Flospan buildings

Valley comprehensive school indoor sports

AWCC Kabul Afghanistan

1 INTRODUCTION

The Flospan frameless building system is the lightest steel building system in the world, and the easiest to erect. That's why Flospans are found in over 30 countries around the world.

1.1 Pre-engineered

Flospans are fully engineered for assembly by hand with no cranes or special equipment. No drilling or cutting is required.

1.2 Redeployable

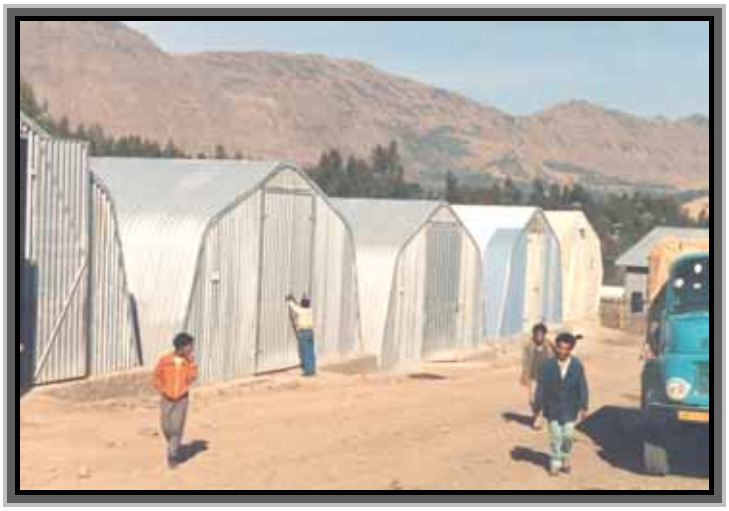
All the holes are pre-drilled and Flospans can be moved and reused with no loss of materials.

1.3 *Versatile*

Flospans have been used as bagged grain stores, military barracks, workshops, indoor sports halls …even a kitchen/diner complex for the US Air Force.

1.4 Fast and Simple

A 500 tonne bagged grain store can be erected in three days – and still be there thirty years later.



Ethiopia – Save the Children Fund

1.5 Fast and Flexible

Flospans can be erected on bare ground without foundations, and they will withstand hurricane force winds and snowloads.

1.6 Superb Logistics

Over 11,000 square feet of Flospan buildings can be shipped in a single 20' ISO shipping container. This is equivalent to four or five 23.8m long Flospans, depending on options.

1.7 Long Life

Flospans have an overall life of forty years or more.

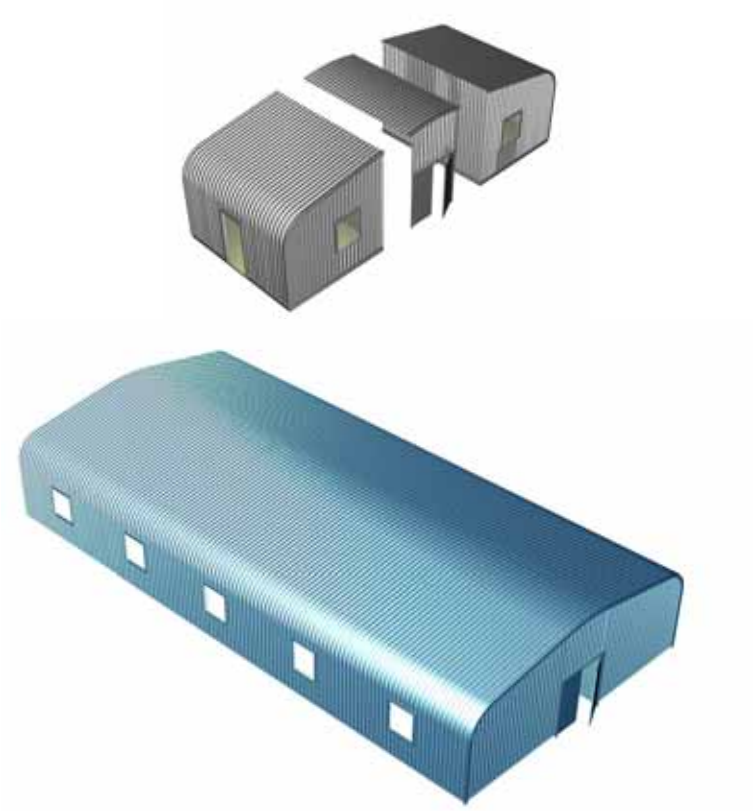
1.8 Two Clear Spans, Any Length

"A" series Flospans come in two standard spans or widths: 7.5m (24 ft) or 9.3m (30 ft). They are supplied in modules of 914mm (3 ft). There is no limit to the length of your building. Flospans can also be linked together with tunnels to form complexes.

USAF Kitchen/Diner complex for 372. PSAB Saudi.
Airfreighted in and erected by Military personnel

1.9 Accommodation Buildings

"X" series Flospans are ideal for barracks and accommodation applications, where partitions are incorporated as part of the structure.



1.10 Track record

Flospans have been chosen by United Nations agencies, ExxonMobil, BP, the US Air Force and numerous NGO's, Government Agencies and private companies. The majority of our sales are repeat orders.

2 BUILDING DIMENSIONS

Building Model	A930	A750
Building Span	9.3m	7.5m
Building Length	23.8m	20.1m
External Ridge Height	4.8m	3.8m
Eaves Height	3.2m	2.6m
Double Door height	3.7m	3.0m
Double Door width	2.6m	2.6m
“Bigtruck” Door height	4.6m max	*
“Bigtruck” Door width	4.4m	*
Roller Door Height	3.5m	2.7m
Roller Door Width	2.9m	2.9m
Personnel Door Height	2.0m	2.0m
Personnel Door Width	0.9m	0.9m
Floor Area	221m^2	151m^2
Building Volume	768m^3	428m^3
Wall inclination from vertical	18 deg	18 deg
Roof pitch	24 deg	24 deg

Note: with a Zedframe option, spans can be increased to 20m or more with multiple storeys and vertical walls

3 SPECIFICATIONS

3.1 Cladding Sheet Materials

All cladding material is manufactured from “Galvatite”, a hot dipped zinc coated steel. The substrate is of grade Fe E280G commercial quality mild steel with a minimum yield stress of 280 N/mm2 . Galvanised coating is to a minimum thickness of 275 g/m2 with a conventional spangle finish. The steel substrate fully complies with the provisions of British Standard BSEN 10147: 1992.

Colour coated buildings are coated with 200 Micron Plastisol finish with a life to first maintenance of up to 25 years or with white lining enamel for economy versions. Buildings are also available in Aluzinc or plain Galvanised steel.

All steel is profile rolled to comply with the provisions of BS 5427: 1976 in respect of materials, design, handling, working, performance and storage.

3.2 Base Framework and Door Frames Material

All framework materials are from cut lengths of hot rolled mild steel of HR15 commercial quality to comply with the provisions of BS 1449: Part 1: 1972. All components are pre-formed and punched where necessary and welding operations carried out as required prior to hot dip galvanising to provide a continuous coating of zinc. Galvanising is carried out in accordance with the provisions of BS 729: 1971.

3.3 Door and Window Component Material

Galvanised Steel or Colour coated double hinged doors with hasp and staple fixing. Other options available include Roller doors. All door and window components are manufactured from either 16G (1.6mm) or 20G (0.9mm) materials, dependent upon the required level of structural ability. These materials are to an identical specification to that given for cladding sheet materials above.

3.4 Gable End Verge Trim Materials

Verge trims are manufactured from 16G (1.6mm) thick "Galvatite" materials to identical specifications as given for cladding sheet materials above. For colour coated buildings they can be stove enamelled with a contrasting colour as an option.

3.5 Foundation Bolts

M16 x 140mm "through bolts" for fixing to a concrete slab

4 OPTIONS

4.1 Rooflights

Glass Reinforced Polyester sheets to fit the building profile, available in single or double skins on either or both sides of the ridge. There must be at least two clear tiers between any "broken" tier and at each gable end. This applies to rooflights, ridge vents, windows etc.

4.2 Ridge Vents

Reverse Profile Galvanised Steel sheets to same material specification as walls. This provides open profiles on either side of the ridge sheet.

4.3 Gable Vents

Perforated Galvanised Steel mesh sheets to the same profile as the walls, below the ridge at each gable end. Louvres can also be provided as an alternative.

4.4 Insulation

Double steel skin with 80mm fibreglass, giving a "building within a building" or a board based system using fibreglass and plasterboard with a mineral fibre suspended ceiling to suit client's thermal and sound insulation requirements

4.5 *Windows*

Top hung single glazed sealed uPVC or aluminium units 750 wide x 850 deep or double glazed 28mm thick (4-28-4).

4.6 Prefab Foundations/Floor

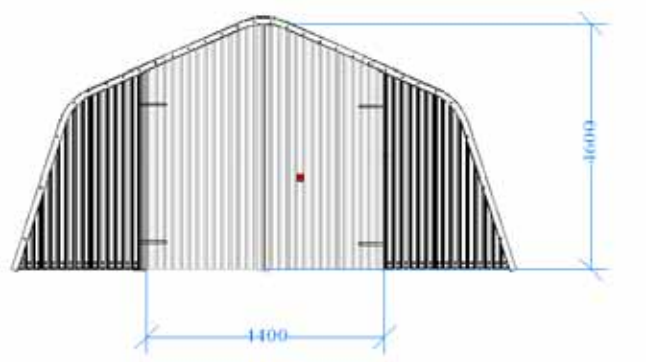
Pre-drilled galvanised steel channel framework complete with all cleats designed to loading of 3.0 kN/m2 imposed load, 0.19 kN/m2 dead load. Insulated vapour barrier under

18mm tongued & grooved flooring grade chipboard floorboards covered with 2mm heavy duty vinyl sheet.

4.7 Ground Spikes

600mm long 20mm diameter foundation spikes with hot forged dome head and hot forged point with red oxide finish for fixing to firm level ground

4.8 NEW "Bigtruck" Doors Option



4.9 NEW Flospan Zedframe.

Cold rolled stackable galvanised zed framing system enables Flospans of much larger spans, straight walls and multiple storeys.

All the usual options are available, including electrics, heating, plumbing and sanitary fittings etc.

5 PERFORMANCE DATA

5.1 Dead and Imposed Loads

V-Span and Flospan buildings have been designed according to calculations by Professor J M Davies of Manchester University, copies of which are available from our Technical Department.

Flospans have been designed to comply fully with the loadings required under BS6399: Part3: 1988 and British Standard Code of Practise CP3 Chapter V Part 1:1975 and Chapter V Part 2:1972 in respect of imposed roof loads other than wind loads. In 1972 general terms the above standards require a maximum safe applied load of 0.75 kN/m2 inclusive of snow loads, services loads, intermittent access loads and the imposed weight of any lining or insulation system provided that this does not exceed 0.15kN/m2. Flospan buildings have been practically tested to destruction in a series of loading tests under supervision and guidance of British Universities. Both the Flospan A930 and A750 have Local Authority National Type Approval.

Loading data for information:	A930	A750	
Downward self-weight load of building	0.731	0.583	kN/m
Downward load of building under designed maximum imposed loading	2.350	2.202	kN/m
Inward loading moment on base frame at designed maximum imposed loading	1.477	1.180	kN/m2
Horizontal inward loading applied to foundations at designed maximum imposed loading	1.913	1.528	kN/m

5.2 Wind Loads

Flospan buildings comply fully with the provisions laid down in British Standard Code of Practice CP3: Chapter V: Part 2: 1972 in respect of imposed wind loads in all directions, and British Standard BS 6399: Part 3: 1988 in respect of wind loads.

The wind values and derived pressure coefficients are based upon the probable wind speeds encountered in the British Isles calculated on a statistical basis in accordance with information provided by the British Meteorological Office, and use gust loadings in preference to mean average loads. Maximum 3 second gust speeds are considered to be wind speeds likely to be exceeded only once in 50 years at 10 metres above ground level on open flat land.

The calculations for the design wind speed have used the following factors:

S1	Topography factor	1.00
S2	Ground roughness, building size and height	0.87
S3	Period of time exposure	0.93

The pressure exerted upon the building on any of its surfaces have been established by a series of destruction tests and the applied loads resolved vectorially to arrive at the resultant loads on the structure as a whole using the formula *F = (Cpe - Cpi).q.A.* as laid down by the British Standard

The resultant load is equivalent to a dynamic pressure of 1530 N/m2 on the largest area exposed to wind forces.

These figures equate to a safe performance in winds up to the following velocities:

FLOSPAN A930	FLOSPAN A750
50.0 m/sec	56.0
112.0 mph	126.0

Flospans were chosen by the Crown Agents acting on behalf of the Government of Montserrat after Hurricane Hugo for post hurricane reconstruction.

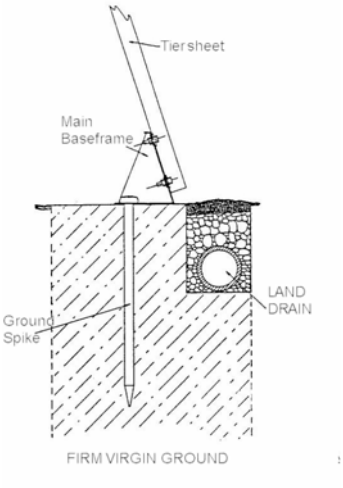
For further information on factors to be used in unusually high wind speed situations and coefficients to be used when the building is not equipped with fully clad walls or ends, please contact our technical department.

6 CONSTRUCTION INFORMATION

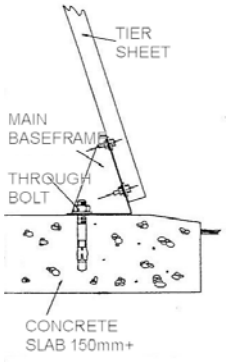
6.1 Foundations

Flospans can be built on different types of foundations, depending on intended use, ground conditions and deployment duration

6.2 Foundation Details - direct fixing to bare ground



6.3 Foundation Details – concrete slab



7.0 COMPARISON WITH TENT "HALLS"

Compare these features with the flimsy soft wall tents used by many relief agencies and you will see why Flospans are a much more rational and less wasteful solution:

- Temporary and/or permanent for similar cost
- Security of steel roof and walls
- Maintenance free and rot proof, with a life of over 40 years
- Can be moved and re-erected with no loss of materials
- Very high wind resistance.
- Post emergency function. Can be used as village grain stores or tool sheds – or even classrooms or village halls.