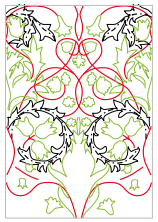
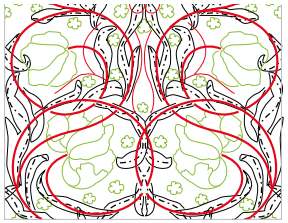
Contents

L-4
T-14
F-16



S-Line
William Morris, *Snakeshead*: Leaves (4) + Twigs (14) + Flowers (16)

L-34
T-8
F-30



S-Line
William Morris, *Pimpernel*: Leaves (34) + Twigs (8) + Flowers (30)

Roses
Buck Hardy Roses, 20–30 petals

Roses
Climbing Roses, 50–60 petals

Carpet House

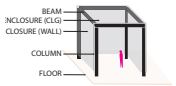
Miharu Morimoto

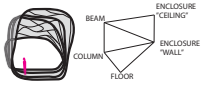
"Hanging carpets remained the true walls, the visible boundaries of space. The often solid walls behind them were necessary for reasons that had nothing to do with the creation of space; they were needed for security, for supporting a load, for their permanence and so on. Whenever the need for these secondary functions did not arise, the carpets remained the original means of separating space. Even where building solid walls became necessary, the latter were only the inner, invisible structure hidden behind the true and legitimate representatives of the wall, the colorful woven carpets." Gottfried Semper, from Die Vier Elemente der Baukunst *(1851).*

The Carpet House explores ways of creating a spatially aesthetic and yet morphologically flexible carpet: the very carpet that Semper acknowledges as an essential element in space creation, but more. Semper's carpets are conceptualized as paper-thin ornaments that require a separate structural system. But what if the carpet itself became the form of structure that would contribute to the aesthetic, sensorial qualities of the spaces? Through the inflating, bundling and widening of the woven threads of the carpet, the flat carpet can start to form not only walls but also vaults, columns, beams, ribs and self-supported screens. Using the textile techniques of macramé, this project extracts the underlying system behind the variable, morphogenetic growth of knotted surface and weaves a series of houses full of texture and sensation.

The continuous nature of textile techniques can create a gradual variation in pattern and form. This idea is translated literally into the houses' structural and aesthetic functions. Because of its system of continuity, its structure does not need distinguished elements, such as floors, columns and ceilings; rather, the forces can gradually transfer more efficiently from the ribbed vault to the bundled columns, stairs, and finally the grounded floor, in a way resembling the structural logic of Gothic cathedrals. These seemingly solid spaces are interwoven with lattice structures in the same, continuous system. The porosity of these latticed surfaces introduces filtered light into spaces and creates the contrasting phenomena of light and shadow.

TEXTILE TRANSLATION





DEFINITIVE: FORMAL DISTINCTION OF FUNCTIONS

AMBIGUITY: GRADUAL VARIATION IN FORM AND FUNCTION

ENCLOSING STRUCTURE

STRUCTURAL ENCLOSURE

1. SELECT MATERIAL

GENERIC STRING

- CONSTANT WIDTH
- SYMMETRICAL PROFILE
- TENSILE STRENGTH
- NO COMPRESSIVE STRENGTH
- CHANGE DIRECTION BY BENDING AND TWISTING
- BENDABLE IN ALL DIRECTIONS
- TWISTABLE-FLEXIBLY
- NON-FOLDABLE
- NON-STRETCHABLE

PAPER STRIP

- CONSTANT WIDTH
- NON-SYMMETRICAL PROFILE
- TENSILE STRENGTH
- NO COMPRESSIVE STRENGTH IN THE DIRECTION OF STRIP; SOME COMPRESSIVE STRENGTH ACROSS THE WIDTH
- CHANGE DIRECTION BY BENDING AND TWISTING
- BENDABLE IN ONE DIRECTION ONLY
- TWISTABLE ONLY GRADUALLY
- NON-FOLDABLE
- NON-STRETCHABLE

SILK RIBBON

- VARIABLE WIDTH
- NON-SYMMETRICAL AND CHANGEABLE PROFILE BY FOLD
- TENSILE STRENGTH
- NO COMPRESSIVE STRENGTH
- CHANGE DIRECTION BY BENDING, TWISTING, AND FOLDING
- BENDABLE IN ALL DIRECTIONS
- TWISTABLE-FLEXIBLY
- FOLDABLE
- NON-STRETCHABLE

PLASTIC TUBE

- VARIABLE WIDTH
- NON-SYMMETRICAL AND CHANGEABLE PROFILE BY STRETCH
- SOME TENSILE STRENGTH
- NO COMPRESSIVE STRENGTH
- CHANGE DIRECTION BY BENDING, TWISTING, AND FOLDING
- BENDABLE IN ALL DIRECTIONS
- TWISTABLE-FLEXIBLY
- FOLDABLE
- STRETCHABLE

WIRE MESH

- VARIABLE WIDTH
- NON-SYMMETRICAL AND CHANGEABLE PROFILE BY EXPANSION
- TENSILE STRENGTH
- SOME COMPRESSIVE STRENGTH
- CHANGE DIRECTION BY BENDING, TWISTING,EXPANDING, AND BIFURCATING
- BENDABLE IN ALL DIRECTIONS
- TWISTABLE-FLEXIBLY
- FOLDABLE
- NON-STRETCHABLE
- EXPANDABLE
- BIFURCAT-ABLE

2. SELECT KNOT

SQUARE KNOT

DOUBLE HALF HITCH

JOSEPHINE KNOT

HALF KNOT

HALF HITCH

OVERHAND KNOT

3. SELECT FIGURES TO CONFIGURE

SIZE = X0.2
STRING = 1

SIZE = X0.4
STRING = 2

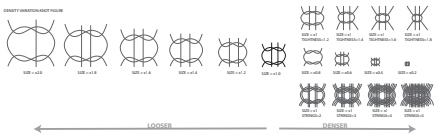
SIZE = X0.6
STRING = 3

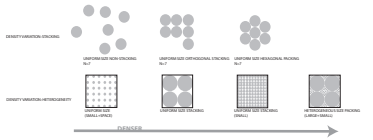
SIZE = X1
STRING = 5

SIZE = X1.2
STRING = 6

SIZE = X2
STRING = 10

CONFIGURING DENSITY





4. SELECT FIGURES TO INFLATE

SIZE = X1
STRING = 5

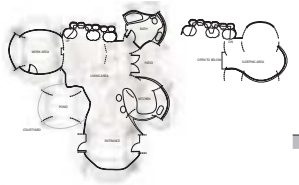
SIZE = X1.2
STRING = 6

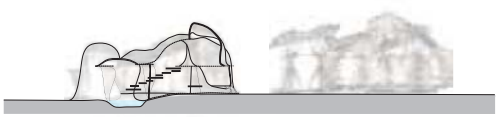
SIZE = X2
STRING = 10

ENCLOSING STRUCTURE: INHABITING A SQUARE KNOT

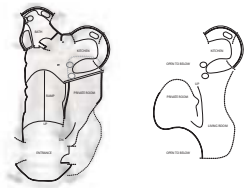
CATALOG HOUSES

CLIENT A
[w-s] house



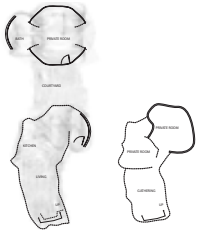


CLIENT B
[b-s] house

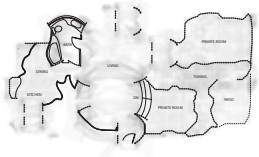


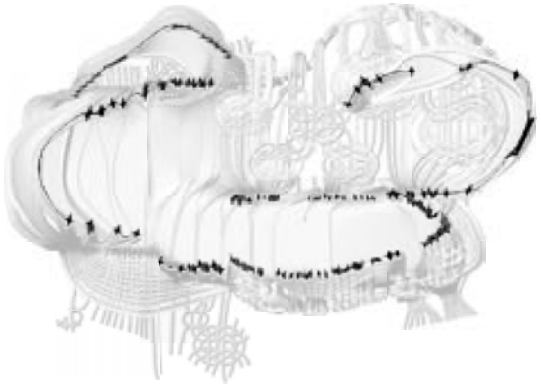
CLIENT C
[h-s] house

CLIENT D
[b-multi] house

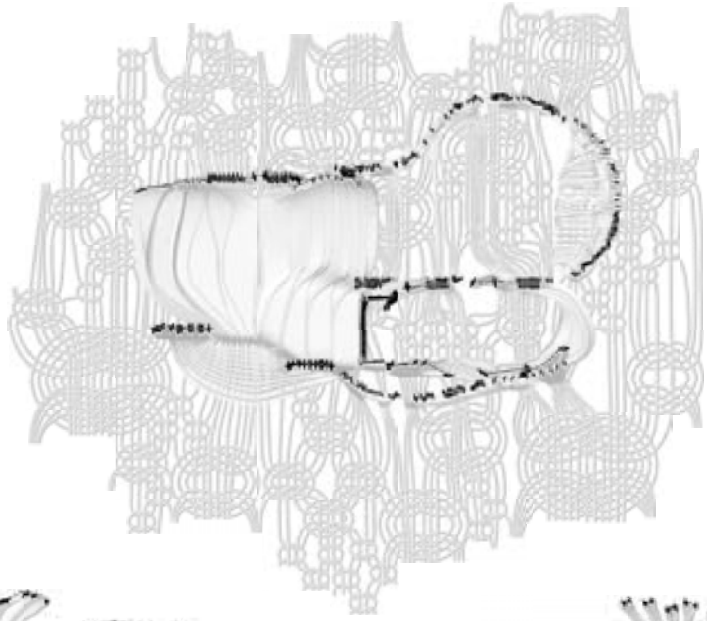


CLIENT E
[h-l] house

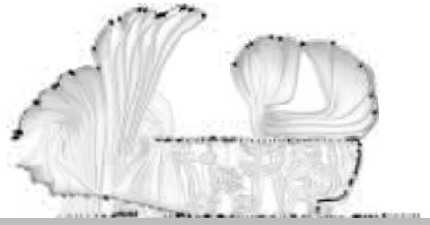




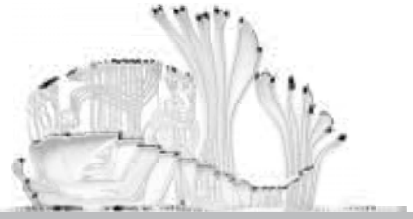
SECOND FLOOR PLAN



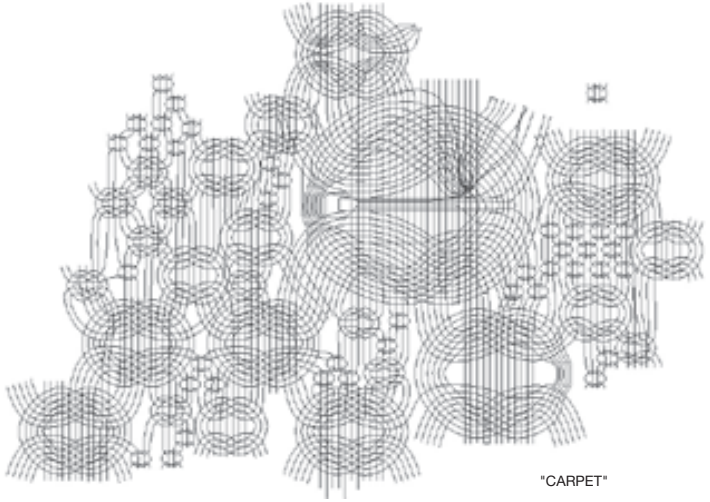
GROUND FLOOR PLAN



SECTION A



SECTION B



"CARPET"

STRUCTURAL SYSTEM

CONVENTIONAL VS RIB-VAULT-LATTICE SYSTEM

TYPES OF ENCLOSURE FUNCTIONS:
1. ROOF: PROVIDES THE 'COVER'
2. FLOOR: PROVIDES THE 'GROUND'
3. WALL: DIVIDES OR SEPARATES A SPACE FROM ANOTHER


BEAM + DECK


FLOOR SYSTEM


STUDWALL SYSTEM

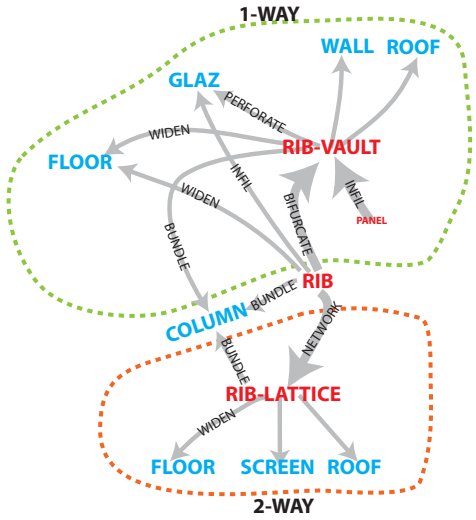

STRUCTURAL GLAZING SYSTEM


COLUMN


GRASS PAVERS


MASONRY SCREEN

WAFFLE CEILING

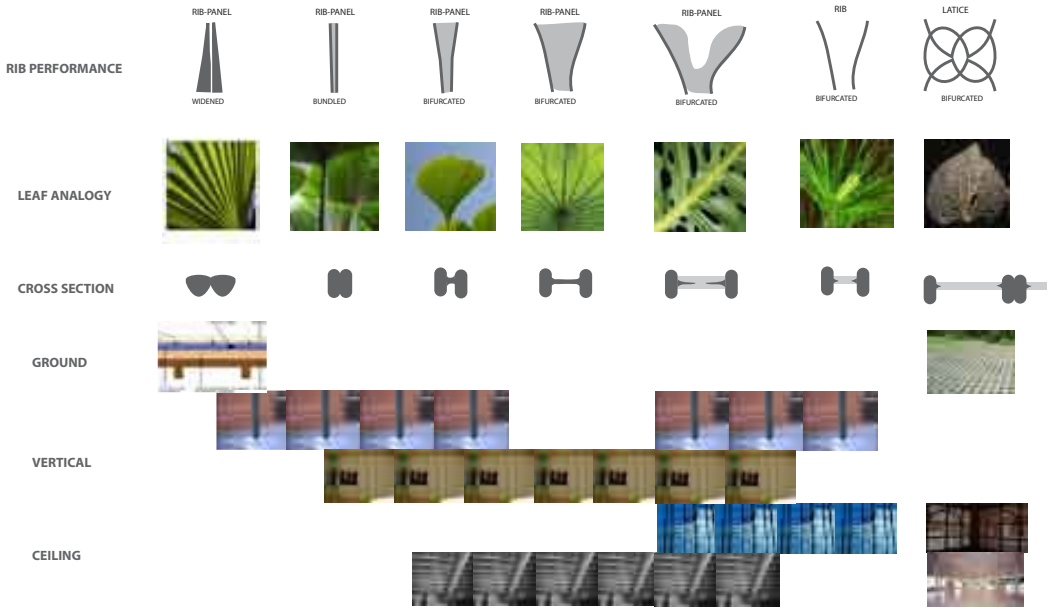



"ROOF"
"FLOOR"
"WALL"
"WINDOWS"
"COLUMN"
"FLOOR"
"SCREEN"
"CEILING"


ROOF-WALL
COLUMN-WALL
ROOF-COLUMN-FLOOR
COLUMN-CEILING
FLOOR-SCREEN
SCREEN-CEILING

STRUCTURAL SYSTEM

CONVENTIONAL VS LEAF STRUCTURE



RIB-VAULT-LATTICE

A. ENCLOSING STRUCTURE
STRUCTURE TAHT PROVIDES ENCLOSURE

COLUMN FUNCTION
WHERE ALL RIB
COMPONENTS
ARE BUNDLED

C. TRANSITION FROM A TO B

B. STRUCTURAL ENCLOSURE
ENCLOSURE THAT IS SELF-SUPPORTING