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Fastenings

Recyclability & Demountability

Choice of materials

Types of Fasteners

Yurt

Think about
Demountability
Reconstruction
& Reusability

Fixings &
Fastenings
avoid welding
adhesive & nails
Use screws & bolts
or ballast



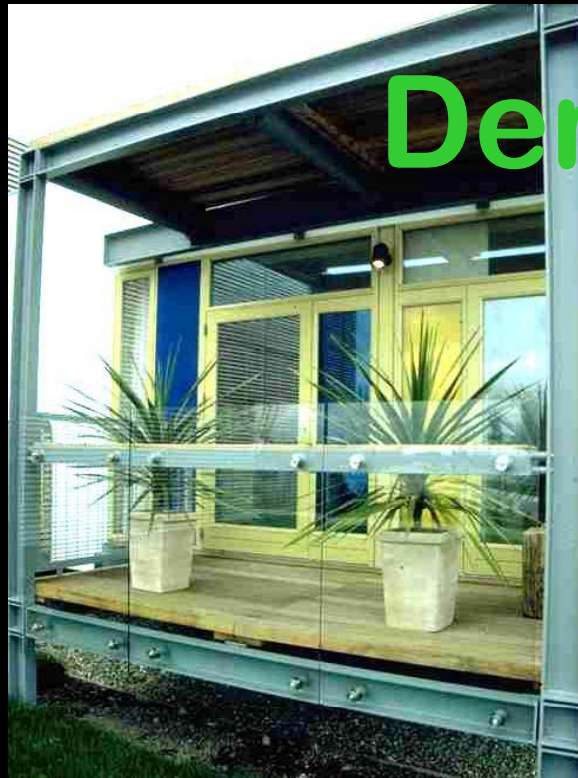
Reclaimed repaired
reused

Recycled steel
frames
Redundant bolt
holes
Blast clean and
prime/paint





- Thermal cutting to undo welding
- Spanner to undo bolts

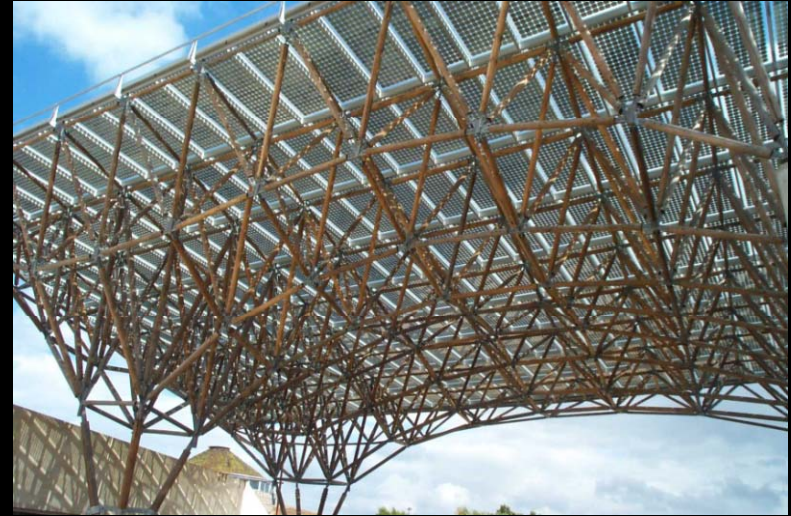


Demountability

Methods of
Assembly and
Fastenings
to permit
deconstruction
and reuse of
components

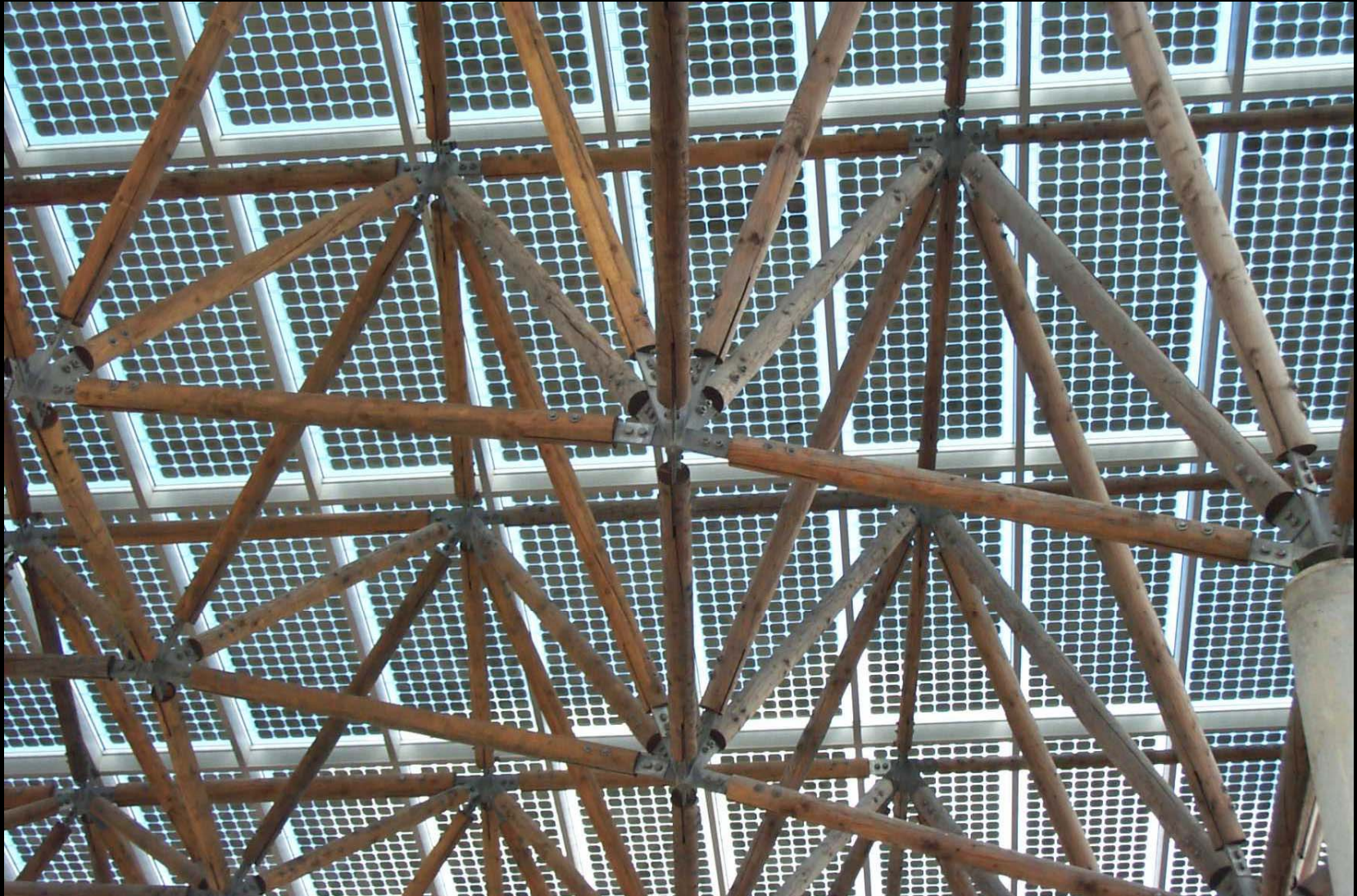


Space Frame



Recycling
Telegraph
poles &
HDG
Joints

Galvanised Mild Steel Fixings & Fastenings



Earth Centre Doncaster

Space frame & PV

Methods of Assembly Fixings and Fastenings permit deconstruction and reuse of structural components



Timber & Stainless Steel

- Stainless Steel in acidic timber
- Demountable jointing methods
- Reusable





STEKO Load-bearing timber blockwork

Construction Resources Showrooms Southwark London

Z20 Fixings

115 Recyclability

- A In the interest of recycling and reusing all materials used in the Works at the end of the buildings useful life, do not use nails, shot fired fastenings, welding, resin fasteners, etc.
- B For ease of dismantelling always use screws, nuts and bolts, hammer-in and screw-out sleeved fasteners, expanding bolt fasteners, etc.

Z20 Fixings

220b Screw Fixing Acidic

Timbers:

- C Use austenitic stainless steel screws [in oak, cedar and other acidic timbers].
- D Do not hammer screws unless specifically designed to be hammered.

Z20 Fixings

250b Powder Actuated Fixing Systems:

- Do not use[without CA's prior approval.]

Z20 Fixings

281 Resin Fixings:

- Do not use[without CA's prior approval.]

Dry-linings and Fasteners

K10 & Z20

K10 Plasterboard ceilings

- Is plasterboard fixed to the u/s of steel joists, concrete beam floors etc undertaken using softwood battens?
- Yes
- But the fastener becomes important

Powder Actuated fixings

- Shot firing is not intelligent
- products of combustion are not healthy
- Macho builders avoid ear and eye protection
 - bigger sites are better, small sites not so good
- Shot firing has health and safety implications for labourers in vicinity and for the shooter

E10 Shot firing and concrete

- shock waves through insitue and precast concrete can do damage
- Some engineers e.g. have excluded them from prestigious projects with long design life.

G10 Shot firing and steel

- stress in steel can change chemistry of steel and corrosion protection
- Some engineers e.g. have excluded them from prestigious projects with long design life.

E60 Metal hangers in precast floors

- metal hangers can be hung through the joint in precast floors before the structural topping is added (trade to trade co-ordination needed)
- They can receive fixings for battens

E10 Metal inserts in insitu concrete

- Casting in channels for key anchor slot ties/hangers avoids shot firing and drilling
- Trade to trade co-ordination is necessary
- Poor coordination leads to misplaced channels
- Surface mounted channels solve the problem but cost more if cast in were included as well

Z34 Drilling for fasteners: Galvanized Steel

- Drilling of steel should ideally be done before galvanizing and/or priming/painting

Z20 Other ways with steel

- Clamp fixings permit fixing without drilling and shot firing
- They also permit deconstruction
- Lindaptor Ltd. have a long track record in clamp fasteners

E10 Drilling for fasteners: Concrete

- Drilling of concrete is labour intensive and physically difficult overhead
- Drilling of concrete is potentially damaging to reinforcement
- Some engineers limit drill penetration to 25 mm. (depth of cover) unless steel detection is used to find spaces between wires.

Z20 Resin fasteners:

- District Surveyors do not like resin fixings to soffit on the basis of fire melting resins.
- Resin technology is better than that!