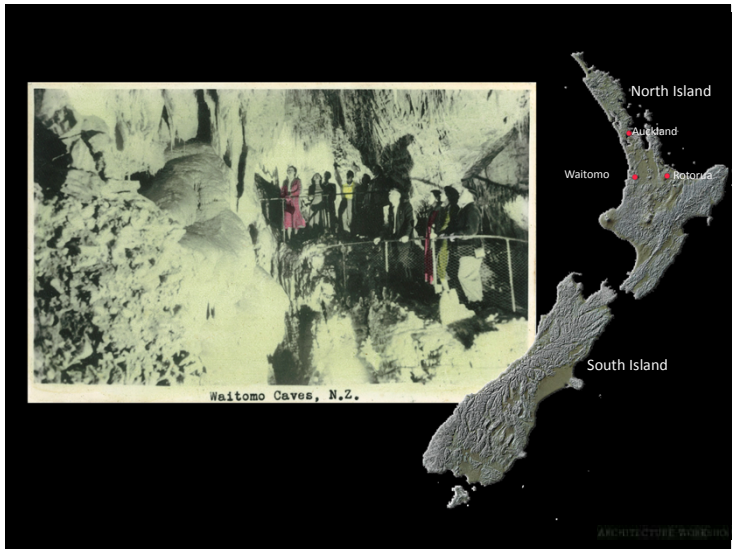
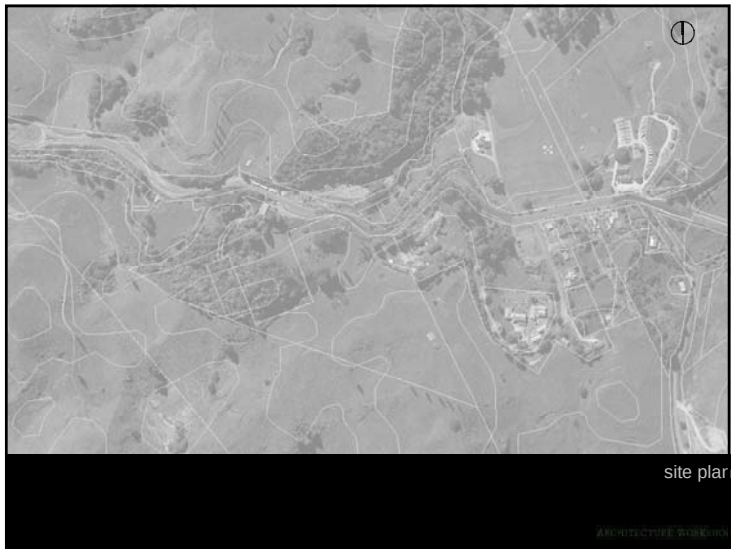
Waitomo Gloworm Caves Visitors Centre - Architecture Workshop

dawn blessing by local maori


Waitomo Caves, N.Z.
North Island
Auckland
Waitomo
Rotorua
South Island

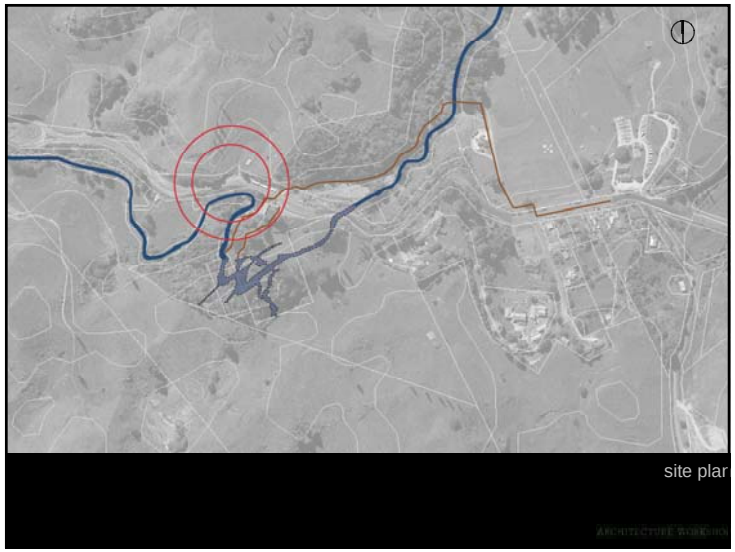

site plar

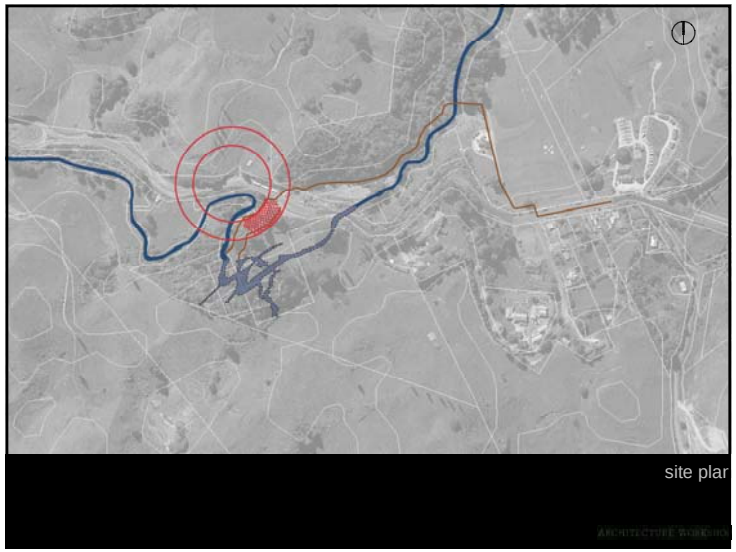
site plan

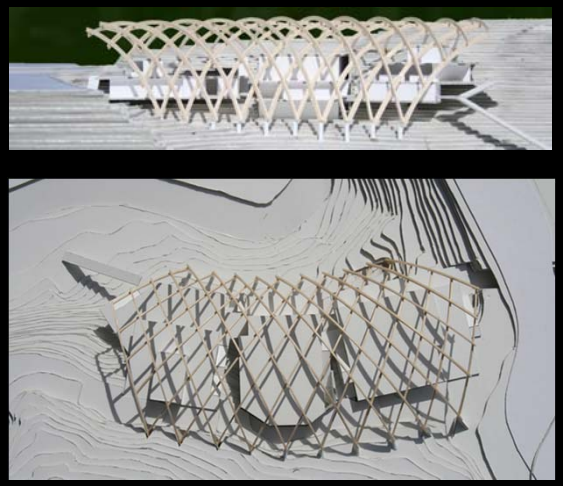
site plan

site plan

a visitors centre than spanned the waitomo stream?

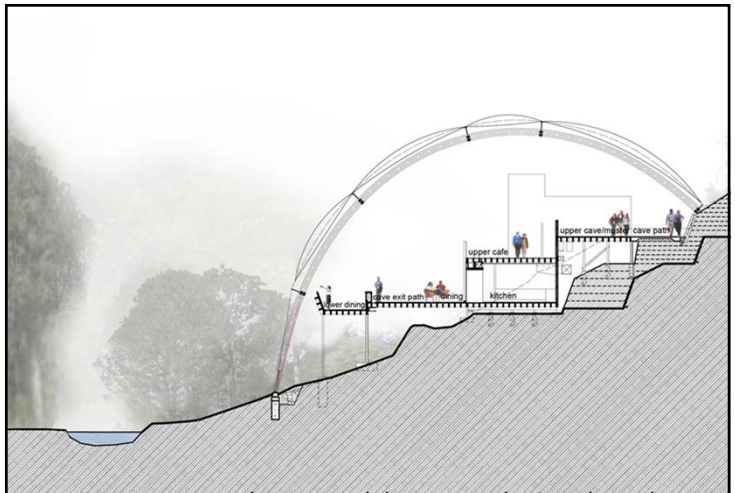




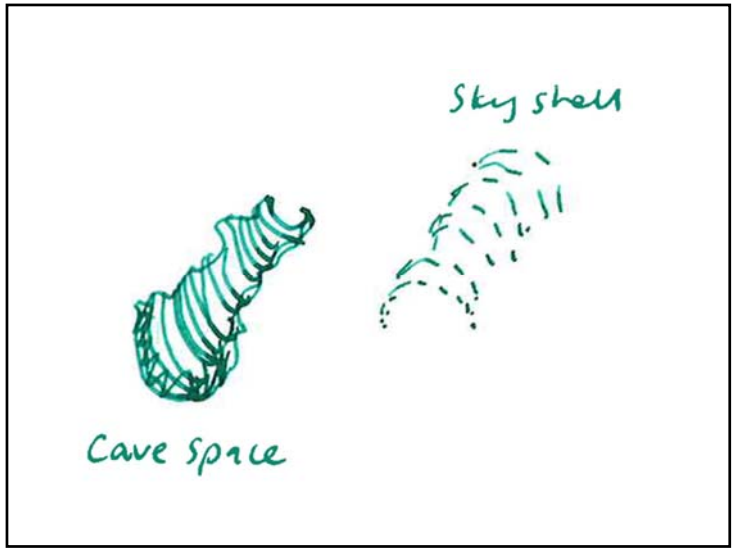


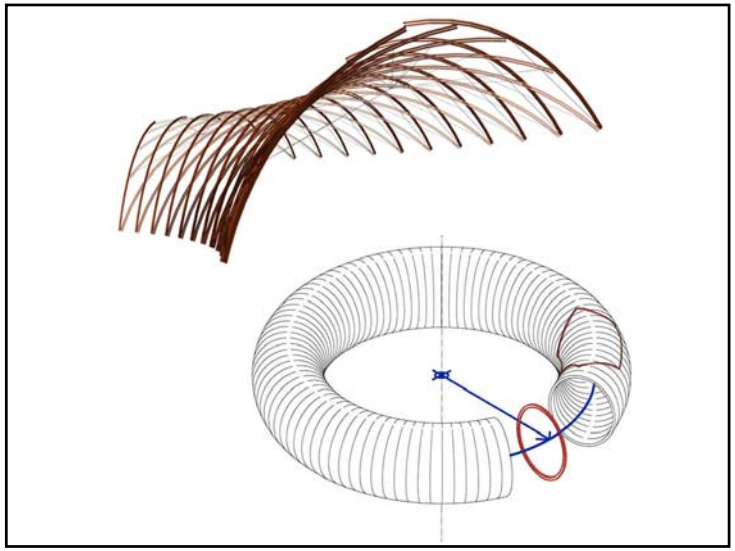
radial geometric setout to both canopy and base

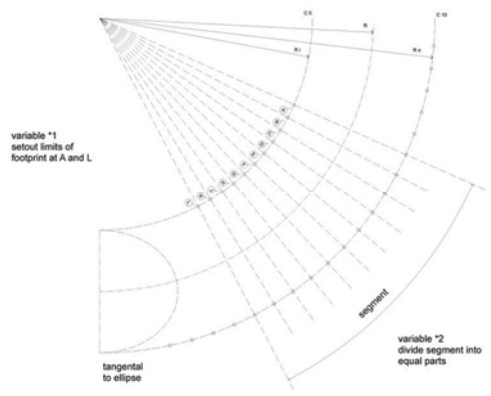
base geometry aligned with land contours

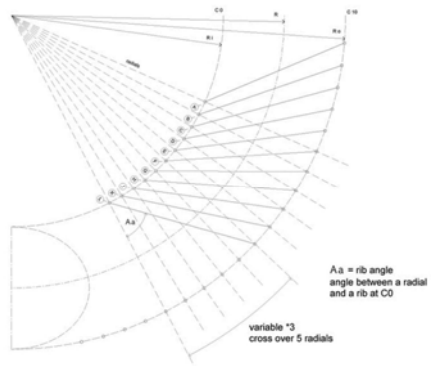


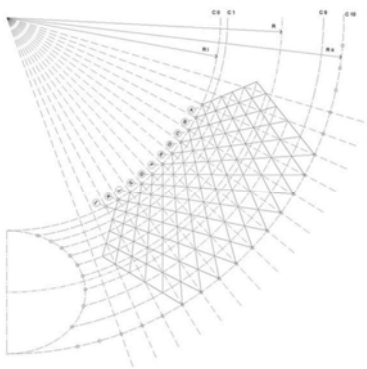
a structure that spanned the entry and exit paths to the cave

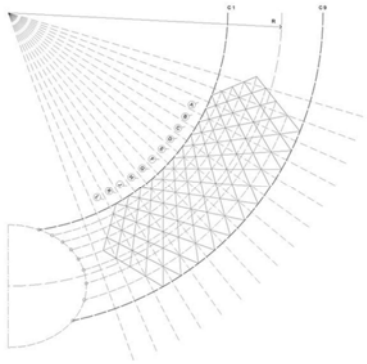


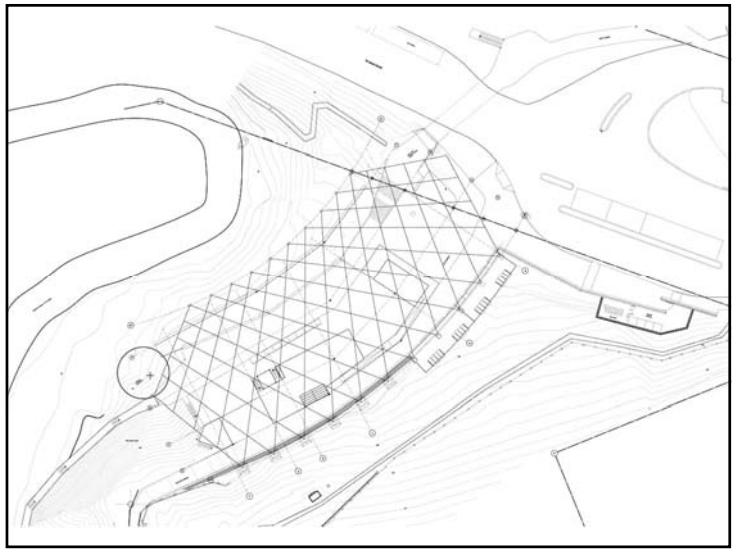


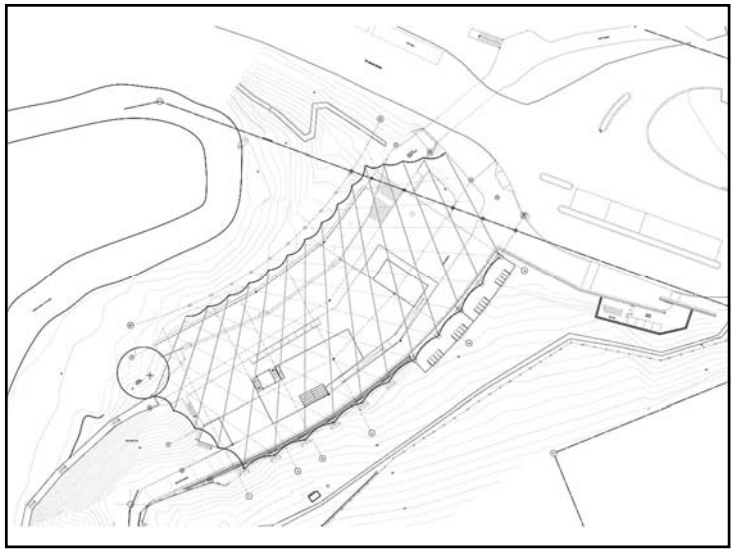

variable *1
setout limits of
footprint at A and L
segment
variable *2
divide segment into
equal parts
tangental
to ellipse

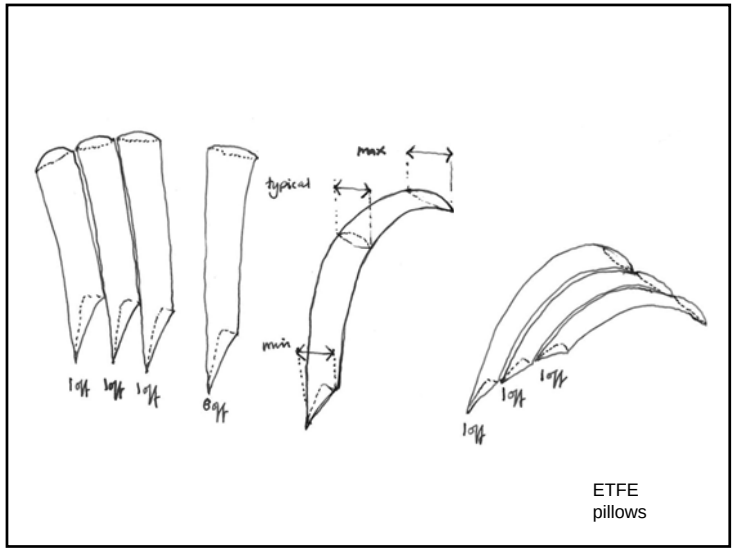

A.a = rib angle
angle between a radial
and a rib at C0
variable *3
cross over 5 radials

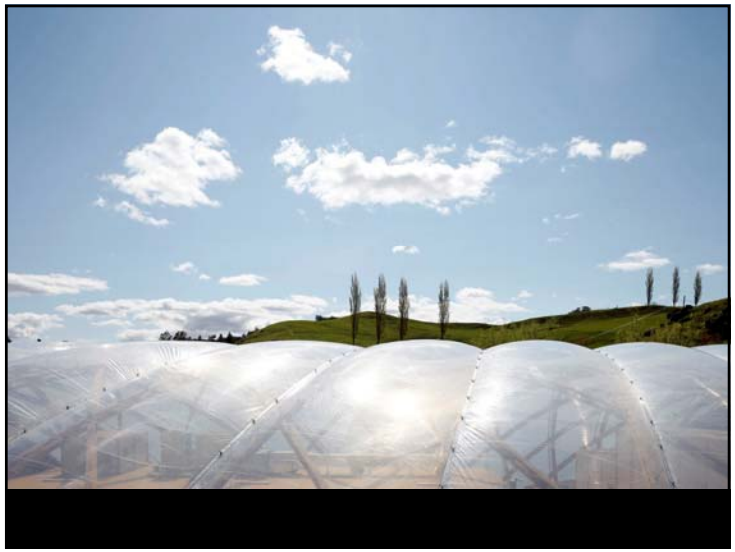


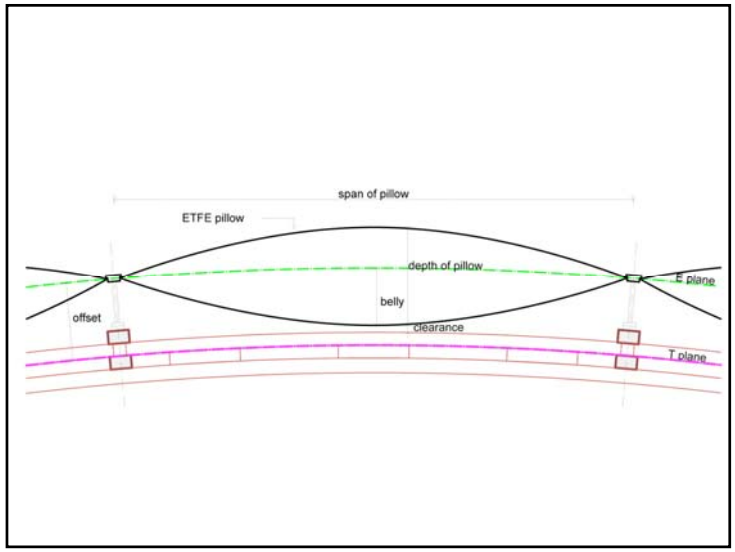


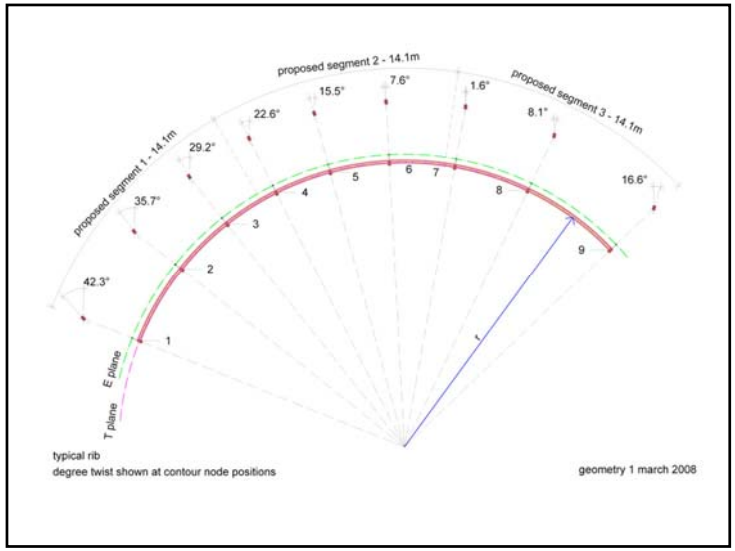


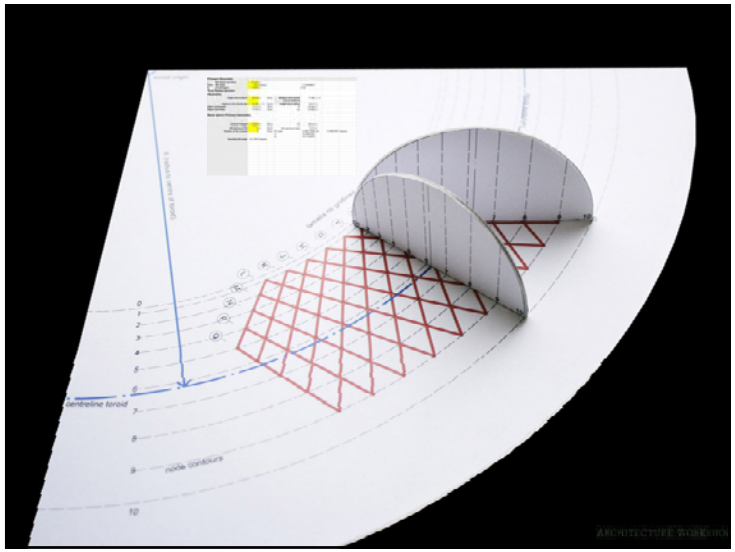


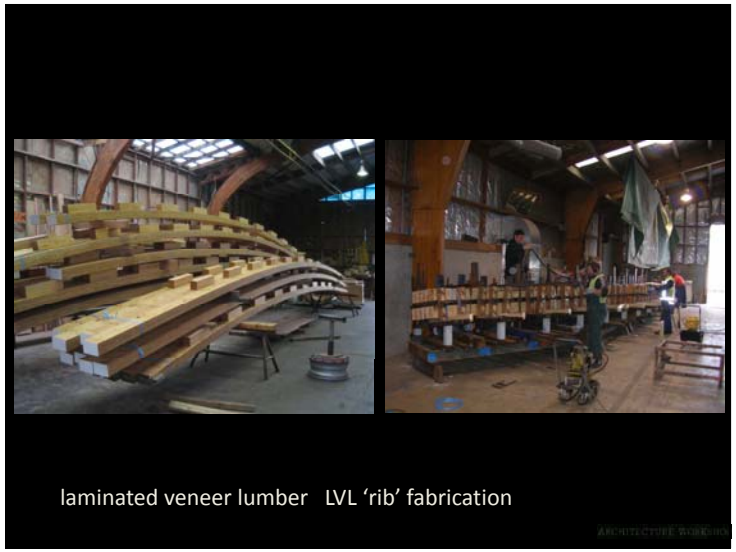

max
typical
min
ETFE
pillows




span of pillow
ETFE pillow
depth of pillow
E plane
belly
offset
clearance
T plane

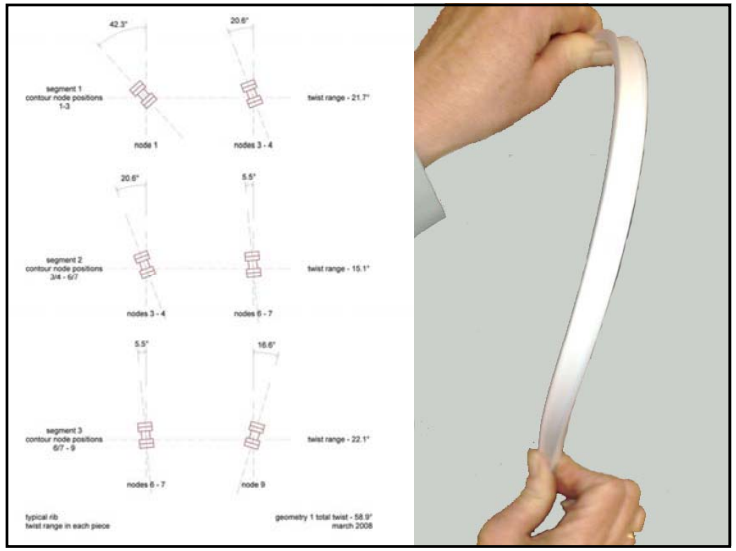

proposed segment 2 - 14.1m
proposed segment 1 - 14.1m
proposed segment 3 - 14.1m
42.3°
35.7°
29.2°
22.6°
15.5°
7.6°
1.6°
8.1°
16.6°
1
2
3
4
5
6
7
8
9
E plane
T plane
typical rib
degree twist shown at contour node positions
geometry 1 march 2008

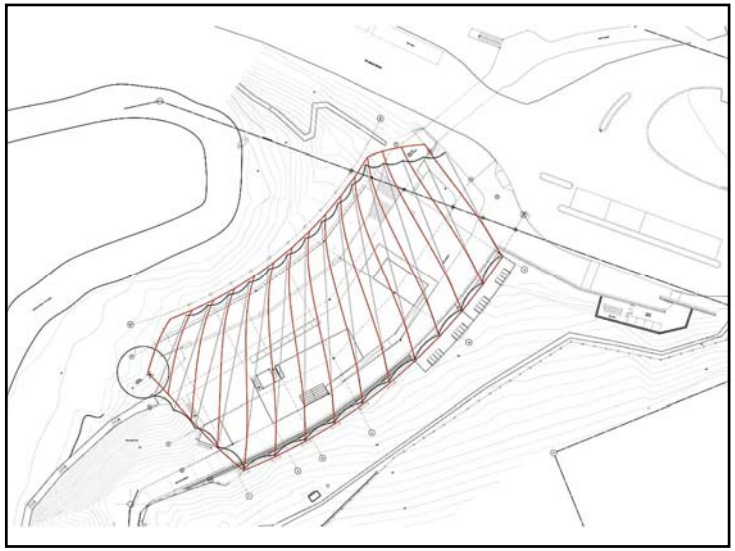


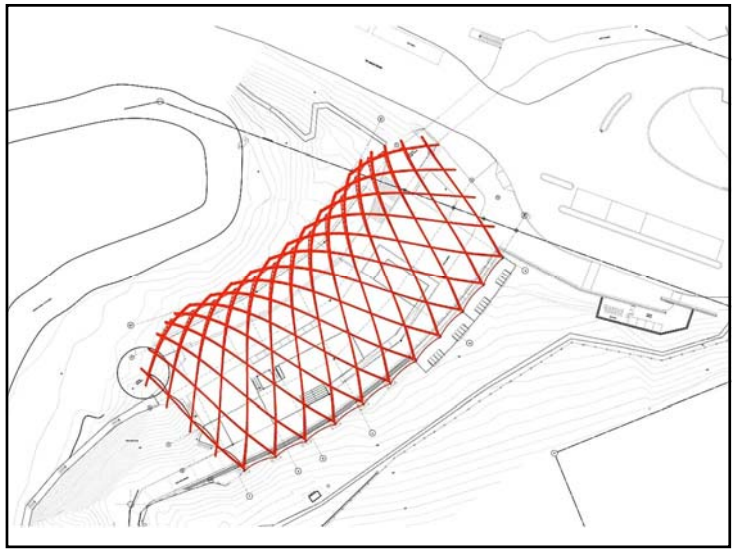


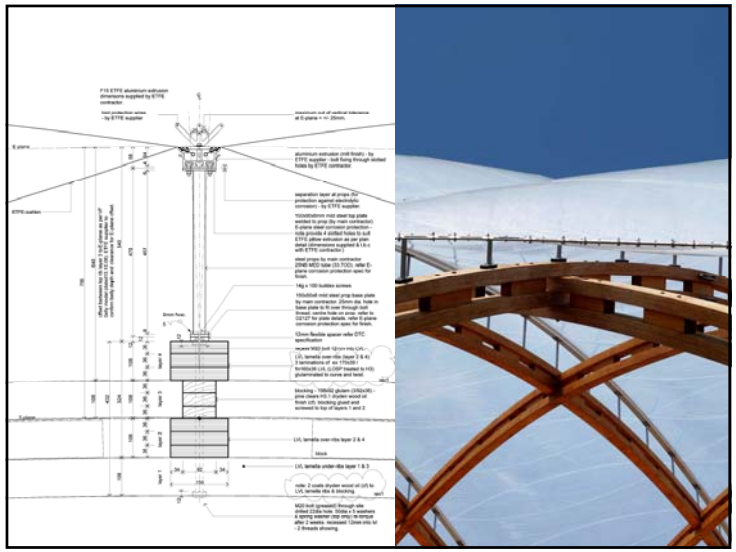
laminated veneer lumber LVL 'rib' fabrication

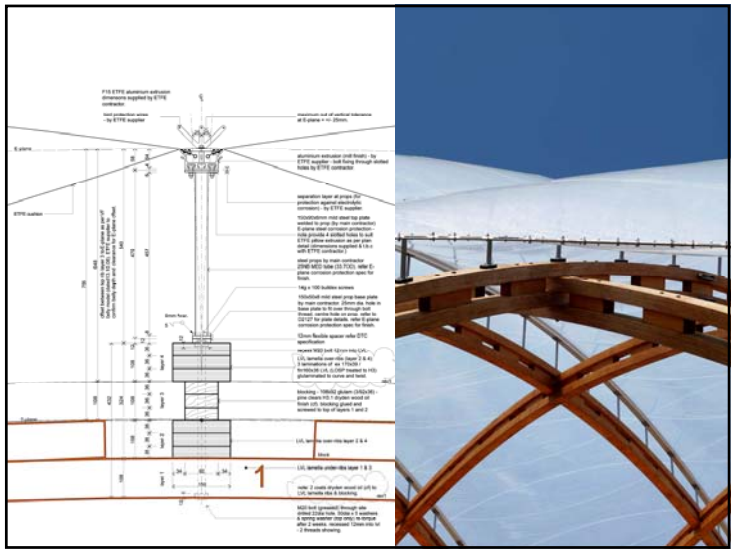
jig fabrication of 'rib' radius and twist

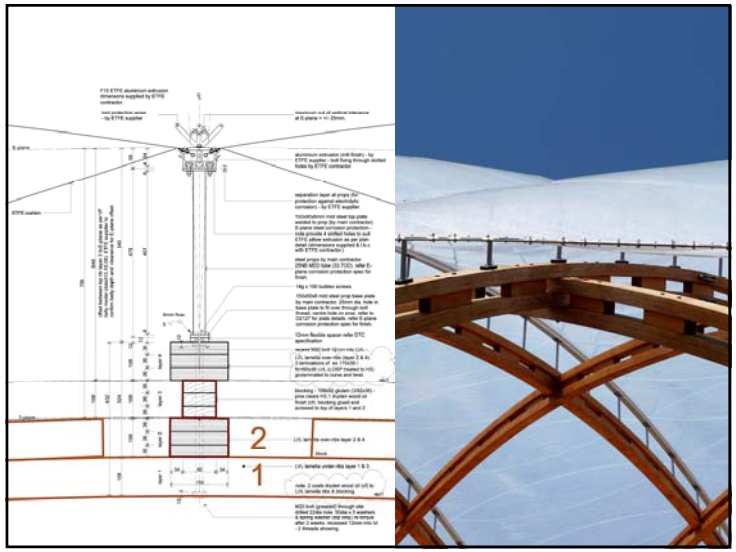


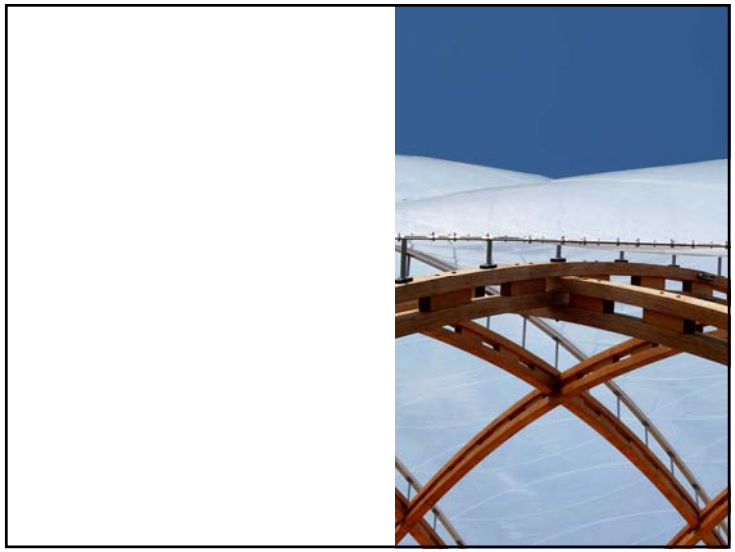


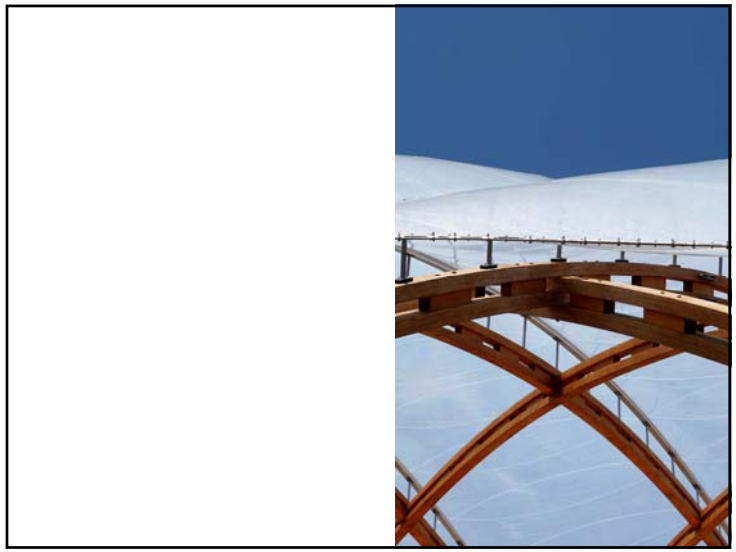


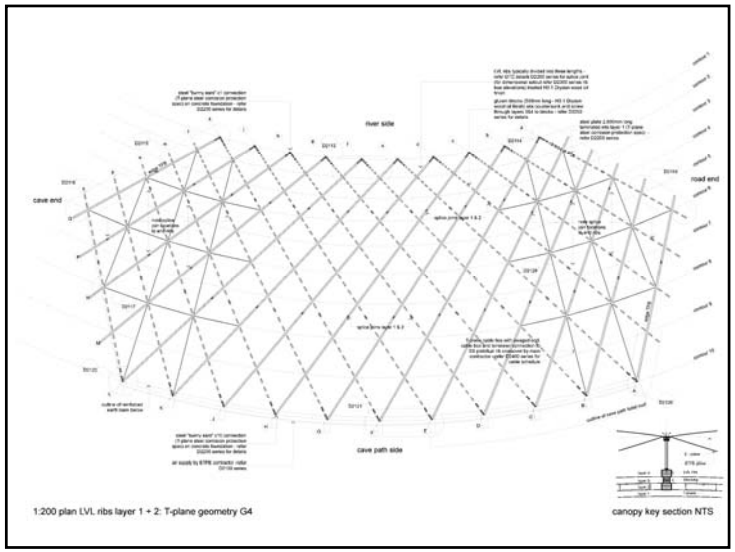


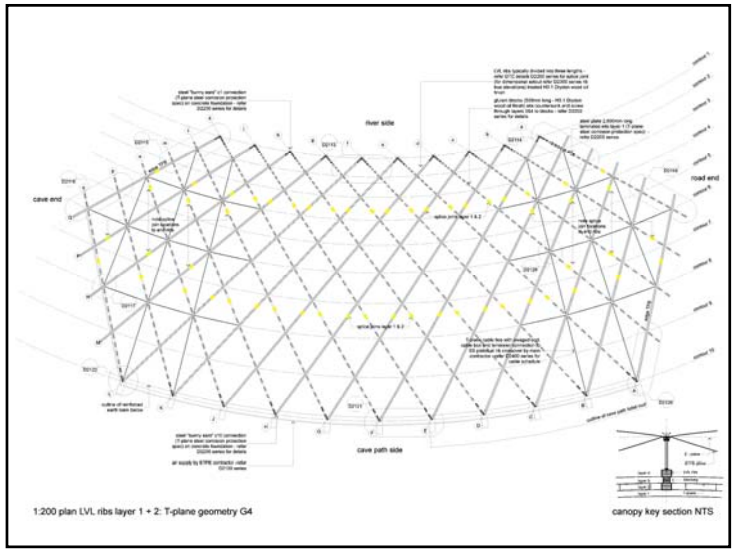


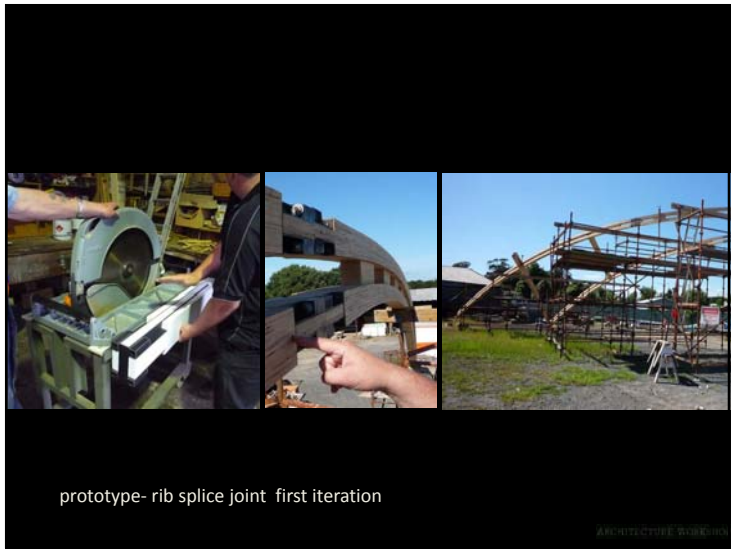

2
1

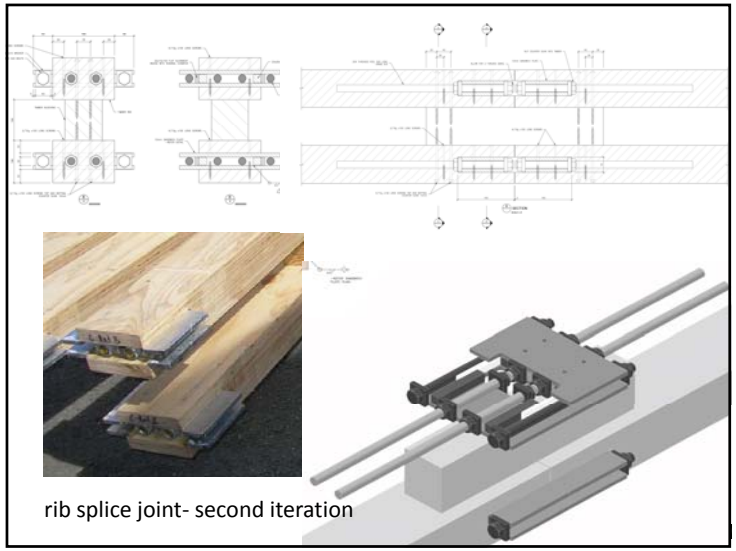


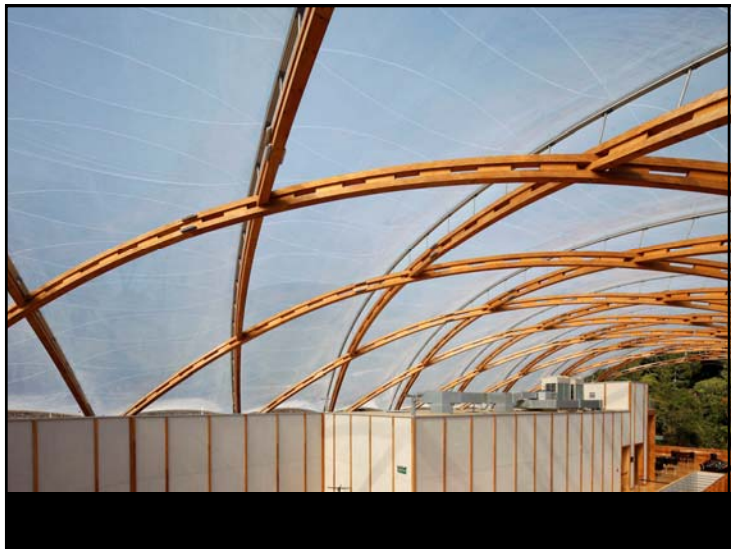


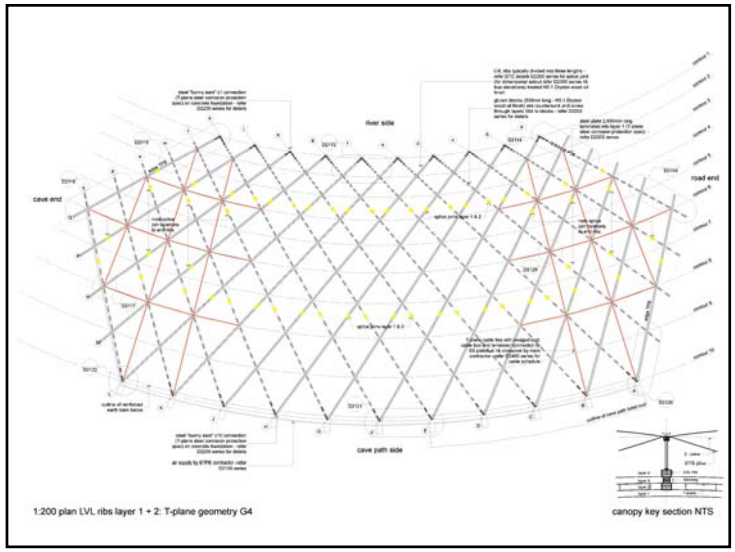

cave end
road end
river side
cave path side
1:200 plan LVL ribs layer 1 + 2: T-plane geometry G4
canopy key section NTS

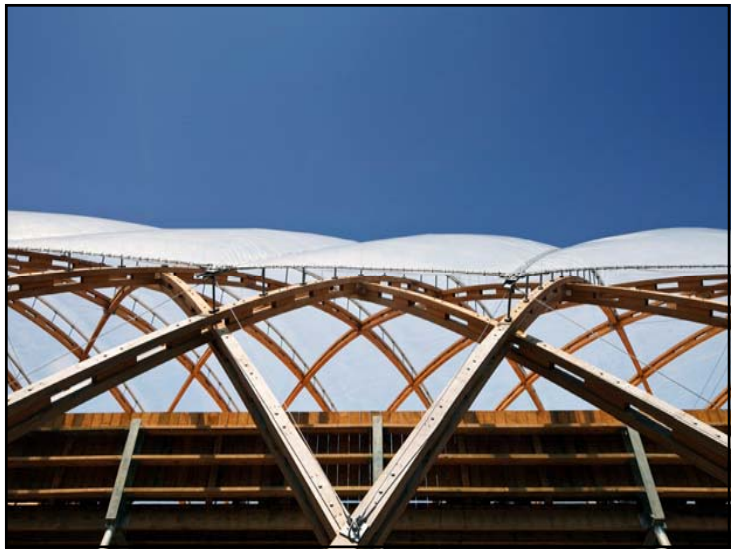



prototype- rib splice joint first iteration

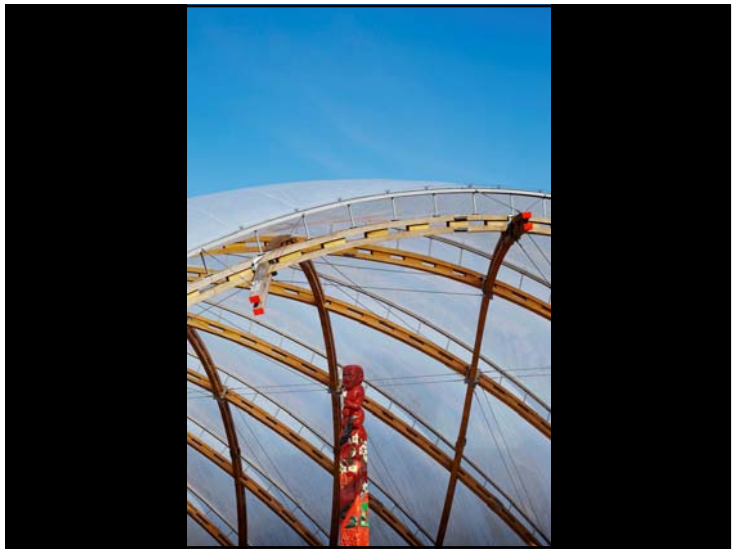

rib splice joint- second iteration

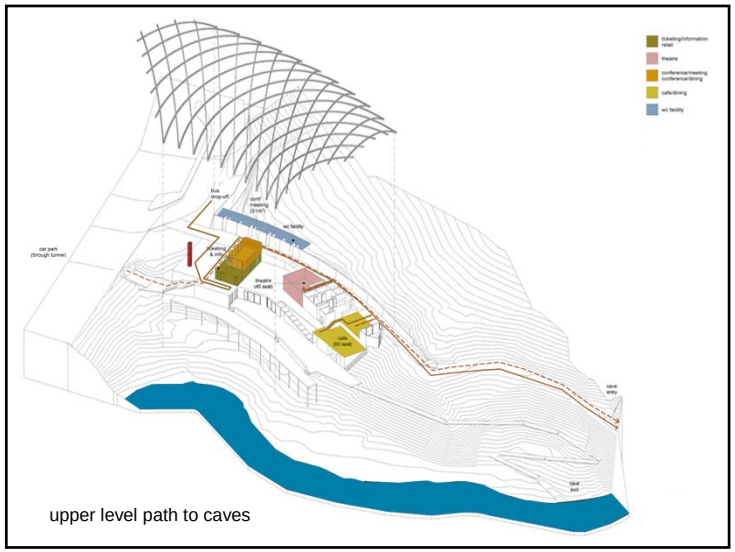


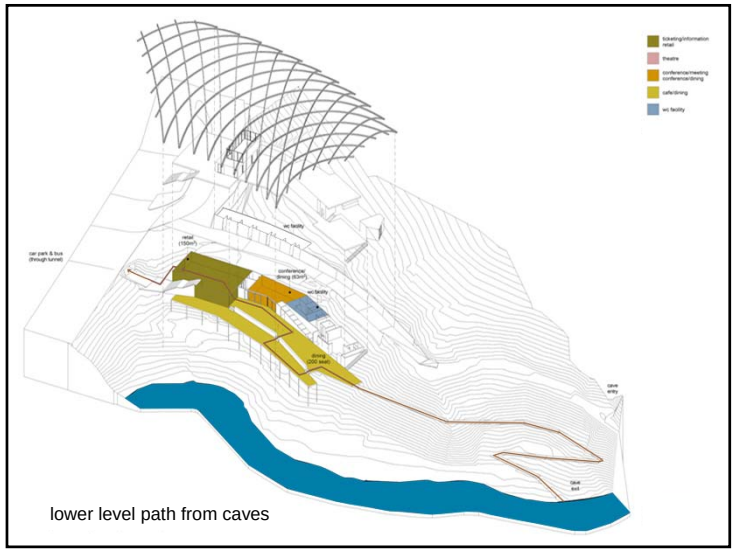

river side
cave end
road end
cave path side
1:200 plan LVL ribs layer 1 + 2: T-plane geometry G4
canopy key section NTS



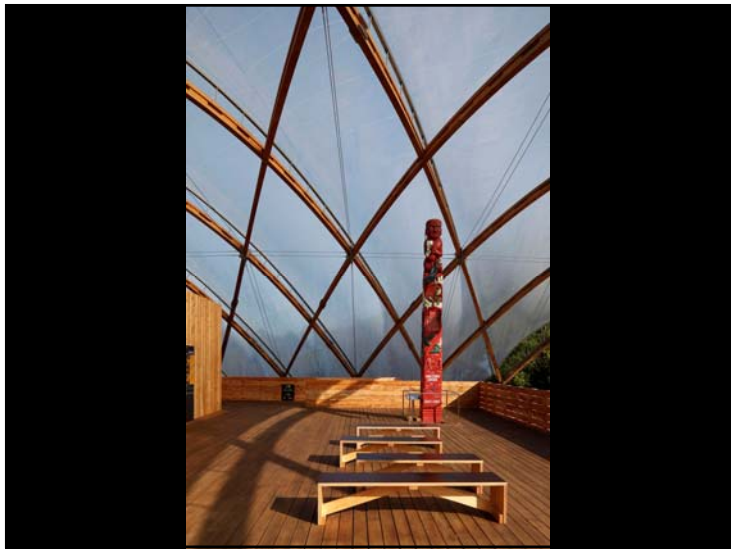
key plan

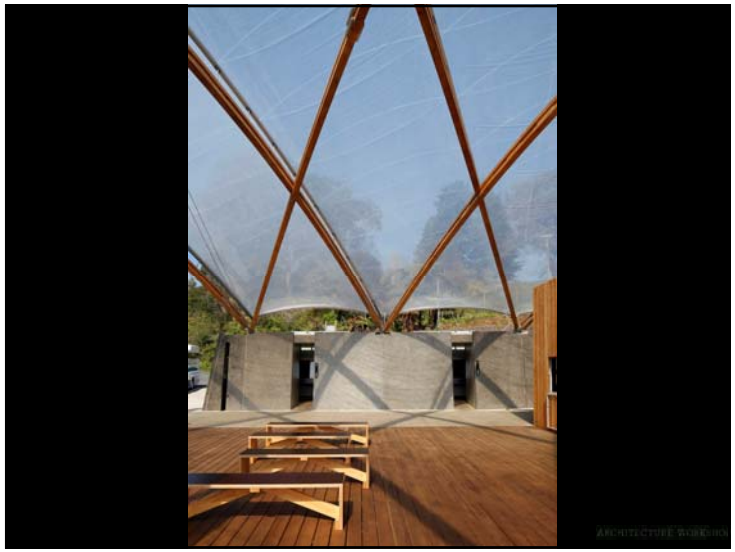


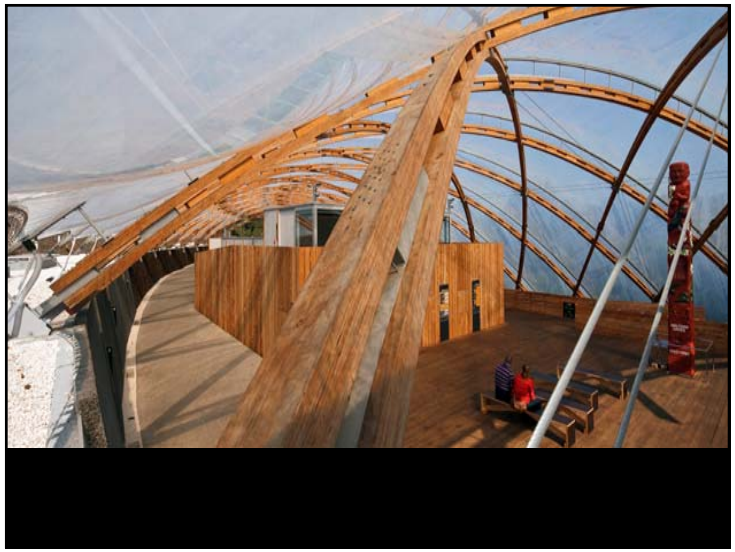

upper level path to caves

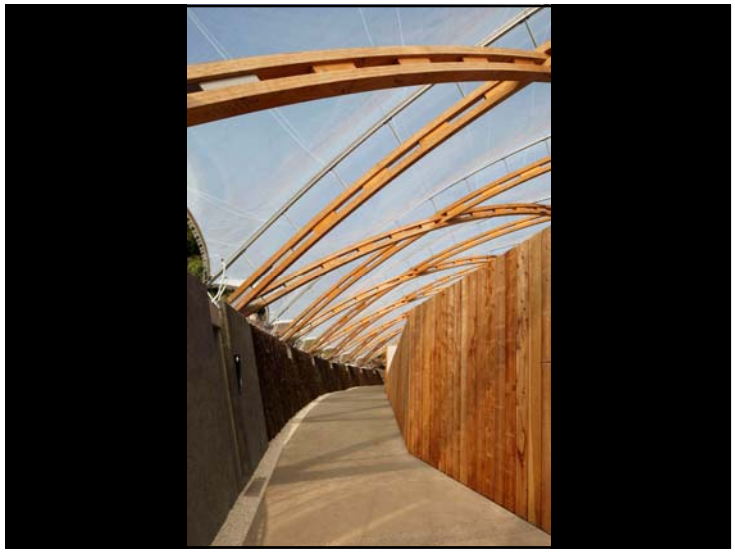


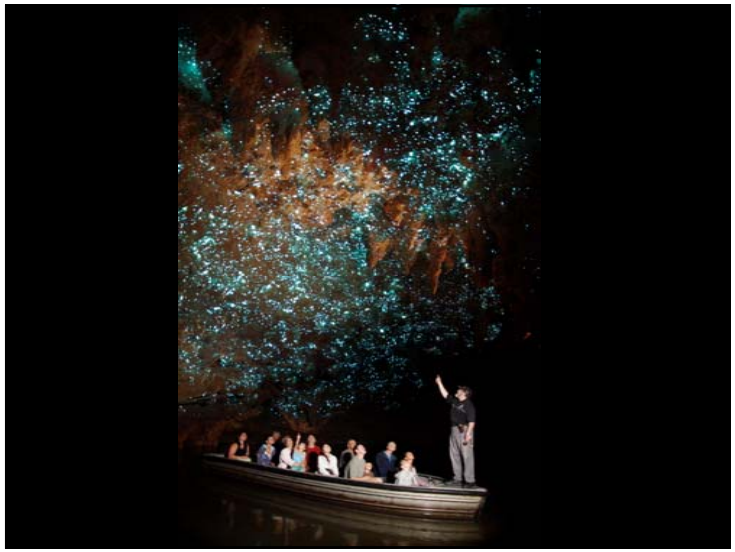
lower level path from caves

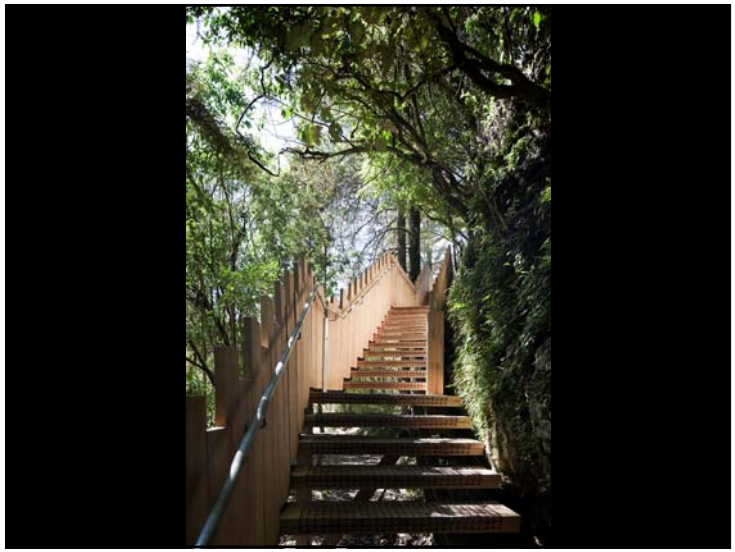


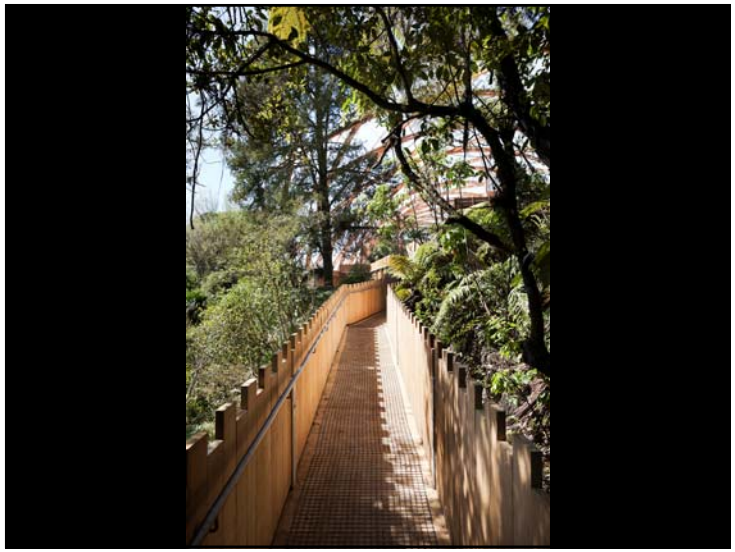


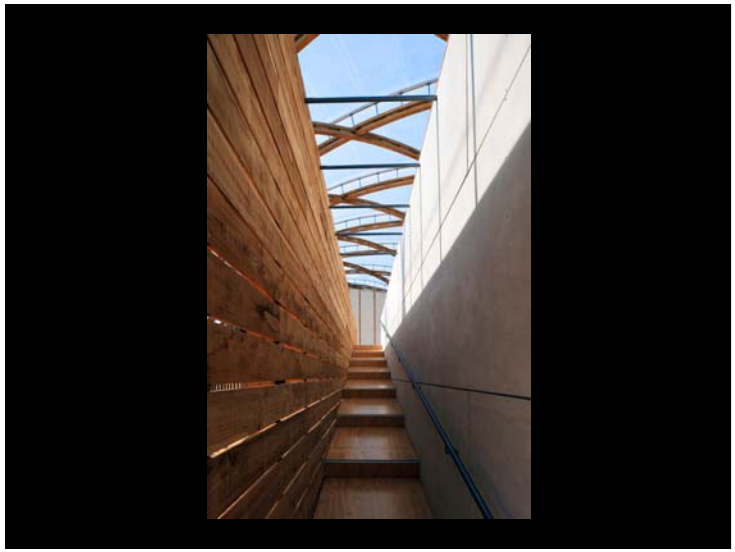


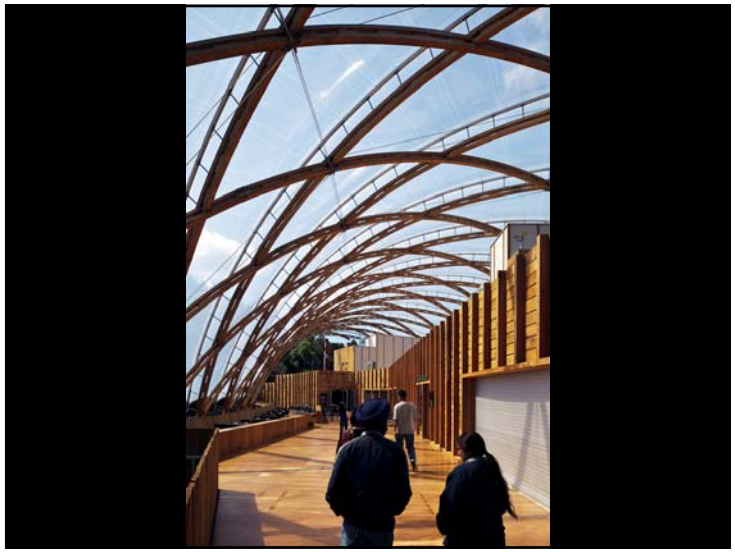


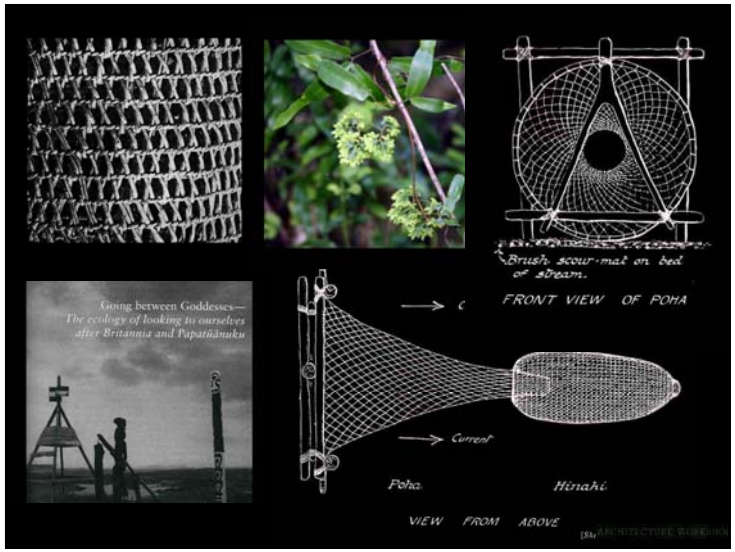












Waitomo Gloworm Caves Visitors Centre for Tourism Holdings Ltd 2010
Architecture – Christopher Kelly Architecture Workshop
Structure - Alistair Cattanach, Dunning Thornton Consultants
Services - Dave Fulbrook, E3BW