

SPECIFICATIONS

Cover Building for Storage

Scope - Establish Minimum Specifications for Cover Buildings used in Storage Applications Considering Longevity, Value, and Competition.

SPECIFICATIONS

- A. Minimum Design Specifications for Cover Building including End Walls
 - 1. Design to Withstand _____ lbs. Ground Snow Load (IBC 2006)
 - i. Established by Location
 - 2. Design to Withstand _____ mph Wind Load Exposure _____ (IBC 2006)
 - i. Include Pressure and Suction of Wind Load
 - ii. Established by Location
 - 3. Design to withstand _____ lbs. of Non-Reducible Live Load
 - i. Include 3 lbs./sq-ft Live Load for Collateral Building Loading
 - ii. An Importance Factor of 1.0 must be used in Calculating Live Load
 - 4. Building Plans to be Sealed by a Licensed Professional Engineer
 - i. All Base Plate Reactions are to be Listed on all Sealed Building Plans
 - ii. Engineer to be Licensed in the State of Building Use
 - iii. Sealed Building Plans are to be Site Location Specific
 - 5. No Cable or Building Supports shall Intrude in Clear Span Area
 - 6. Building is a Minimum of _____ in Width
 - i. Measured (Feet'-Inch") at Outside of Base Plates to Outside of Base Plates
 - 7. Building is a Minimum of _____ in Length
 - i. Measured (Feet'-Inch") to Center of Base Plate to Center of Base Plates
 - 8. Building Center is a Minimum of _____ in Inside Height
 - i. Measured (Feet'-Inch") from Bottom of Base Plate to Bottom of Inside Cord of Rafter in the Building Center – Not Including Foundation Height

9. End Wall - #1 Minimum Requirements – Identify by Checking All that Apply
- i. Open End – Nothing Required
 - ii. Solid Fabric End Wall
 - 1. Provide Fixed Blade Louver Header, Column, or Vent
 - a. Exhaust Louver Designed of Non-Corrosive Material
 - i. No Fan / No Openers / No Actuators
 - iii. Vertical Lift Fabric Gather Door Standard 18’Wide x 20’ Opening
 - 1. Foundation Gather Door Opening Maximum 18’-0” Wide
 - 2. Optional Gather Door Opening Height of _____
 - a. Measured (Feet’-Inch”) Inside Building Grade to Header
 - b. Gathered Opening is 3’ Less than Header Height
 - 3. Maximum Door Rectangular Tubing Center of 40”
 - a. Door Tubing Pre-Cut for 18’-10” Inside Dimension
 - 4. Door Opener - Polymer Pulleys w/ Corrosion Resistance Brackets
 - a. Manual Brake Winch
 - b. Electric Brake Winch with Corded Opener
 - 5. Fabric Gather Door Centered in End Wall Unless Otherwise Specified
 - 6. Standard Fabric Gather Door Lift is Bottom to Top of Door
 - 7. Optional Top Vented Fabric Gather Door – Drops Top to Bottom
 - iv. Optional Steel Sheeted End Wall – Labor and Materials Provided by Installer
 - 1. Site Built Wood or Steel Framing Support
 - 2. Provide for Ventilation
 - 3. J-Trim on End Rafter Top Cord
 - 4. Steel Sheeting Color Selected by Customer

- v. Personal Access Walk Door – Corrosion Resistance
 1. Overall Door 3/0 X 7/0 w/ Pre-hung Universal Swing, 3-1/2” Jamb
 2. White Exterior / Interior with Aluminum or Fiberglass Skin
 3. Aluminum Framed Fiberglass or Poly Insulation 1-5/8” Thick

- vi. Framed Opening for Customer Installed Overhead Door
 1. Framed Door Opening Centered in End Wall Unless Otherwise Specified
 2. Framed Door Opening Height of _____
 - a. Measured (Feet’-Inch”) Inside Building Grade to Header
 3. Framed Door Opening Width of _____
 - a. Measured (Feet’-Inch”) Inside Column to Column

10. End Wall - #2 Minimum Requirements – Identify by Checking All that Apply

- i. Open End – Nothing Required
- ii. Solid Fabric End Wall
 1. Provide Fixed Blade Louver Header, Column, or Vent
 - a. Exhaust Louver Designed of Non-Corrosive Material
 - i. No Fan / No Openers / No Actuators
- iii. Vertical Lift Fabric Gather Door Standard 18’Wide x 20’ Opening
 1. Foundation Gather Door Opening Maximum 18’-0” Wide
 2. Optional Gather Door Opening Height of _____
 - a. Measured (Feet’-Inch”) Inside Building Grade to Header
 - b. Gathered Opening is 3’ Less than Header Height
 3. Maximum Door Rectangular Tubing Center of 40”
 - a. Door Tubing Pre-Cut for 18’-10” Inside Dimension

- 4. Door Opener - Polymer Pulleys w/ Corrosion Resistance Brackets
 - a. Manual Brake Winch
 - b. Electric Brake Winch with Corded Opener
- 5. Fabric Gather Door Centered in End Wall Unless Otherwise Specified
- 6. Standard Fabric Gather Door Lift is Bottom to Top of Door
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 - 1. Site Built Wood or Steel Framing Support
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 - 1. Overall Door 3/0 X 7/0 w/ Pre-hung Universal Swing, 3-1/2” Jamb
 - 2. White Exterior / Interior with Aluminum or Fiberglass Skin
 - 3. Aluminum Framed Fiberglass or Poly Insulation 1-5/8” Thick
- vi. Framed Opening for Customer Installed Overhead Door
 - 1. Framed Door Opening Centered in End Wall Unless Otherwise Specified
 - 2. Framed Door Opening Height of _____
 - a. Measured (Feet'-Inch'') Inside Building Grade to Header
 - 3. Framed Door Opening Width of _____
 - a. Measured (Feet'-Inch'') Inside Column to Column

B. Minimum Fabric Specifications for Cover Building Including End Walls and Fabric Doors

1. Covers / Membranes / Fabrics are not Structural Components
 - i. No Tensioned Membrane Analysis Used in Cover Building Design
 1. Cover shall not be designed to Function as a Structural Member
 2. Structural Framework Maintains Integrity Regardless of Covers
2. Design Temperature Range –40 to +150 degrees Fahrenheit
3. Fabric Cover Retention Shall Utilize a Segmented Keder Cover Attachment System
 1. Standard on 42' Wide and Larger Fabric Cover Building
 2. Keder Cover Attached to Extruded Aluminum Channel on Every Truss
 3. Extruded Aluminum Channel Attached to Truss Every 8 inches
 4. Weatherproof Design – Sealing Strip Over Keder Channel or Track
4. Standard 13.4 oz/yd², +/- 5%, High Density Polyethylene (HDPE) Tapes, Coated on Two Sides with Low Density Polyethylene (LDPE) – Inside Coating Color White
 - i. Weave: 16 Warp - 16 Weft Woven HDPE Scrim / in - UV Stable Tapes
 1. Total of 32 Woven HDPE Scrim / in²
 - ii. Grab Strength per ASTM D751 Method
 1. Warp – 430 lbf / Weft – 430 lbf, +/- 5%
 - iii. Mullen Burst per ASTM D751 Method
 1. 580 psi, +/- 5%
 - iv. LDPE Coating: 5.2 mil +/- 5%, per Exposed / Weather Side of Woven Fabric
 - v. LDPE Coating 3.4 mil +/- 5%, per Inside / Non-Weather Side of Woven Fabric
 - vi. Flame Spread Properties of Standard Fabric Material
 1. Meets Class A per ASTM E84 Method
 - vii. Accelerated UV Weathering
 1. Greater Than 82% Integrity After 5000 Hours QUV
 - a. QUV – Based on Actual Results

5. Main Fabric Color to be Determined (In Descending Order of Greatest Translucency)
- 1. W/W – White – Default Color W/W, 20% Light Transmission
 - 2. D/T - Desert Tan, Less than 15% Light Transmission
 - 3. B/R - Barn Red, Less than 10% Light Transmission
 - 4. F/G - Forest Green, Less than 10% Light Transmission
 - 5. N/B - Navy Blue, Less than 5% Light Transmission
 - 6. C/C – Custom - Ordered by Pantone Number - Minimum Order Required
6. Optional Flame Retardant - FR 13.4 oz/yd², +/- 5%, High Density Polyethylene (HDPE) Tapes, Coated on Two Sides with Low Density Polyethylene (LDPE) – Inside Coating Color White
- i. Pass or Compliant Flammability Tested to Meet:
 - 1. NFPA 701 Large Scale
 - 2. UBC Standard 31-1
 - 3. California Fire Marshall CAC Title 19 par.1237.1
 - 4. CAN/ULC S109-M87
 - ii. Weave: 16 Warp - 16 Weft Woven HDPE Scrim / in - Using FR/UV Tapes
 - 1. Total of 32 Woven FR-HDPE Scrim / in²
 - iii. Grab Strength per ASTM D751 Method
 - 1. Warp – 400 lbf / Weft – 450lbf, +/- 5%
 - iv. Mullen Burst per ASTM D751 Method
 - 1. 640 psi, +/- 5%
 - v. FR-LDPE Coating: 3.9mil +/- 5%, per Side of Woven Scrim
 - 1. Top (Colored), Netural Tapes, Inside (White on All Fabrics)
 - vi. Accelerated UV Weathering
 - 1. Greater Than 50% Integrity After 6,000 Hours QUV
 - a. QUV – Based on Actural Results

7. Main FR Fabric Color to be Determined (In Descending Order of Translucency)
- 1. FR-W/W – White – Default Color W/W, 19% Light Transmission
 - 2. FR-D/T - Desert Tan, Less than 15% Light Transmission
 - 3. FR-F/G - Forest Green, Less than 10% Light Transmission
 - 4. FR-N/B - Navy Blue, Less than 5% Light Transmission
 - 5. FR-C/C Custom-Ordered by Pantone Number Minimum Order Required
8. Accent Color Keder Cover Available on Standard or Flame Retardant Covers
- i. Optional Accent Color Keder Covers Different Color than Main Building Cover
 - 1. Number of Accent Panels _____
 - 2. Color Code of Accent Panels _____
 - a. No Differencing Color on a Individual Keder Cover Panel
 - 3. Location of Color Accent Panels Determined By Customer at Installation
9. End Wall Fabric Color Selection – Default Color is White W/W
- i. Upon End Wall Requirement (See Section A 9ii-9iii and Section A 10ii-10iii)
 - 1. End Wall #1 Fabric Color Code _____
 - 2. Fabric Gather #1 Door Color Code _____
 - 3. End Wall #2 Fabric Color Code _____
 - 4. Fabric Gather #2 Door Color Code _____
10. Approved Suppliers for 13.4 oz/yd² and FR 13.4 oz/yd² Fabrics for Cover Buildings
- i. Fabrene Inc, Industrial Synthetic Fabric – Type HL13 – Non Flame Retardant
 - ii. Fabrene Inc, Industrial Synthetic Fabric – Type P708 – Flame Retardant
 - iii. Engineered Coated Products – RU88X-6 (6-mil) – Non Flame Retardant
 - iv. Engineered Coated Products – FRU88X-6 (6-mil) Flame Retardant

1. Above Products are Registered Trademarks of the Respective Companies
 2. Colors May Vary Slightly from Supplier to Supplier
 3. Equivalent Information Supplied from Original Manufacturer of Fabric
 - a. See Section J-1 and J-2. of this Document
11. Warranty for 13.4 oz/yd² and FR 13.4 oz/yd² Fabrics for Cover Buildings
- i. Length of Cover Warranty Period
 1. 15 Year Pro-Rated on Standard 13.4 oz/yd² Fabrics for Cover Buildings
 2. 10 Years Pro-Rated on FR 13.4 oz/yd² Fabrics for Cover Buildings
 - a. Installed by Factory Authorized Personnel
 - b. Customer Must Comply with Maintenance Schedule
 - c. See Product Warranty for Details
12. Other Optional Fabric Building Covering Materials for Main and End Wall Covers
- i. Warranty May Change Due to Product Performance
 1. Polyvinyl Chloride or PVC membranes
 - a. PVC Coated Polyester Fabric with optional Top Coatings
 - b. Additional Charges May Apply from Standard Fabrics
 2. Architectural Steel Siding
 - a. Additional Purling Braces maybe required
 - b. Not available for Corrosive Environments
 3. Asphalt Single on Wood Sheeting
 - a. Additional Purling Braces maybe required

C. Minimum Coating Specifications for Cover Building Framework

1. Hot Dipped Galvanized to ASTM A123 or 3.9 mils of Zinc On All Manufactured Building Components Including End Wall and Gather Door Components
 - i. All Manufactured Steel Component Surfaces (Exterior and Interior) are to have a Minimum of 2.2 oz./ft² (+/- 5%) Continuous
 1. Zinc Coating to be Applied after Steel Framework Fabrication
 2. Zinc Coating Includes Exterior Welds and Interior Weld Burns
 3. 1oz. of zinc/ft² (320g/m²) of surface = to 1.7mil (43um)
 - ii. Written Certification Verifying from the Source of the Zinc Application that the Coating Meets the Minimum 2.2 oz./ft² (+/- 5%) of Zinc on all Manufactured Component Surfaces
2. Bolts, Nuts, and Washers are to be Hot Dipped Galvanized to ASTM A153
3. Materials field Welded, Cut, or with Exposed bare Metal shall have 3 coats of Zinc Enriched Galvanizing Paint Applied at time of Installation – Min. 97% Pure Zinc
4. Warranty of Hot Dipped Galvanized Manufactured Components
 - i. 15 Years Pro-Rated – See Section D-6
5. In-Line Pre-Galvanized Mechanical Steel Tubing as Steel Corrosion Protection
 - i. Does Not meet ASTM A123 Standards for Zinc on Exterior or Interior Surfaces
 - ii. Does Not Provide Post Fabricated Steel Corrosion Protection on Exterior or Interior Weld Connections
 - iii. Information Supplied from Original Manufacturer of In-Line Pre-Galvanized Mechanical Steel Tubing
 - a. See Section J-1 and J-2. of this Document

D. Minimum Steel Specifications for Cover Building Framework

1. Clear Span Structural Steel Square Tubing – ASTM A500 / ASTM A513
 - i. Minimum allowable Tubing Thickness - 14 gauge or .083”
 - ii. Minimum 50 KSI Yield – 55 KSI Tensile ASTM A500
 - iii. Sheared, Flattened, or Deformed Tubing is not allowed in Truss Design or Manufacturing Process
 - iv. Center Material used to Maintain Truss Rafter Cord Centers must either be Continuously Solid Sheet, Overlapping, or Intersecting at Truss Rafter Cords
 1. Gaps in Center Material Termination Between Truss Rafter Cords greater than 1” will Not be Allowed in Truss Design or Manufacturing
 - v. Center Material that Requires Venting for Hot Dip Galvanizing must be uniformly vented with methods that promote strength and coating quality
 1. Center Material that is Vented with Grinding wheels cut slots or irregular openings produced by torch methods will Not be Allowed
2. Plate or Bar Stock – ASTM A36
3. Structural Fasteners - Bolts, Nuts, and Washers – ASTM A325
 - i. All A325 Connections Must Use a Locking Washer or Locking Compound
4. All Welds must Conform to American Welding Standards - AWS D1.1
5. All Bolts, Anchors, Cables, and Accessories to have a Zinc Finish
6. Warranty of Hot Dipped Galvanized Manufactured Components
 1. Including Corrosion and Structural Integrity
 - a. 15 Years Pro-Rated
 - b. Installed by Factory Authorized Personnel
 - c. Customer Must Comply with Maintenance Schedule
 - d. See Manufacturer Warranty for Details

E. Fabric Cover Building Eaves

1. Eaves must Utilize Keder Track Cover Attachment System
2. Eaves must Terminate Cover on Structural Square Tubing with a Sealing Angle Iron
3. Facing End Wall #1 - Right Eave Option
 - i. _____ Ft-In Above Base Plate / _____Ft-In Outside of Outside of Base Plate
4. Facing End Wall #1 – Left Eave Option
 - i. _____ Ft-In Above Base Plate / _____Ft-In Outside of Outside of Base Plate

F. Ridge Vent

1. Ridge Vent supported by structural steel, sealed with angle for weather tightness
 - i. _____ Inch Opening in Top Center of Building
2. Optional weather resistance Ridge Vent Cover

G. Foundation Design Requirements

1. Cover Building Supplier Shall Make Available Pre-Bid if Applicable / Requested
 - i. Foundation / Anchoring Requirements
 - ii. Anchor Bolt Plan with Truss Center and Base Plate Location for Foundation
 - iii. Building Reaction at All Base Plate Reaction that Meet Section A-4-i

H. Allowance for Accessory Systems

1. Lighting – As Described per Requirements
2. Interior Building Linear – As Described per Requirements
 - i. Optional Building Insulation
3. Other Cover Building as Described per Requirements

I. Fabric Cover Building Maintenance

1. Manufacturer to Provide a Schedule of Maintenance

- i. Recommended Maintenance Program Intervals
- ii. General Care Instructions
- iii. Maintenance Requirements for Warranty Coverage

- 1. Customer Must Document Compliance with Maintenance Schedule for
Warranty Coverage

J. Quality Control

1. Cover Building Systems with Similar Characteristics that Deviate from the Above Specifications May be Considered if

- i. Deviations Do Not Change the Design Concept, Intended Performance, or Overall Scope of the Cover Building Project
- ii. All Deviations that Do Exist in the Cover Building System Are Submitted in Writing Before Bidding for Consideration of Equal

- 1. Burden of Proof for Deviations Acceptance is on the Petitioner

- a. Information & Materials provided for Burden of Proof Shall be Provided from the Original Manufacturer of the Products in Question.

- iii. All Deviations in the Cover Building System Are to be Approved as Equal in Writing Prior to Bid for Bid Consideration

- iv. All Pre-Approved Cover Building System Providers are notified in Writing Three Business Days Prior to Bid Opening of Approved as Equal Deviations from Approved Specifications

2. Cover Building Systems with Deviation from Specifications Will Not be Considered Unless All Written Approval for All Deviation has been Issued Prior to Bid Opening

K. Minimum Requirements for Cover Building Installer

1. Pre-Installation Meeting with Owner, General Contractor, Building Installer, Building Supplier, and other relevant parties
 - i. Meet Prior to Work Proceeding
 - ii. Scope of Work to be Performed, Time Tables, and Chain of Communication
 - iii. Safety is a Required Point of Discussion
2. Installer must have a Safety Policy that is Available to the Owner and Building Supplier for Review while the Installer is on Owner's Site
3. Installer Requirement for 10 HR OSHA Construction Safety Course
 - i. 75% of the Installation Crew must have Written Proof of Completion
4. Installers Crane or Non-Personnel Lifting Equipment Certification
 - i. Written Verification from an Independent Company Licensed to Perform Crane Certifications that Crane has an Inspection and Passed with in the last 13 Months.
 - ii. Completed Daily Crane Inspection Safety forms must be made Available to the Owner for Review while the Crane is on Owners Site.
 - iii. Written Verification that Only Authorized Personnel Operate the Crane
 - iv. Estimated Height and Capacity Requirements for Crane or Non-Personnel Lifting
45# GSL and 90mph Exp C / Weight will change with Loading Requirements
Truss Rafter Section – Base Plate to Top Center – Install Rafter Weight Pounds

- | | |
|--------------------------|----------------------------|
| 1. 42' – 23'-5" – 525# | 8. 76' – 31'-5" – 1325# |
| 2. 46' – 21'-4" – 550# | 9. 84' – 33'-7" – 1925# |
| 3. 52' – 20'-11" – 525# | 10. 104' – 40'-2" – 2875# |
| 4. 56' – 28'-6" – 650# | 11. 124' – 44'-8" – 3550# |
| 5. 62' – 25'-9" – 850# | 12. 146' – 50'-2" – 6575# |
| 6. 66' – 29'-2" – 900# | 13. 166' – 54'-3" – 8475# |
| 7. 72' – 25'-11" – 1150# | 14. 188' – 58'-7" – 14250# |

5. Installers Personnel Lifting Equipment – Boom or Scissor Lifts
 - i. Written Verification from Authorized Personnel that the Lift on site has had an Inspection and Passed with in the last 13 Months.
 - ii. Completed Daily Lift Inspection Safety Forms must be made Available to the Owner for Review while the Lift is on Owners Site.
 - iii. Written Verification that only Authorized Personnel Operate the Lift
6. Installers Insurance Requirements
 - i. Worker Compensation Insurance
 1. Amount Required by State Law
 - ii. Commercial General Liability Insurance
 1. Limit Not Less than \$1,000,000 per each Incident
 - iii. Business Automobile Liability Insurance
 1. Limit Not Less than \$1,000,000 per each Incident
 - iv. Builder Risk Insurance
 1. Limit Not Less than \$100,000 per Job
 - v. Employers Liability Insurance – Workers Compensation
 1. Limit Not Less than \$500,000 per each Incident
 2. Limit Not Less than \$500,000 per each Employee
 - vi. Certificate of Insurance Provided to the Owner
 1. That is Valid in the State of the Installation
 2. List the Owner as an Additionally Insured
 3. List the Building Supplier as an Additionally Insured
 4. 30 Day Notice Prior of Termination Notice on Certificate of Insurance