total Sanctioned Power
3	Total Power Requirement at Holding Load Period			Power requirement at holding load / Total Sanctioned Power
4	Total Power Requirement at Lean Load Period			Power requirement at Lean load / Total Sanctioned Power

3. Equipment Details:

Table 1:

Equipment	Rating of Connect-ed motor	Refriger-ation capacity (kW)	Designed Evaporat-ing Temp. or (SST)	Power Consum-ption (kW)	Motor output at Peak Load (kW)	Motor output at Holding Load (kW)	Motor output at Lean Load (kW)
Compressor 1							
Compressor 2							
Compressor 3							
Total Connected Load							

Table 2:

Equipment	Rating of connect-ed motor	Refrigerat-ion capacity (kW)	Designed Evaporat-ing Temp. or (SST)	Power Consum-ption (kW)	Motor output at Peak Load (kW)	Motor output at Holding Load (kW)	Motor output at Lean Load (kW)
Evaporator 1							
Evaporator 2							
Evaporator 3							

Total Connected Load							

Table 3:

Equipment	**Rating of connected motor**	**Unit**	**capacity**	**Power Consumption (kW)**	**Motor output at Peak Load (kW)**	**Motor output at Holding Load (kW)**	**Motor output at Lean Load (kW)**
Ammonia Pump 1							
Ammonia Pump 2							
Water Pump 1							
Water Pump 2							
Total Connected Load							

Table 4:

Other Equipment	**Power Rating**	**Average Power Consumption Per Day**
Mechanized Conveyors/ Lifts		
Mechanized Doors		
Ventilation Fans		
Electrical Lights		
Air Curtains		
Recovery Wheel		

Dock Levelers		
N_2 Generator		
Sensors & Analyzers		
Control System		
CO_2 Absorber		
Sorting & Grading Line		
***Please add more equipment as per installations.**		

Table 5:

Equipment	**Make & Model**	**Capacity**	**Efficiency**	**Consumption of Diesel on full Load**
D.G. Set				

4. Automation & Controls:

Component	**Remarks**	**Description**	**Make & Model**
VFD / Electronic Technology for Compressors	Please ensure VFDs/ Microprocessor panel for energy efficiency of overall plant (compressors / fan / condensers / pumps etc.) should be installed and described thoroughly in design	Please specify the Upper limit & Lower limit of the Frequency	
Power Factor Controller			
PLC Control & Data Acquisition	1. Processor system 2. Number of Input (IU)/ Number of Output (OU) 3. Type of Report generation		
IoT based monitoring system			

Senser based temperature control & alert			
Measurement Systems			
SMS & Email Alerts			
Online Stock details			
Online Air Monitoring System			
Monthly Inventory report			
Monthly monitoring Data logger sheet			
Phone app			
Inventory Day report			
***Please add more equipment as per installations.**			

Place ……..
Date ……..

Signature and
Name of Applicant with seal

Place …….
Date……..

Name in Capital Letters
Signature & Seal of Consultant

Please submit the Energy Efficiency details along with all cold storage basic datasheet.

All mandatory rules and regulations (BIS, ISO, IS, MNRE, etc.) relevant to the item must be complied with.

Please don't leave any space blank. Write N/A where not applicable

UNDERTAKING FOR USING VACUUM COOLING

Description	Details
Name of the produce for which vacuum cooling is proposed.	
Is vacuum cooling is required for the product/ produce. (Give Yes/no and give details)	
Is this produce vacuum cooled or come under the category of forced cooling. (Give details about vacuum cooling technology).	
Temperature of the produce before vacuum cooling (°C)	
RH of the produce before vacuum cooling (°C/%RH)	
Temperature of vacuum cooled produce of Refrigerant (°C/%RH)	
Ethylene sensitivity of the vacuum cooling produce. (Give Yes/No)	
Next process after vacuum cooling (Define in 150-200 words)	
How much is the shelf life going to increase after using vacuum cooling technology? (Give details in 150 words)	

UNDERTAKING FOR INSTALLATION OF ONION COLD STORAGE

This is to submit that I Mr./Mrs.M/s.…… is setting up an……..MT Onion Storage at (Address) ……..…….for store onions under CS-I onion from NHM/MIDH/NHB.

Description	Details
Type of store-Nomenclature	
Name of Applicant and address	
Capacity (in MT)	
Temperature & Relative Humidity (°C/%RH)	
Details of Refrigeration Unit (Mention what type of refrigeration system you are using.)	
Ventilation System	
1. Type	
2. Make	
3. Airflow CFM	
4. No. of air change (No.)	
5. Fan/Type (No./Type)	
6. Motor (kW)	
Define Technology and how you are designing ventilation system (Give all necessary details/drawings and write details of ventilation systems and how it would improve quality of onions in 200 words.)	
Onion Stacking System (Give all necessary details/drawings and how movement of air has been designed specific to onion through this stacking system in 200 words.)	

***I submit that details provided are correct to my knowledge and storage is being constructed for the purpose of storing onions.**

Signature

SUBMITTAL FOR EXPANSION PROJECT

While applying for expansion project the applicant also needs to submit:

Description	Details
Detailed drawings of the existing facility	
Drawing of new facility (expansion)	
Years of operation of previous facility Date of start of commercial	
Previous BDS	
State/district from where previous subsidy was claimed	
Previous installed capacity (in MT) Type of Cold Storage installed	
New Proposed Capacity (in MT) Proposed Type of Cold Storage	
In case the previous capacity is up to 2000 MT (max), type of refrigeration unit installed	
Proposed type of refrigeration	
NOC from previous department	