

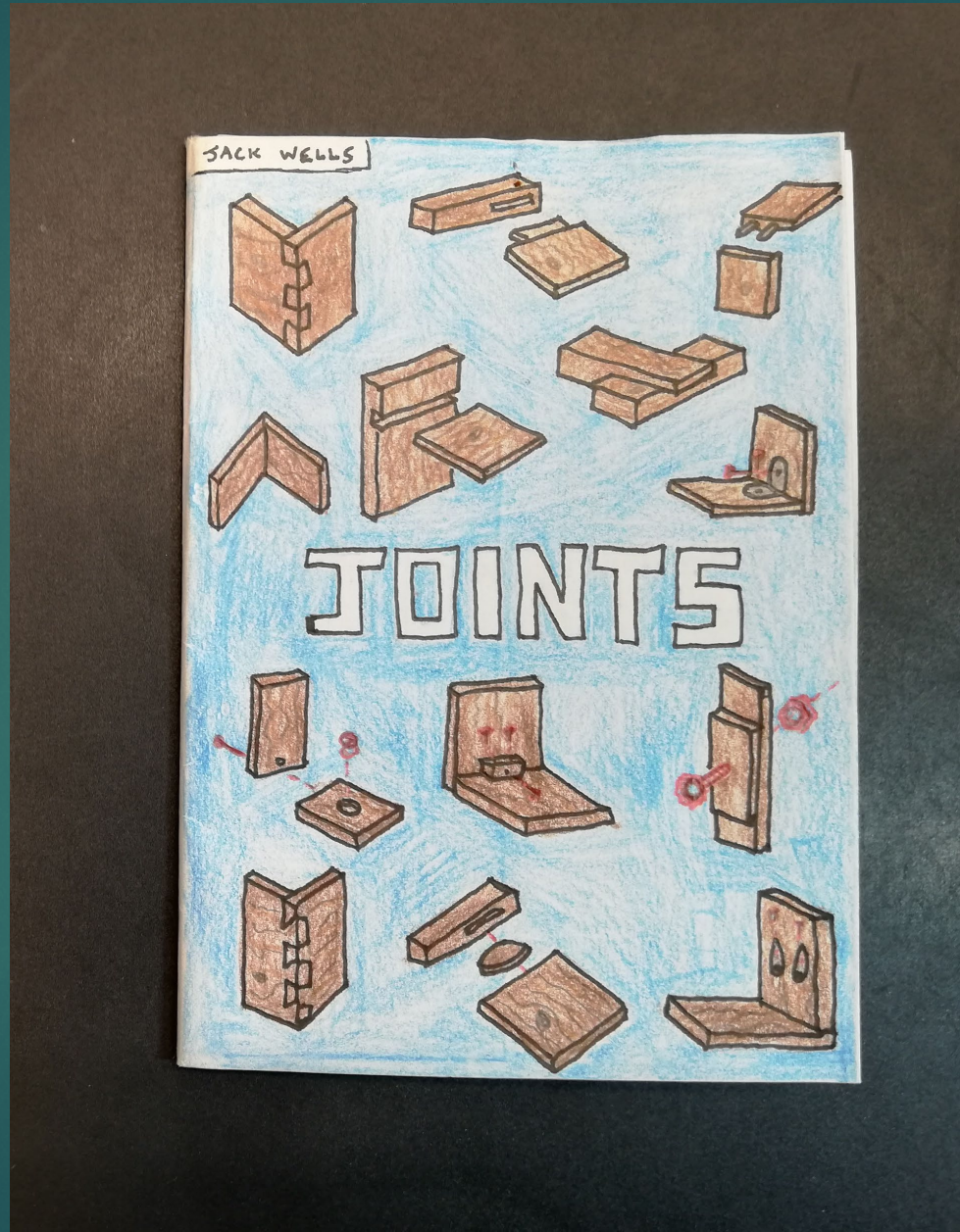


JOINTS AND STRUCTURES

2 ZINES

JACK WELLS

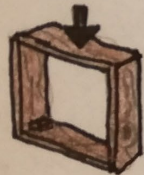
ZINE 1



JOINT: A POINT AT WHICH PARTS OF AN ARTIFICIAL STRUCTURE ARE JOINED

A DESIRABLE JOINT SHOULD BE BOTH SUPPORTIVE AND UNOBTRUSIVE.

THE METHOD OF JOINING MUST BE CAREFULLY SELECTED TO COPE WITH THE APPLIED LOAD.

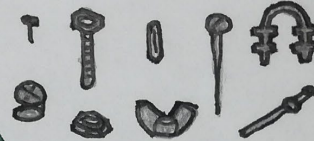


WAYS TO REDUCE THE NUMBER OF JOINTS NEEDED INCLUDES STEAM BENDING AND LAMINATING.



JOINTS ARE ALSO VITAL TO THE AESTHETICS OF A STRUCTURE. THEY CAN BE HIDDEN OR DISPLAYED AS PART OF THE DESIGN.

MECHANICAL FASTENERS



DOWELS HAVE BEEN USED BECAUSE THEY CONTRIBUTE TO THE NATURAL WOOD AESTHETIC AND FUNCTION AS A COMPONENT OF THE PLANE AS WELL AS BEING A JOINT.



- ✓ WELDED OR SOLDERED TOGETHER FOR A FLUSH CONNECTION WITH NO VISIBLE FIXINGS
- ✓ PAINTED TO HIDE SURFACE IMPERFECTIONS
- ✓ STRONG TO SUPPORT WEIGHT OF WET CLOTHES

✓ FUNCTIONAL ADVANTAGE — USERS CAN CHANGE SHELF HEIGHT

✓ CLEAN WHITE PLASTIC BLENDS IN WITH PRODUCT — MORE AESTHETICALLY PLEASING





- ✓ DOVETAIL JOINT - AESTHETICALLY PLEASING NATURAL WOOD JOINT
- ✗ DIFFICULT TO DISASSEMBLE IF DAMAGED
- ✗ TIME-CONSUMING PRODUCTION PROCESS

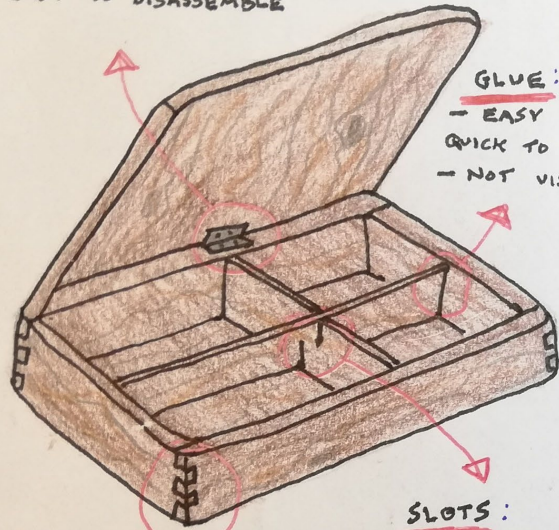
VS



- ✓ CAN BE BOUGHT IN BULK TO SAVE TIME AND MONEY
- ✓ DISASSEMBLE TO REPAIR OR REUSE COMPONENTS IF DAMAGED
- ✗ BLOCKY AND AESTHETICALLY DISPLEASING

METAL HINGE :

- STRONG CONNECTION
- EASY TO DISASSEMBLE



GLUE :

- EASY AND QUICK TO APPLY
- NOT VISIBLE

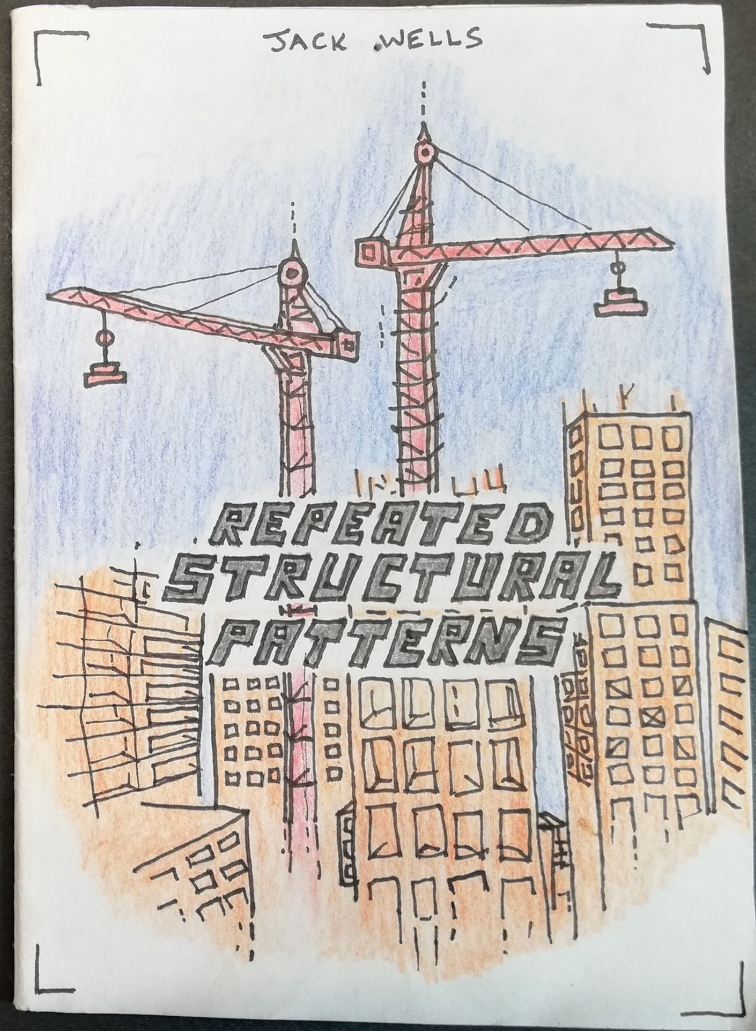
SLOTS :

- SEAMLESS CONNECTION
- NATURAL WOOD AESTHETIC

FINGER JOINT :

- AESTHETICALLY PLEASING
- TIME-CONSUMING AND REQUIRES HIGH PRECISION

ZINE 2



PATTERNS CAN BE IDENTIFIED IN ALL TYPES OF STRUCTURES: NATURAL AND MAN-MADE. THESE ARE IMPORTANT AESTHETICALLY AND STRUCTURALLY.

THESE SEQUENCES ARE AESTHETICALLY ENHANCING AND GENERATE AN AMBIENCE OF STRUCTURAL STABILITY. CONVERSELY, SOME IRREGULAR PATTERNS CREATE A UNIQUELY DESIRABLE VISUAL. THE PROBLEM IS THAT PHYSICAL DISCONTINUITIES CREATE STRUCTURAL WEAKNESS DEPENDING ON THE DIRECTION OF THE ~~APPLIED~~ APPLIED FORCE OR LOAD.

AESTHETICS



"YOU CAN'T BUILD A GREAT BUILDING ON A WEAK FOUNDATION"
(GORDON WINCKLEY)

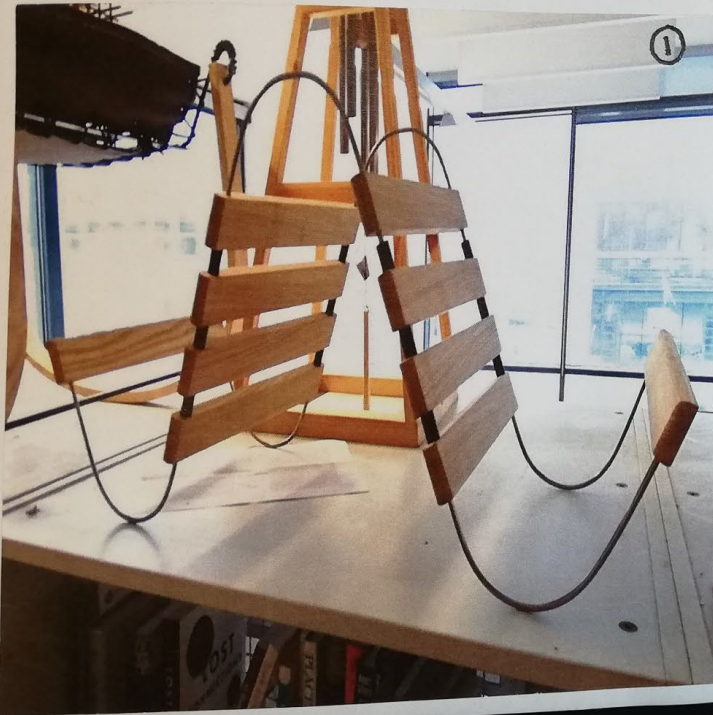
STRUCTURE

REGULAR STRUCTURES OFTEN MAKE USE OF TRIANGULATIONS TO ~~BE~~ DISTRIBUTE STRESS BY COMBINING TENSION AND COMPRESSION. THEY ENSURE THAT THE CENTRE OF MASS COINCIDES WITH THE CENTRE OF ~~STIFF~~ STIFFNESS TO PREVENT TORSIONAL DAMAGE.

ALTERATIONS IN GEOMETRY, SHAPE, AND SIZE THEREFORE IMPACT STRUCTURAL ~~PER~~ PERFORMANCE.

✓ REPEATED WOODEN STRUTS COMBINED WITH THE CURVED METAL FRAME CREATES ~~AN~~ AN INTERESTING MODERN AESTHETIC

✗ INCOMPLETE TRIANGULATION - NEEDS A BASE TO PREVENT SPLAYING - FLEXIBILITY MIGHT BE A DESIRABLE FEATURE DEPENDING ON FUNCTION



✓ STABLE STRUCTURE THAT IS EASY TO PRODUCE AND HAS FLATPACK POTENTIAL

✓ EXEMPLIFIES THE USE A SINGULAR FORM IN DIFFERENT ORIENTATIONS - COULD CREATE VARIOUS STRUCTURES

✗ APPEARS STURDY BUT BASIC AESTHETICS

✓ EXAMPLE OF PATTERNS IN NATURAL STRUCTURES
- PLANT VEINS PROVIDE SUPPORT WHILST
ALSO TRANSPORTING KEY NUTRIENTS

✓ BIOMIMICRY - THE BOWL-LIKE FORM COULD
BE USED TO GENERATE VARIOUS STRUCTURES
AND A DESIRABLE NATURAL AESTHETIC



✓ LATTICE STRUCTURE IS AESTHETICALLY
PLEASING AND STRUCTURALLY FORMIDABLE

✗ REQUIRES PRECISION AND SECURE CONNECTION
TO EFFECTIVELY DISTRIBUTE ~~THE~~ STRESS

✗ THE GAPS IN THE STRUCTURE COULD BE
VISUALLY UNINVITING FOR POTENTIAL USERS

COMPRESSION



PARTICLES ARE
SQUASHED

TENSION



PARTICLES ARE
PULLED APART

TORSION



PARTICLES ARE
TWISTED



(USING TRIANGLES TO CREATE A STABLE STRUCTURE)

FINITE ELEMENT ANALYSIS

(FEA) IS A PROCESS OF
SIMULATING THE BEHAVIOUR
OF A STRUCTURE UNDER
AN APPLIED LOAD.

