URBAN COLLECTION

AARON MICK 402AL

CASE STUDY: RIETVELD CHAIR COLLECTION

THE RED AND BLUE CHAIR IS NOT MERELY A PIECE OF FURNITURE - IN FACT, IT'S FUNCTION AS A COMFORTABLE RESTING PLACE FOR THE HUMAN FORM IS SUB-PAR. IT INSTEAD DEMANDS TO BE REGARDED, OBJECTIFED AS A UNIQUE ENTITY, ITSELF A GEOMETRIC, FORMAL, COLORFUL STATEMENT. EXISTING AS SYMBOL OF THE DESTIJL MOVEMENT IS THE CHAIR'S GREATEST FUNCTION, NOT SEATING.

EACH PIECE OF SEATING IN THIS COLLECTION REPRESENTS A PARTICULAR SET OF DESIGN ATTITUDES AND FORMAL RELATIONSHIPS THAT REITVELD FELT COMPELLED TO DEVELOP THROUGHOUT MULTIPLE EVOLUTIONS DURING THE COURSE OF HIS DIVERSE CAREER AS A DESIGNER OF FURNITURE. BEGINNING WITH REITVELD'S EXPLORATION WITH PURELY SCULPTURAL ARRANGEMENTS OF PURE PLANES AND POINTS, AND THROUGHOUT HIS DESIGNS FOR MASS-PRODUCED CONTEMPORARY SEATING, THE PIECES FEATURED IN THIS COLLECTION PRESENT AN ALL-ENCOMPASSING LOOK AT REITVELD'S FORMAL OPERATIONS AND DEVELOPMENT OF CONCEPTS IN OVER FOUR DECADES OF CHAIR DESIGN.

1918 1923 1927 1934 1934 1957 1963







1: RESEARCH - REITVELD COLLECTION

THE PROJECT BEGAN WITH INTENSIVE RESEARCH INTO THE DESIGN STRATEGIES, CONSTRUCTION PROCESSES, AND FORMAL SYSTEMS THAT ARE UNIQUE TO EACH CHAIR.

FORMAL STRATEGIES AND THEIR CHARACHTERISTIC OPERATIONS AND RULESETS WERE IDENTIFIED AND EXTRACTED FROM EACH CHAIR, REPECTIVELY.

USING AN IDENTICAL KIT OF PARTS FROM THE ORIGINAL CHAIR, AN EXPERIMENTAL REFORMATION OF CERTAIN CHAIRS WAS PERFORMED TO FURTHER TEST THE LIMITS, CAPABILITIES, AND CHARACHTERISTICS OF EACH FORMAL SYSTEM IN CREATING SPATIAL VARIATION.

"RED & BLUE CHAIR"
1918

"BERLIN CHAIR"
1923

"ARMSTOEL CHAIR"
1927

"CRATE CHAIR"
1934

"ZIG ZAG CHAIR"
1934

"MONDIAL CHAIR"
1957

"STELTMAN CHAIR"
1963

COLLECTION EVOLUTION TIMELINE

YEAR: 1918

MATERIALITY: WOOD + PLYWOOD.

CONSTRUCTION: SCREWS AND WOODEN PEGS.

FORMAL TECHNIQUES: POINT AND LINE INTERSECTION.

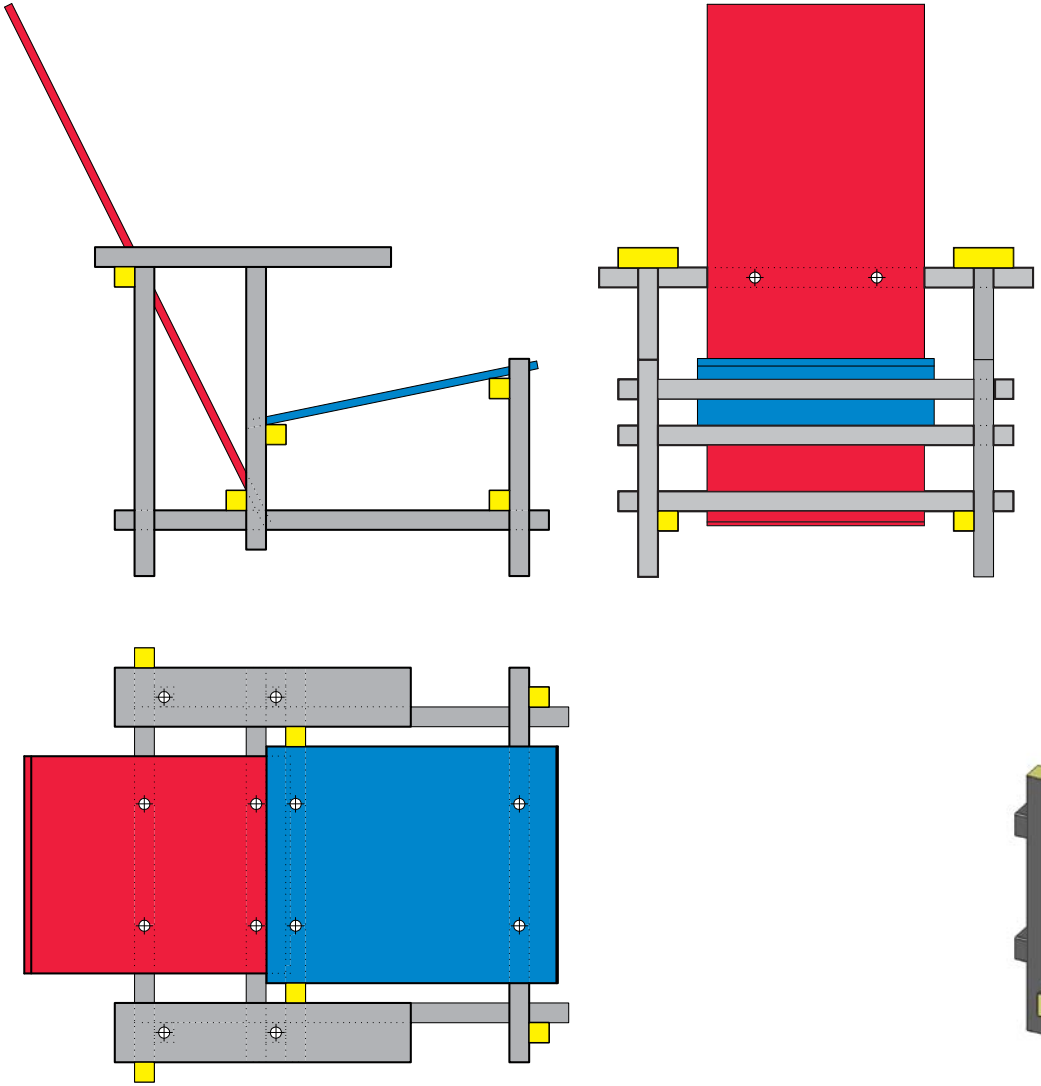
GEOMETRY: ORTHAGONAL POINT+LINE INSTERSECTION EMPHASIZED IN FRAME.

SPATIAL QUALITIES: RECOGNIZABLE INSTANTLY AS A CHAIR, BUT STANDS AS OBJECT AND SYMBOL OF DESTIJL.

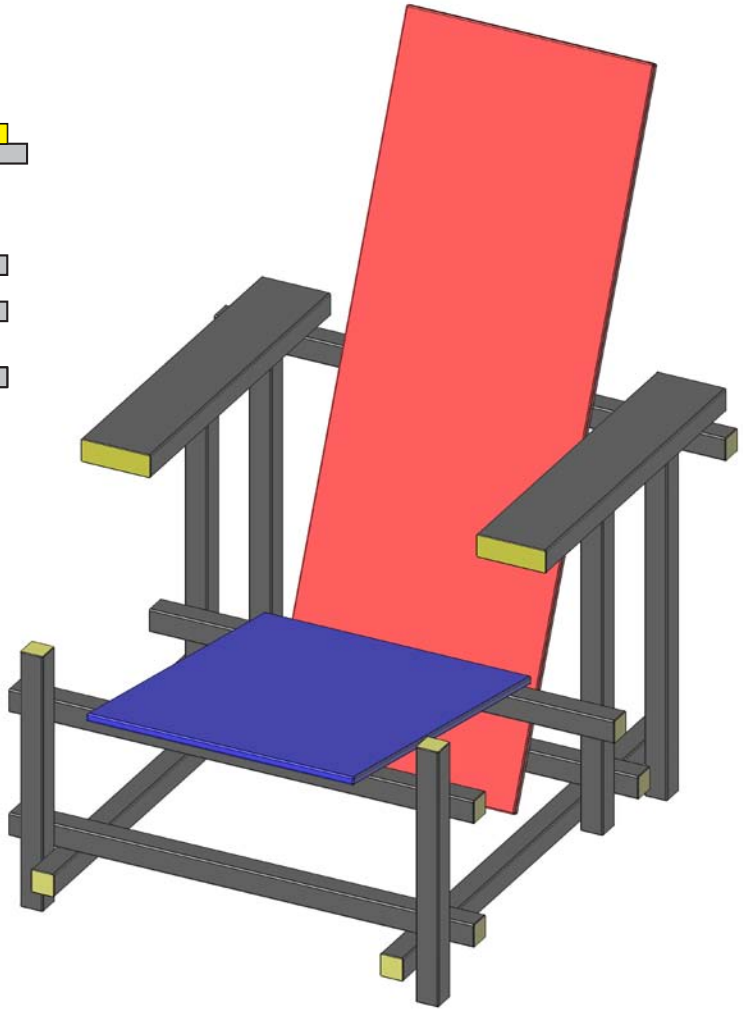
RELATION TO BODY: FLAT PLANES ARE SLOPED TO ACCOMODATE A RECLINING POSITION.

LIMITATION: POOR COMFORT/ERGONOMICS.

"RED AND BLUE" CHAIR

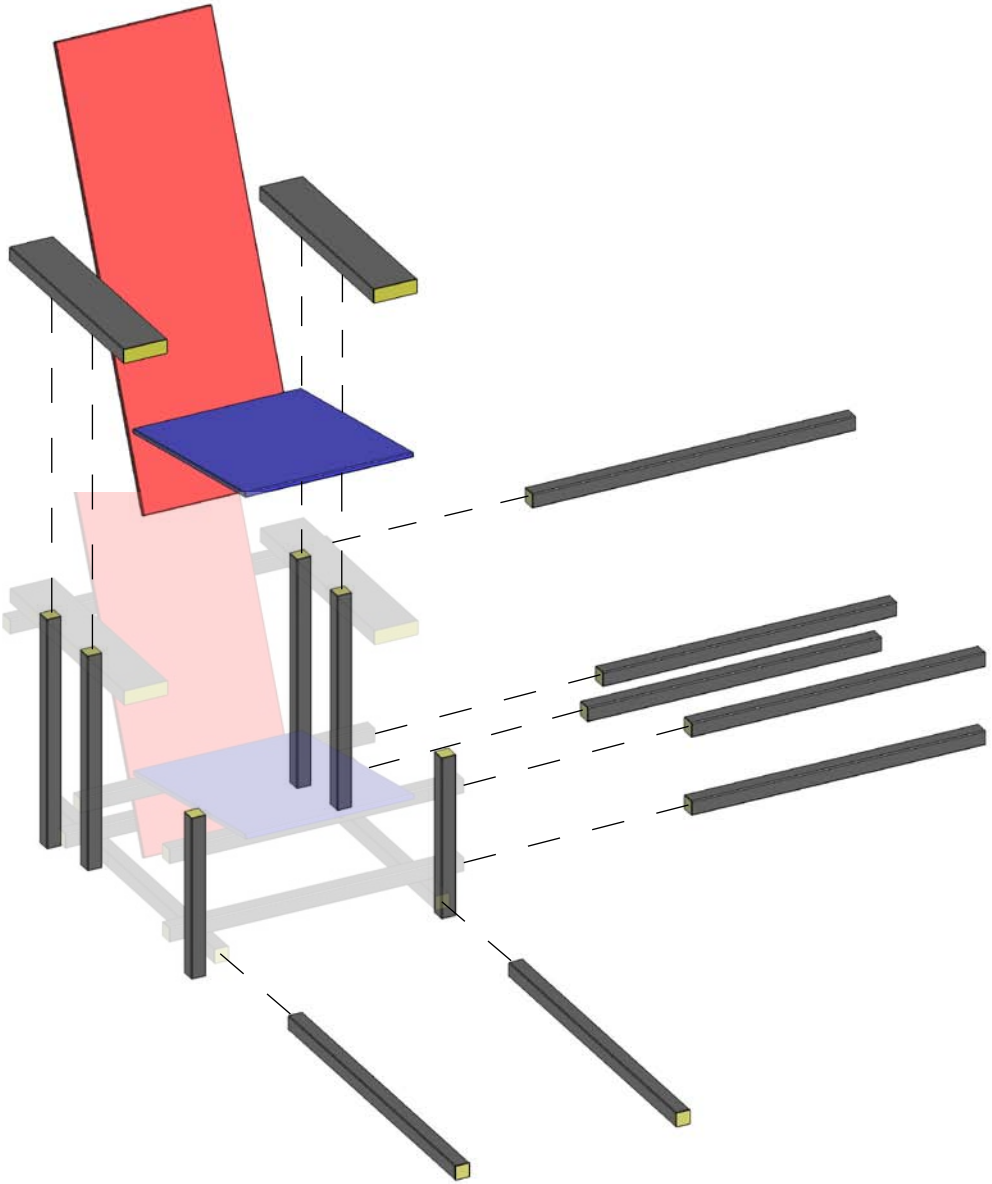


PLANS

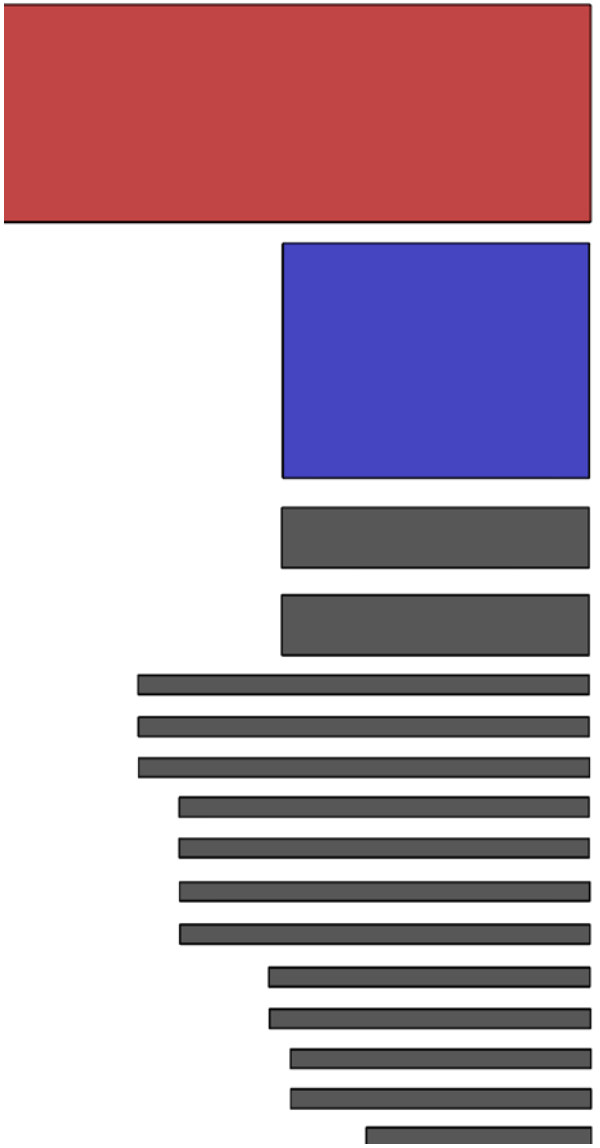


AXO VIEW

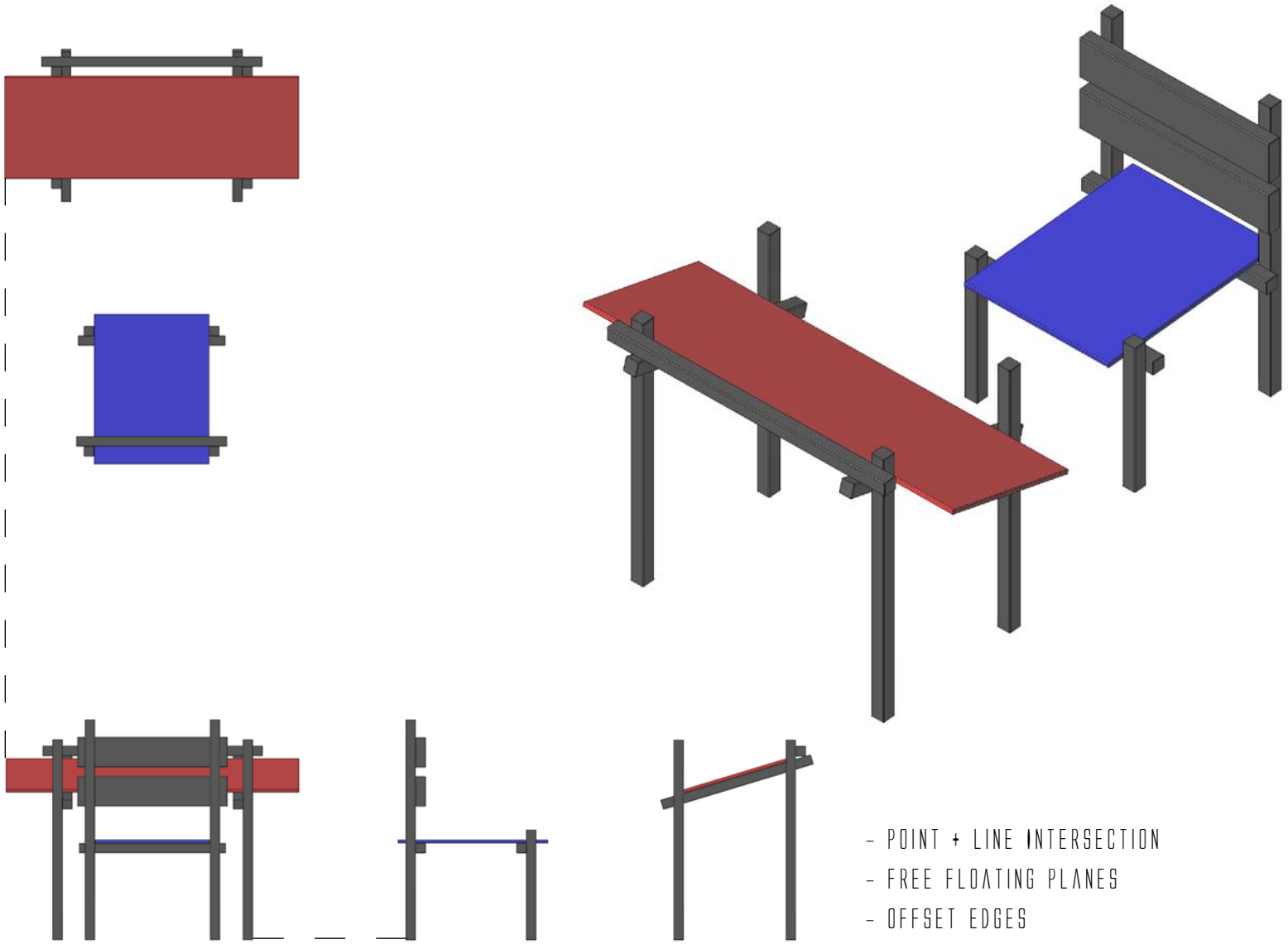
"RED AND BLUE" CHAIR



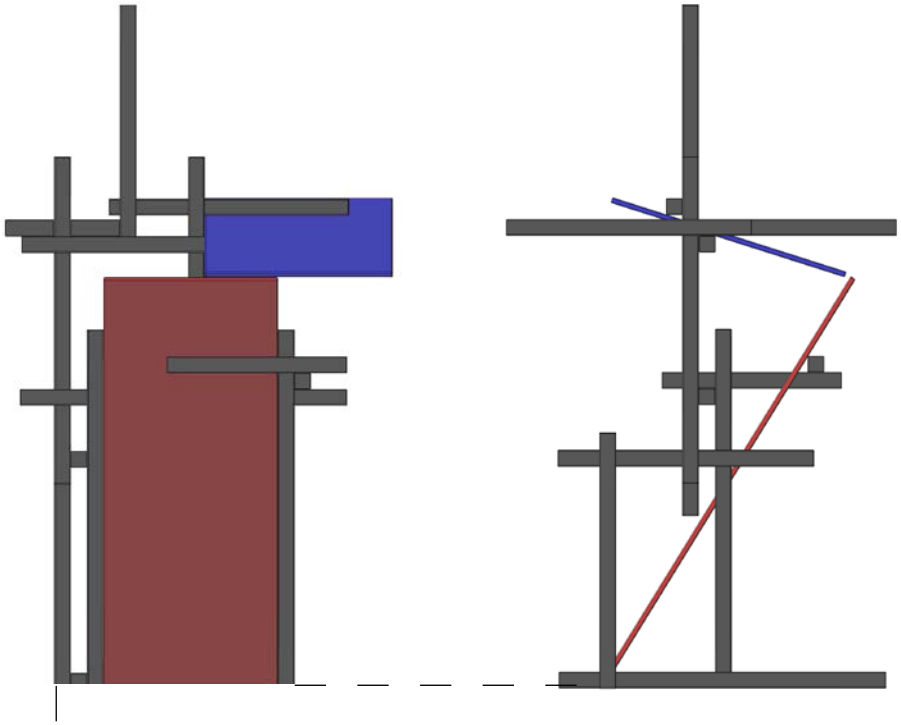
EXPLODED AXO: POINT + LINE INTERSECTION

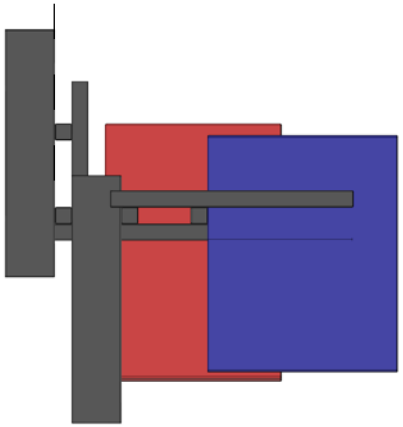


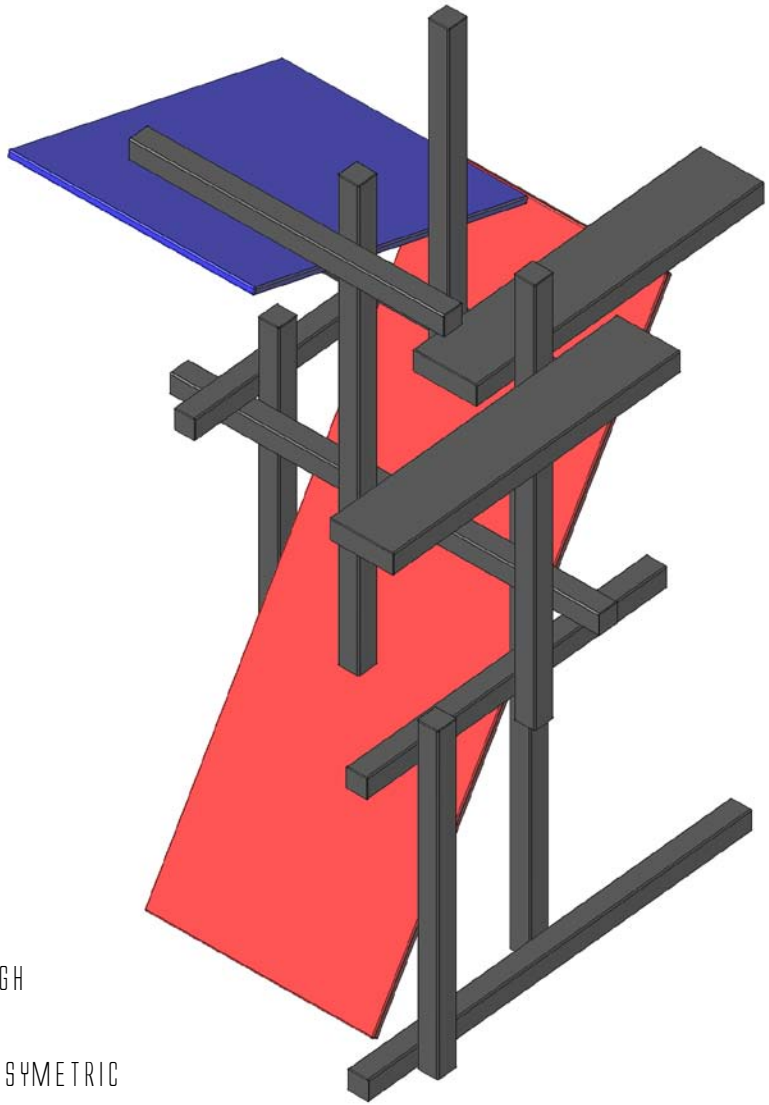
PARTS KIT



- POINT + LINE INTERSECTION
- FREE FLOATING PLANES
- OFFSET EDGES







- POINT + LINE INTERSECTION
- FREE FLOATING PLANES
- SPATIAL VERIATION ACHIEVED THROUGH DENSITY, BALANCE
- DIFFERS FROM ORIGINAL THROUGH ASSYMETRIC COMPOSITION

YEAR: 1923

MATERIALITY: WOOD.

CONSTRUCTION: SCREWS.

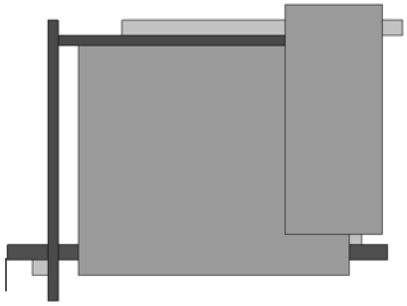
FORMAL TECHNIQUES: PLANAR INTERSECTION, PROPORTION AND REALATIVE SCALING, ROTATION.

GEOMETRY: ORTHAGONAL PLANAR INSTERSECTION, SCULPTURAL AGGREGATION OF ABSTRACT PARTS.

SPATIAL QUALITIES: NOT RECOGNIZABLE AS FURNITURE AT FIRST - RETAINS ITS OWN MULTI-DIRECTIONAL AMBIGUITY AS AESTHETIC OBJECT.

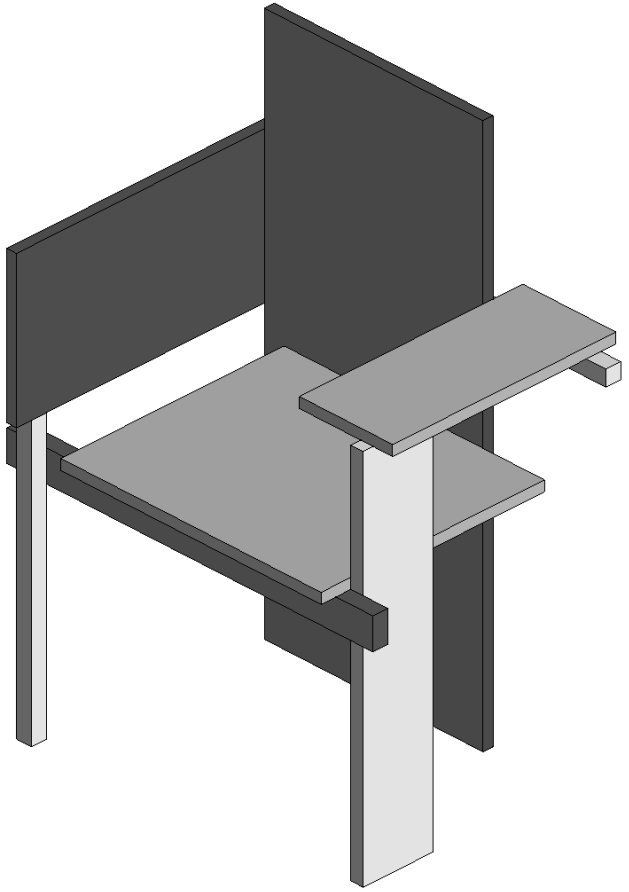
RELATION TO BODY: NO REGARD EXCEPT FOR THE MOST BASIC OF PROPORTIONS.

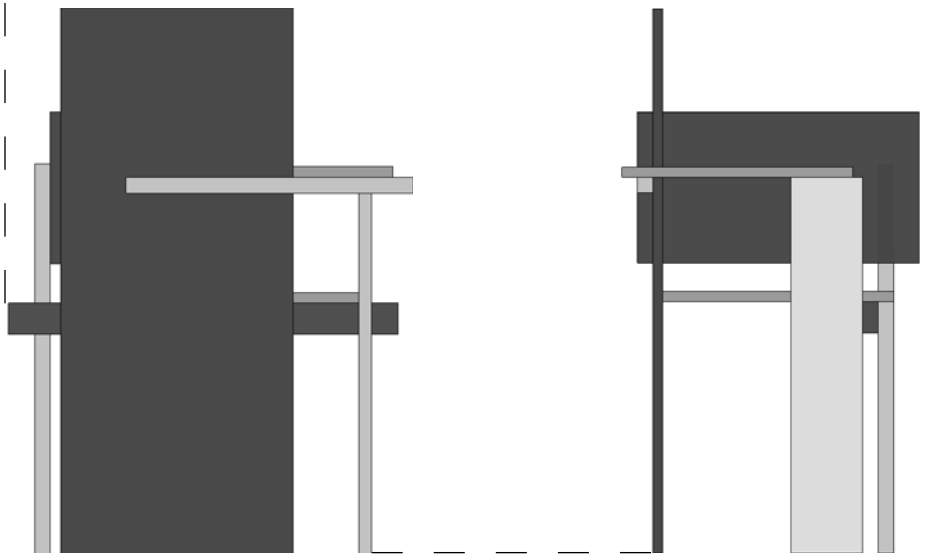
"BERLIN" CHAIR

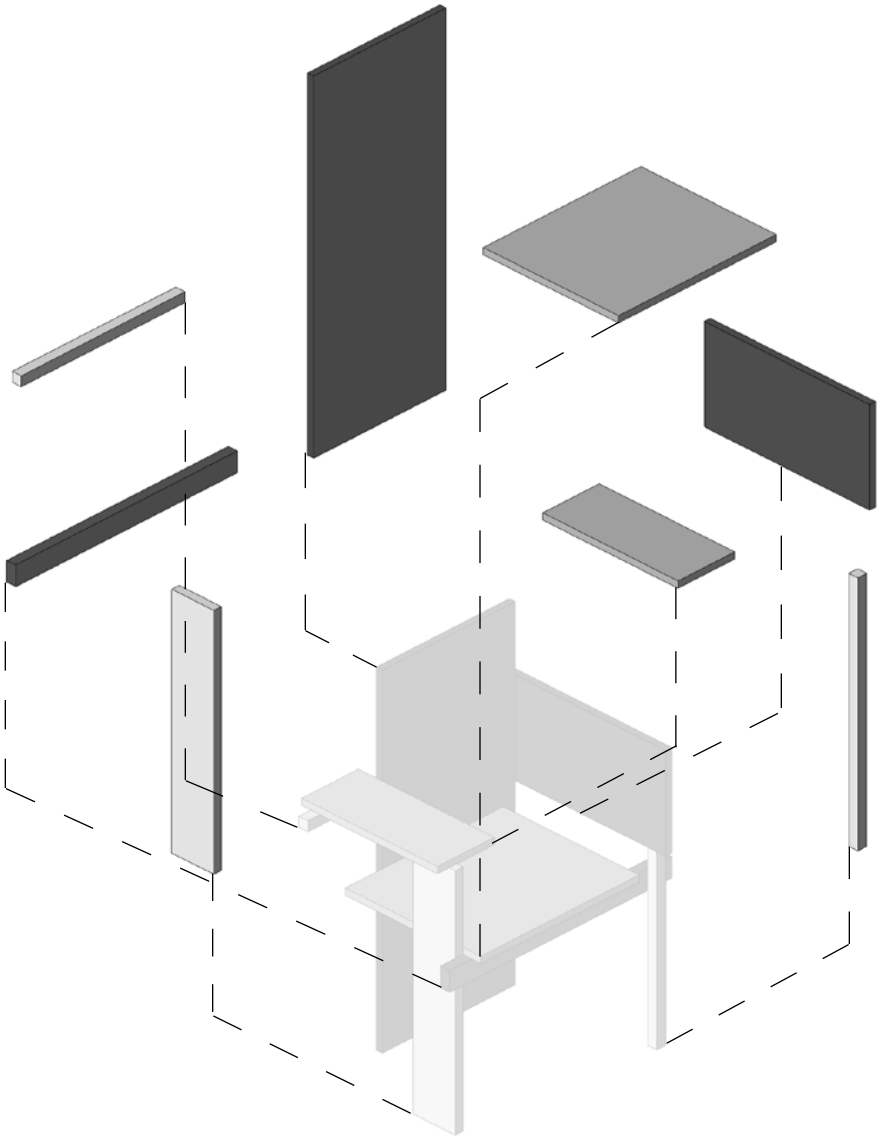


THE BERLIN CHAIR DEMONSTRATES A STRONG FORMAL SYSTEM INVOLVING ONLY THE USE OF CAREFULLY PLACED PLANES.

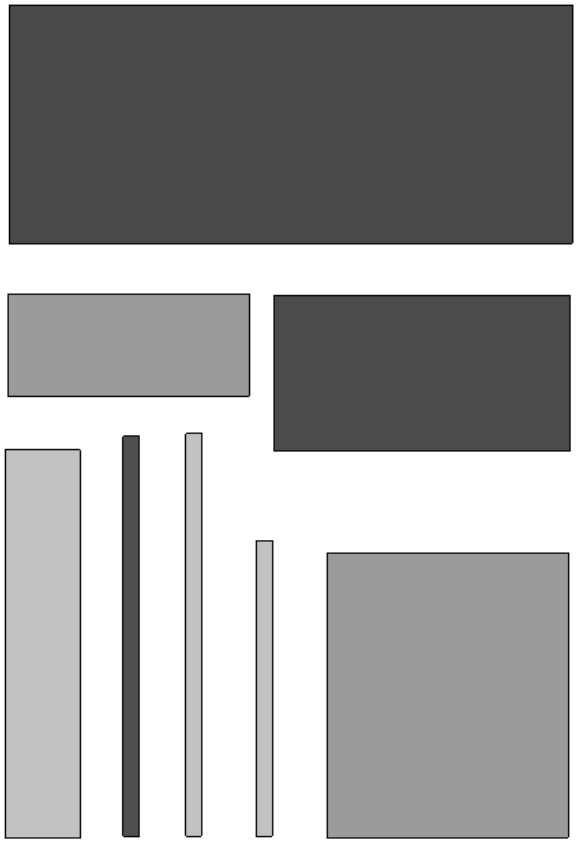
RIETVELD DEMONSTRATES HIS STUDY OF THE CREATION OF INTERSTITIAL SPACE AND INTRICATE RELATIONSHIP BETWEEN PARTS OF A WHOLE.



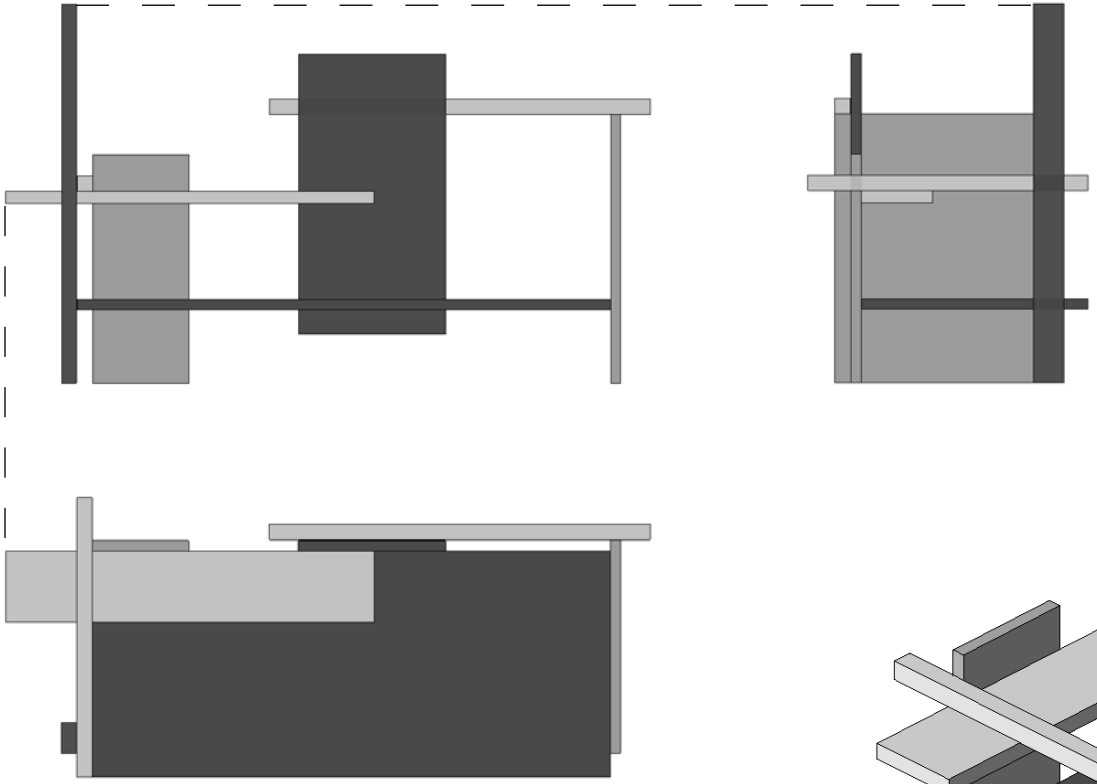




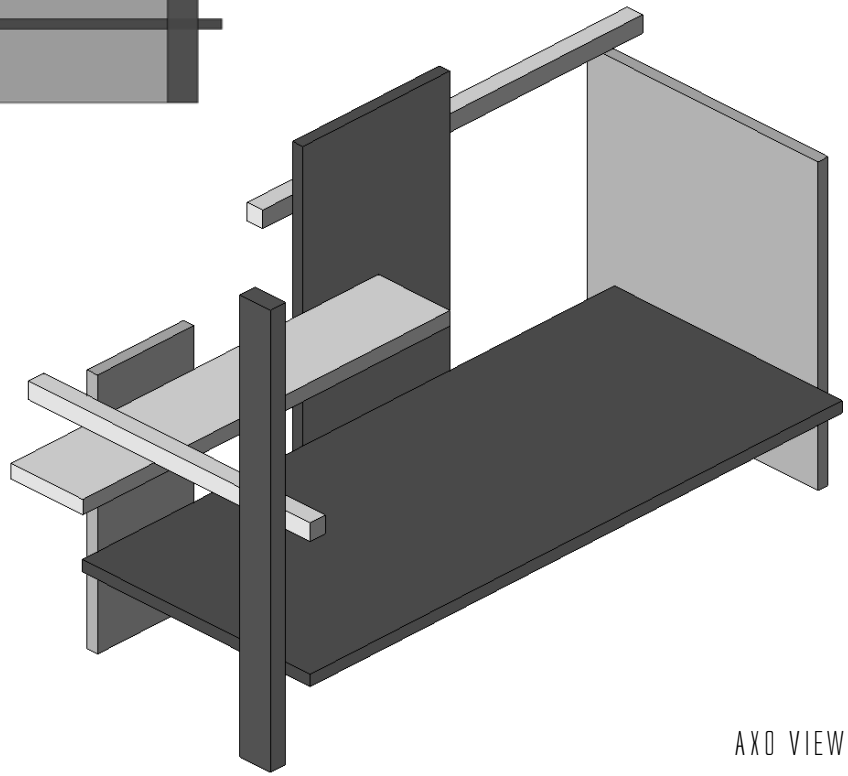
EXPLODED AXO: PLANAR SHIFTING



PARTS KIT

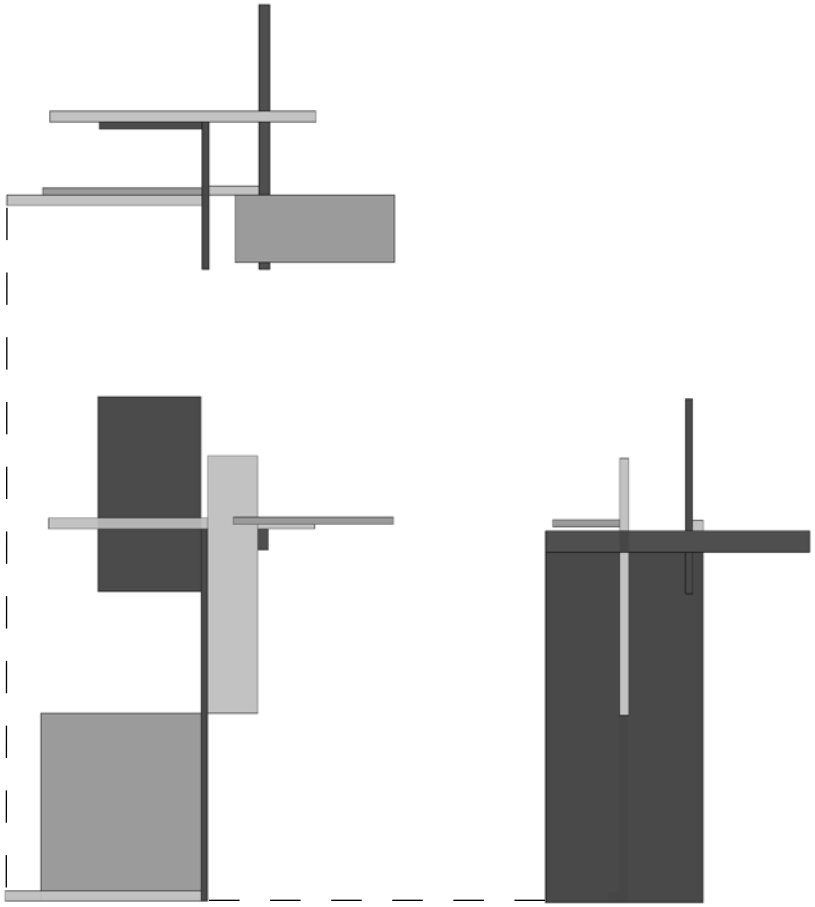


PLANS



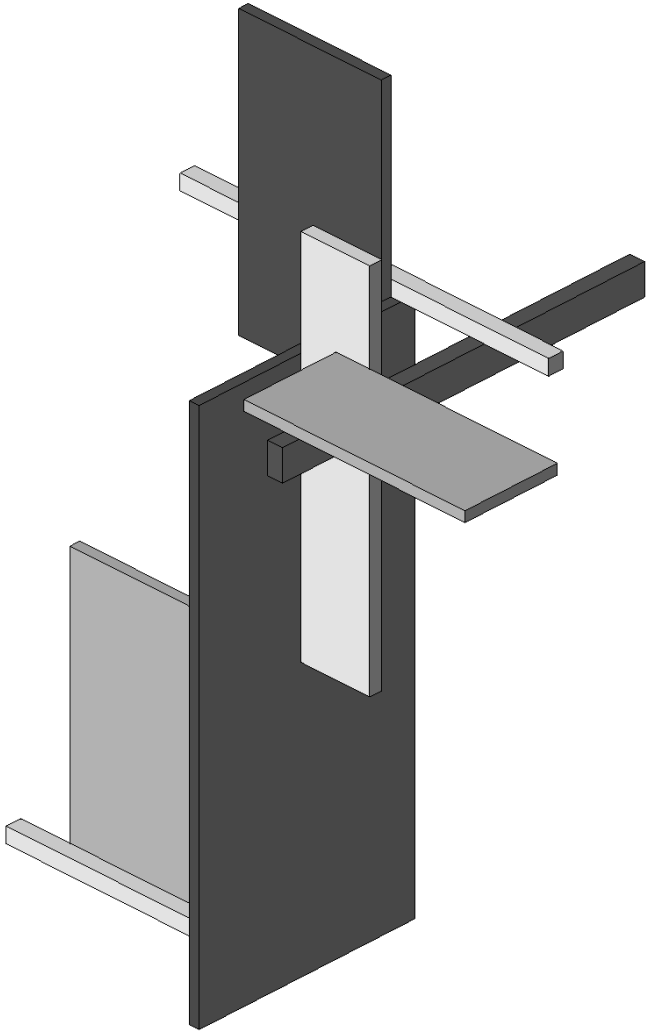
AXO VIEW

- PLANAR SHIFTING, IMPLIED INTERSECTION
- TRANSFORMATION (SLIDING, ROTATION) OF PARTS
- ACHEIVES SPATIAL VARIATIONM, BY DEFINING INTERIOR VOLUMES, AND EXTERNAL APERTURES (LIKE ORIGINAL CHAIR)

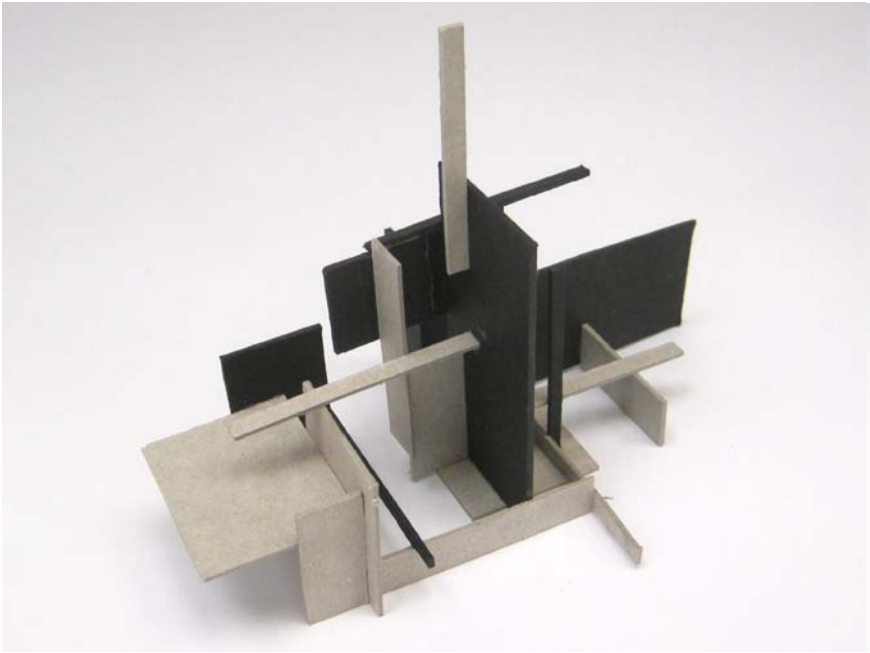


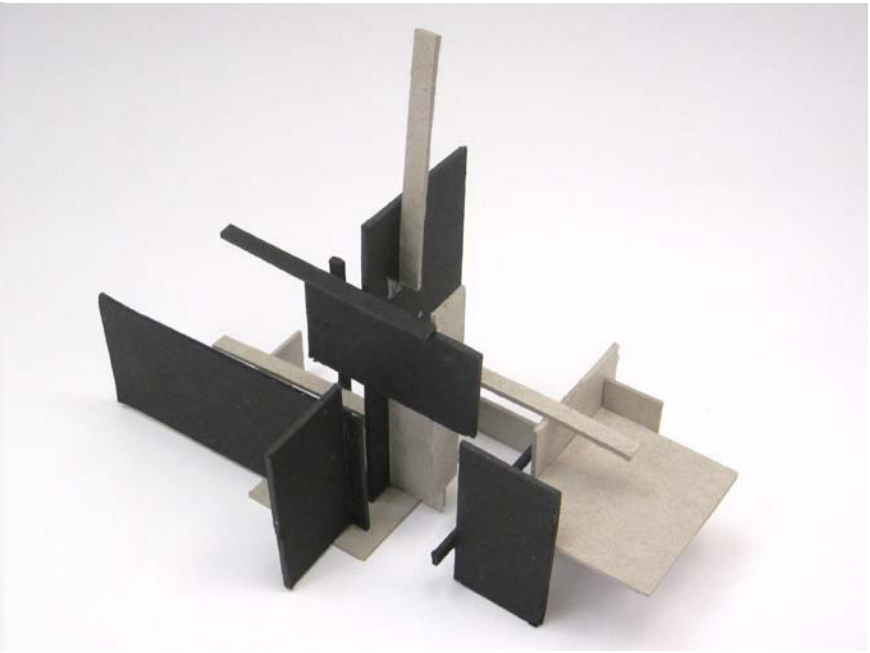
PLANS

- PLANAR SHIFTING, IMPLIED INTERSECTION
- TRANSFORMATION (SLIDING, ROTATION) OF PARTS
- ACHEIVES SPATIAL VARIATIONM, BY DEFINING EXTERIOR VOLUMES (OPPOSITE OF ORIGINAL CHAIR)



AXO VIEW





THE BERLIN CHAIR IS UNIQUE FROM OTHER FURNITURE IN ITS ASYMMETRY, AND IT'S FORM APPEARS BOTH DIFFERENT FROM EVERY PERSPECTIVE, AS WELL AS NEARLY UNRECOGNIZABLE AS A CHAIR OR SEATING OBJECT.

IT INSTEAD STANDS AS ITS OWN UNIQUE OBJECT, AND PROVIDES THE VIEWER WITH VIEWS THAT CANNOT BE PROPERLY REPRESENTED OR FULLY UNDERSTOOD IN 2D.

YEAR: 1934

MATERIALITY: (CHEAP) WOOD.

CONSTRUCTION: SCREWS.

FORMAL TECHNIQUES: MODULAR REPITITION IN REGARDS TO MANUFACTURE AND FLAT-PACK DISTRIBUTION.

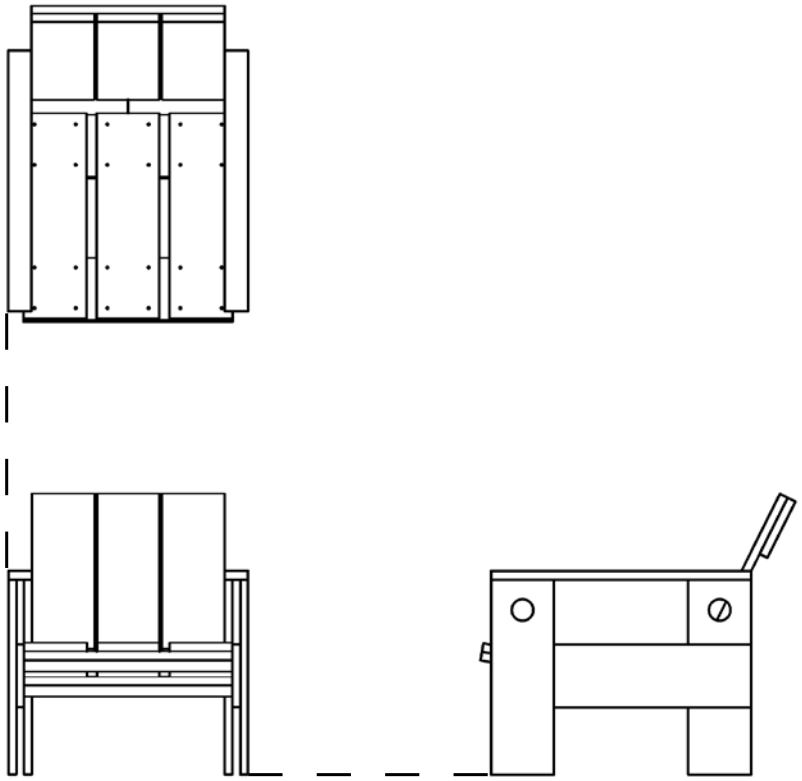
GEOMETRY: LARGE CHUNKY PLANKS, DESIGNED TO BE MADE EASILY FROM CHEAP LUMBER.

SPATIAL QUALITIES: RUGGED AND STURDY PRESENCE. OUTDOOR SUITABLE.

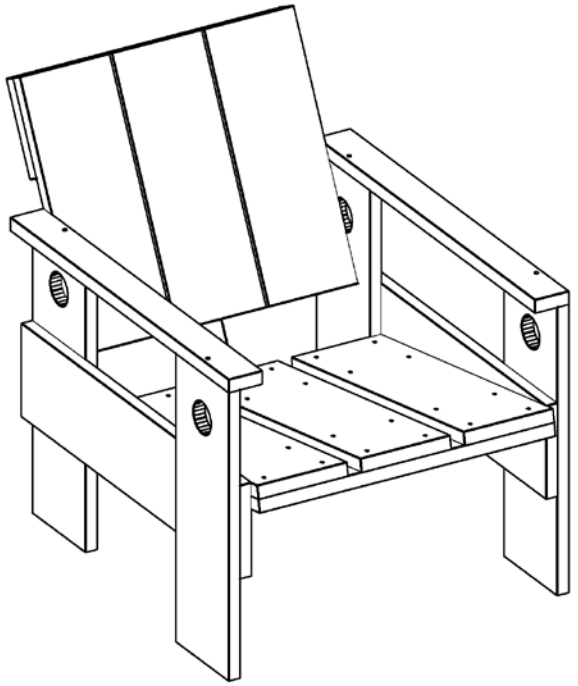
RELATION TO BODY: DESIGNED TO FIT ANYONE.

LIMITATION/ADVANTAGES: SELF-ASSEMBLY, AFFORDABLE PRICE.

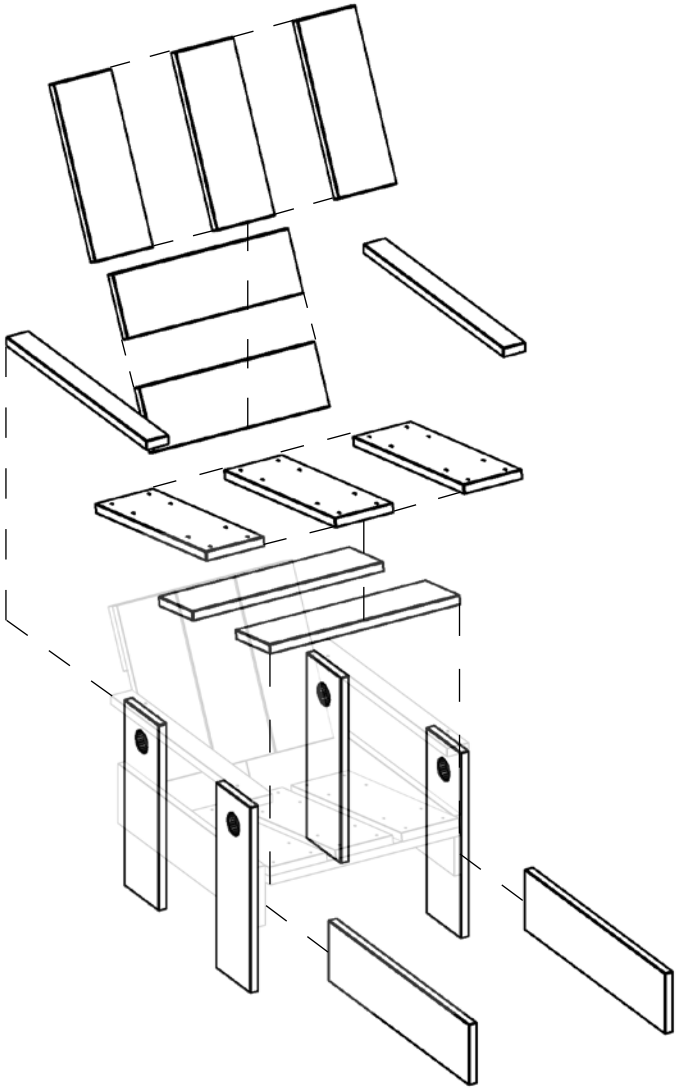
"JUNIOR/CRATE" CHAIR



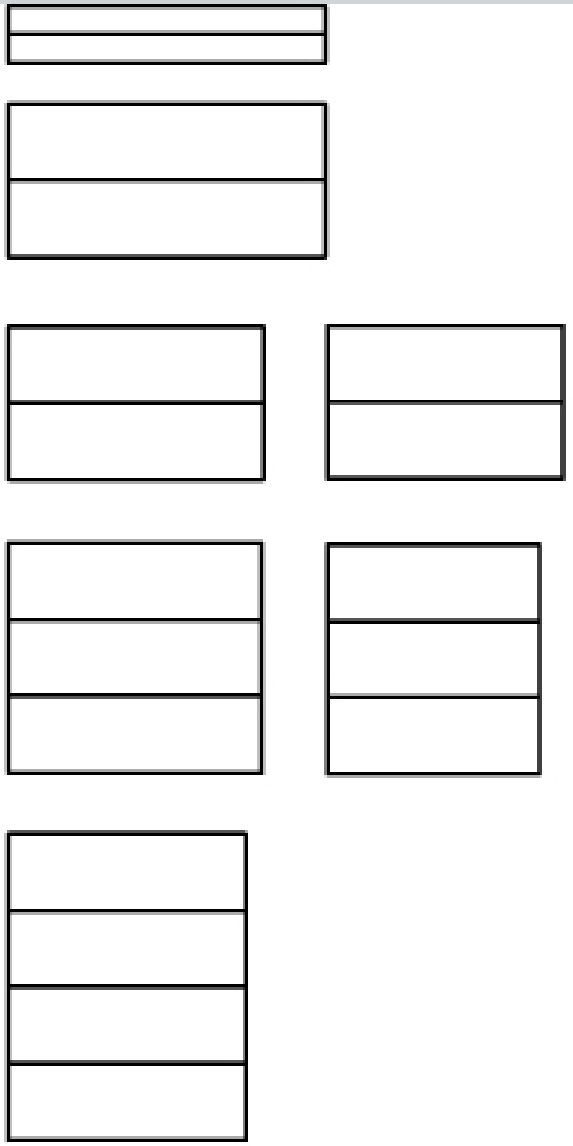
PLANS



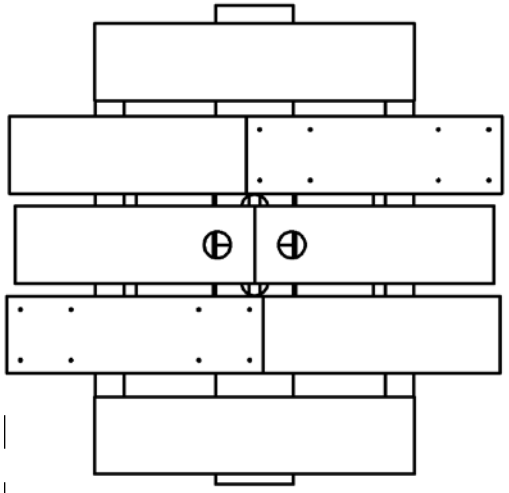
AXO VIEW

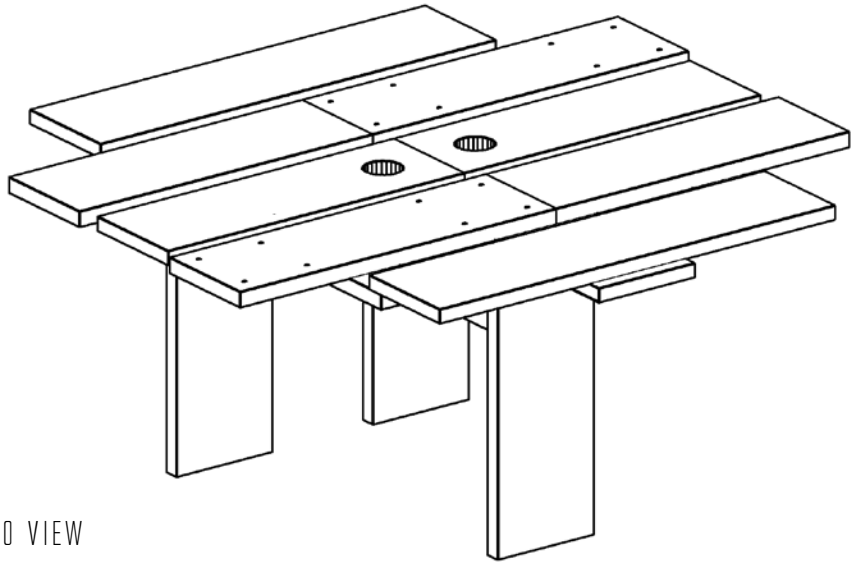


EXPLODED AXO: MODULAR SANDWICHING

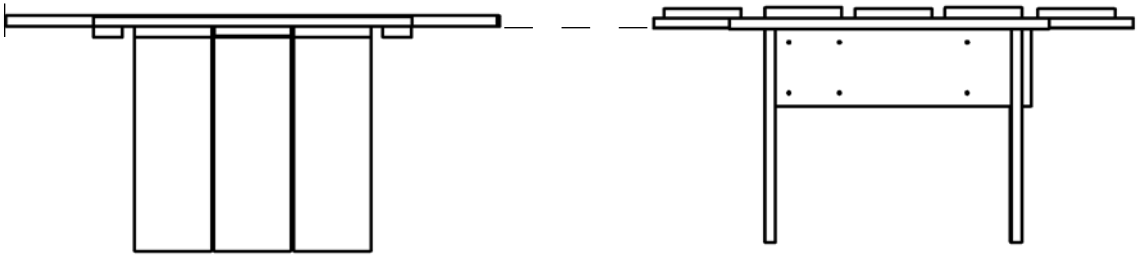


PARTS KIT





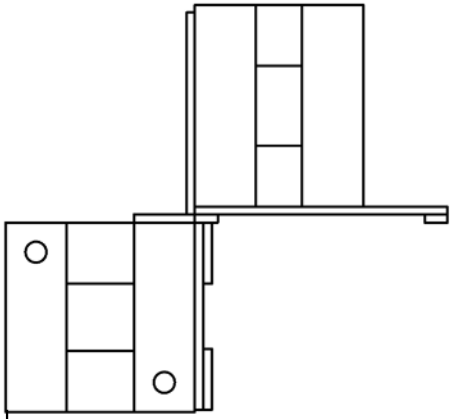
AXO VIEW

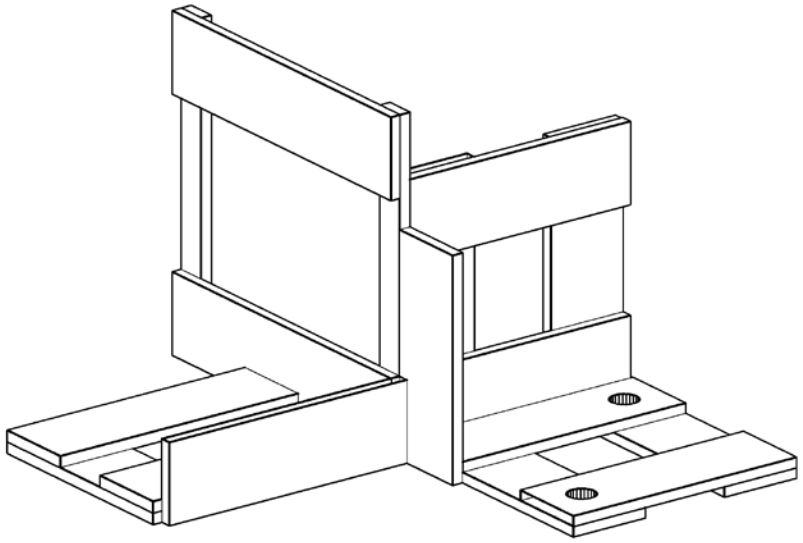


- CO-PLANAR SANDWICHING
- LATERAL/PERPENDICULAR REINFORCEMENT
- PRODUCED PRACTICAL STRUCTURE

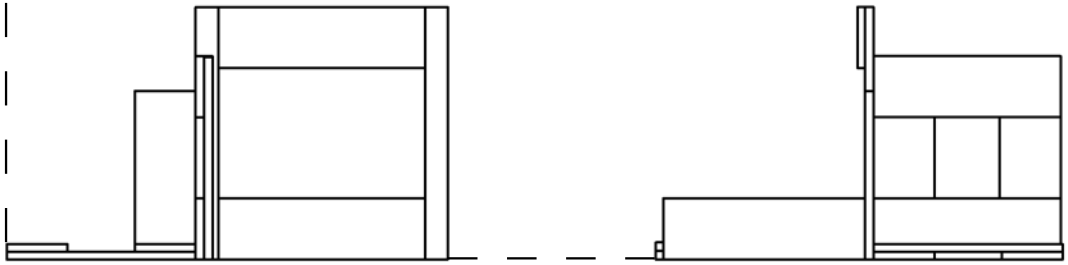
PLANS

"CRATE" REFORMATION 1 MODEL



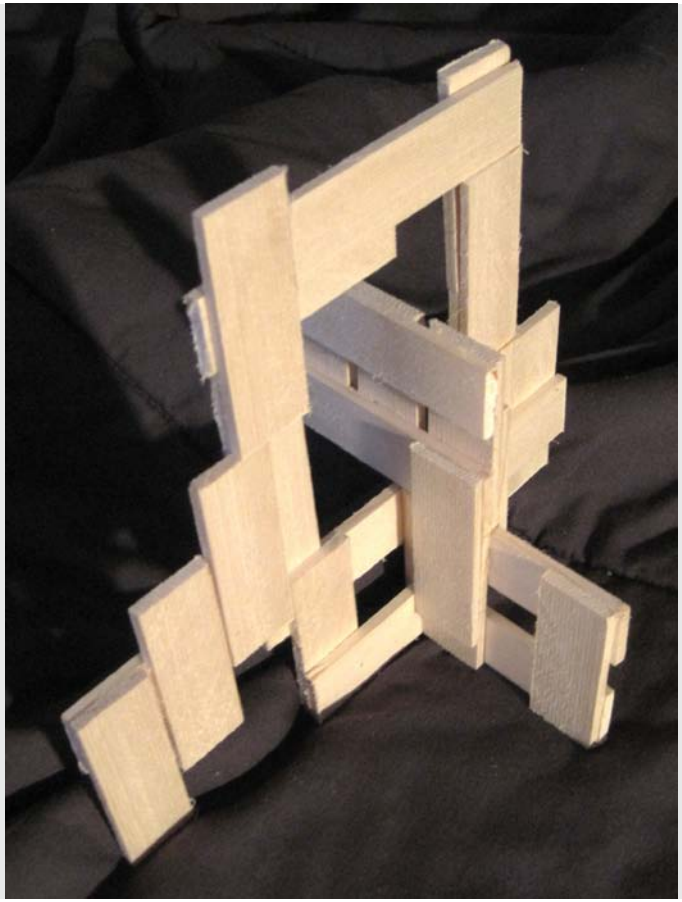


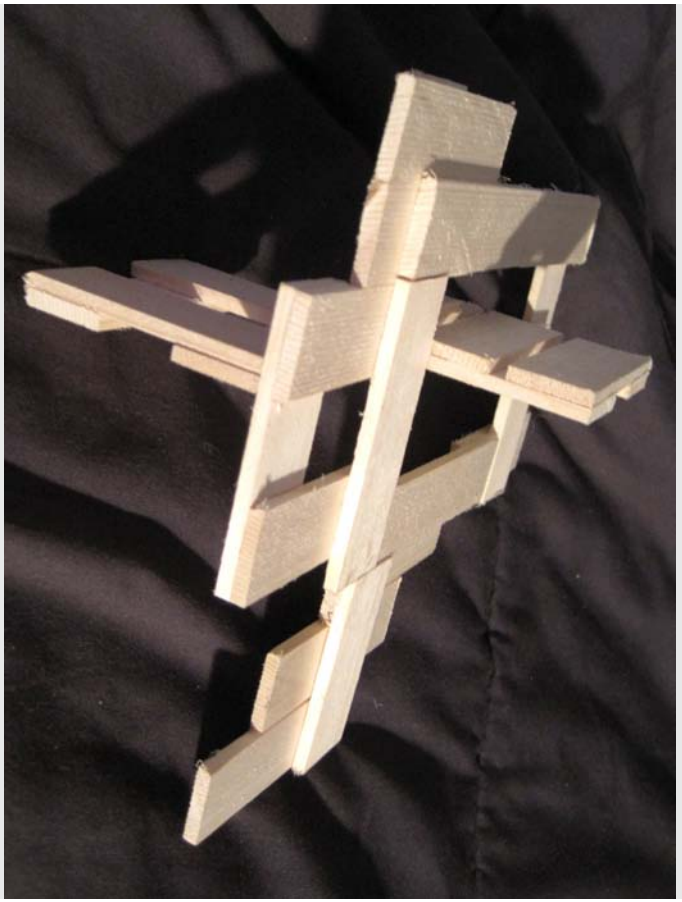
AXO VIEW



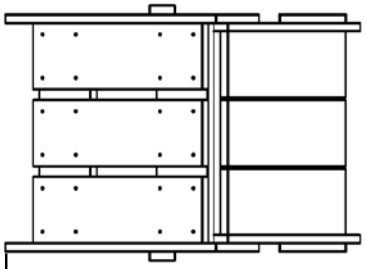
PLANS

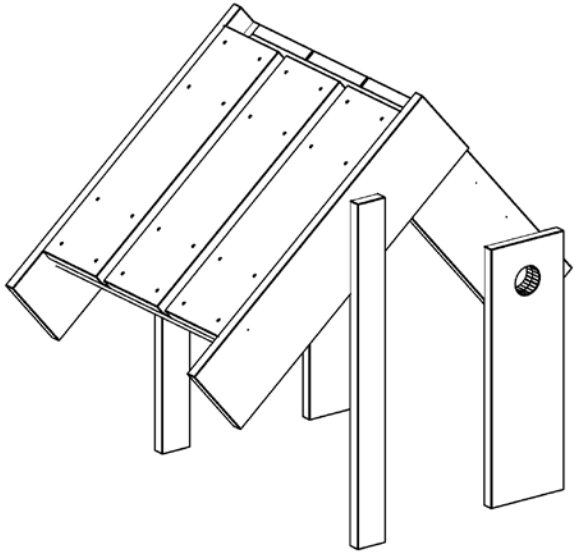
- CO-PLANAR SANDWICHING
- LATERAL/PERPENDICULAR REINFORCEMENT
- CREATES SPATIAL APERTURES, DEFINES MULTIPLE EXTERIOR VOLUMES



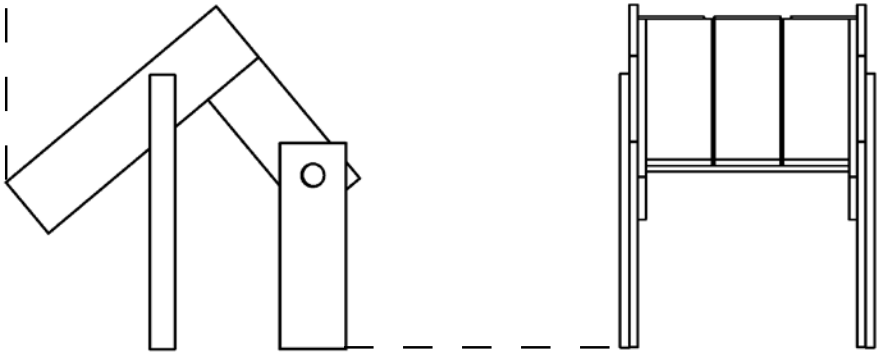


"CRATE" REFORMATION 2 MODEL





AXO VIEW



- CO-PLANAR SANDWICHING
- LATERAL/PERPENDICULAR REINFORCEMENT
- DEFINES INTERIOR VOLUME
- SYMMETRIC

PLANS

YEAR: 1957

MATERIALITY: ALUMINUM SHEET ALLOY + PLASTIC.

CONSTRUCTION: "HARD-WELDED."

FORMAL TECHNIQUES: SWEEPING, LOFTING, MODULARITY.

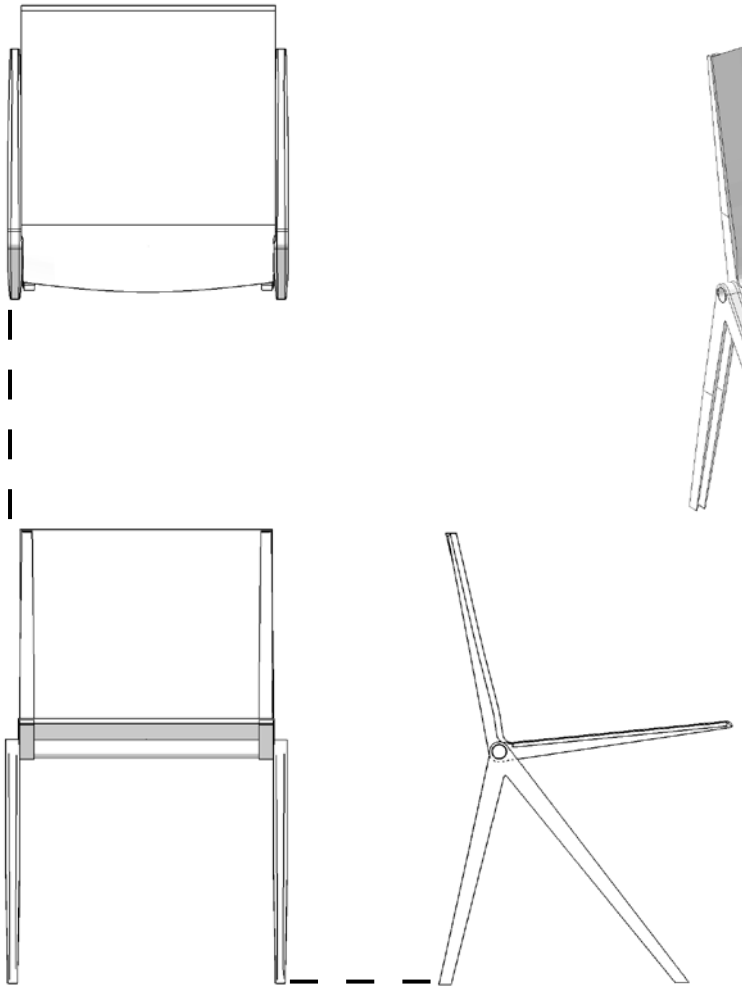
GEOMETRY: DESIGNED TO BE MANUFACTURED FROM FLAT SHEETS OF METAL, 2D TO 3D.

SPATIAL QUALITIES: "FLOATING" LOOK, MINIMALIST ELEGANCE.

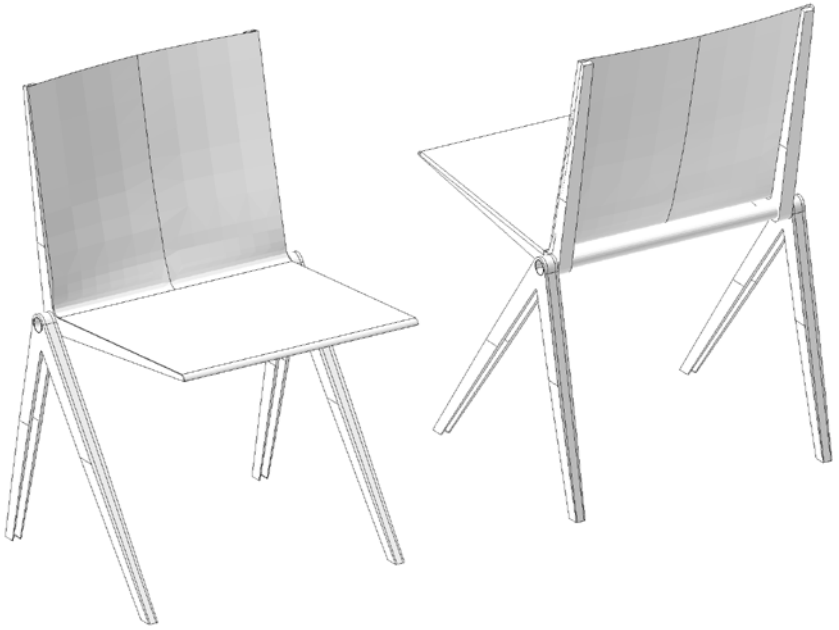
RELATION TO BODY: SEAT BACK CURVES TO MATCH HUMAN PROFILE.

ADVANTAGES: DURABLE, MODULAR (CAN BE STACKED/AGGREGATED) EASILY MADE, GOOD FOR COMMERCIAL USE.

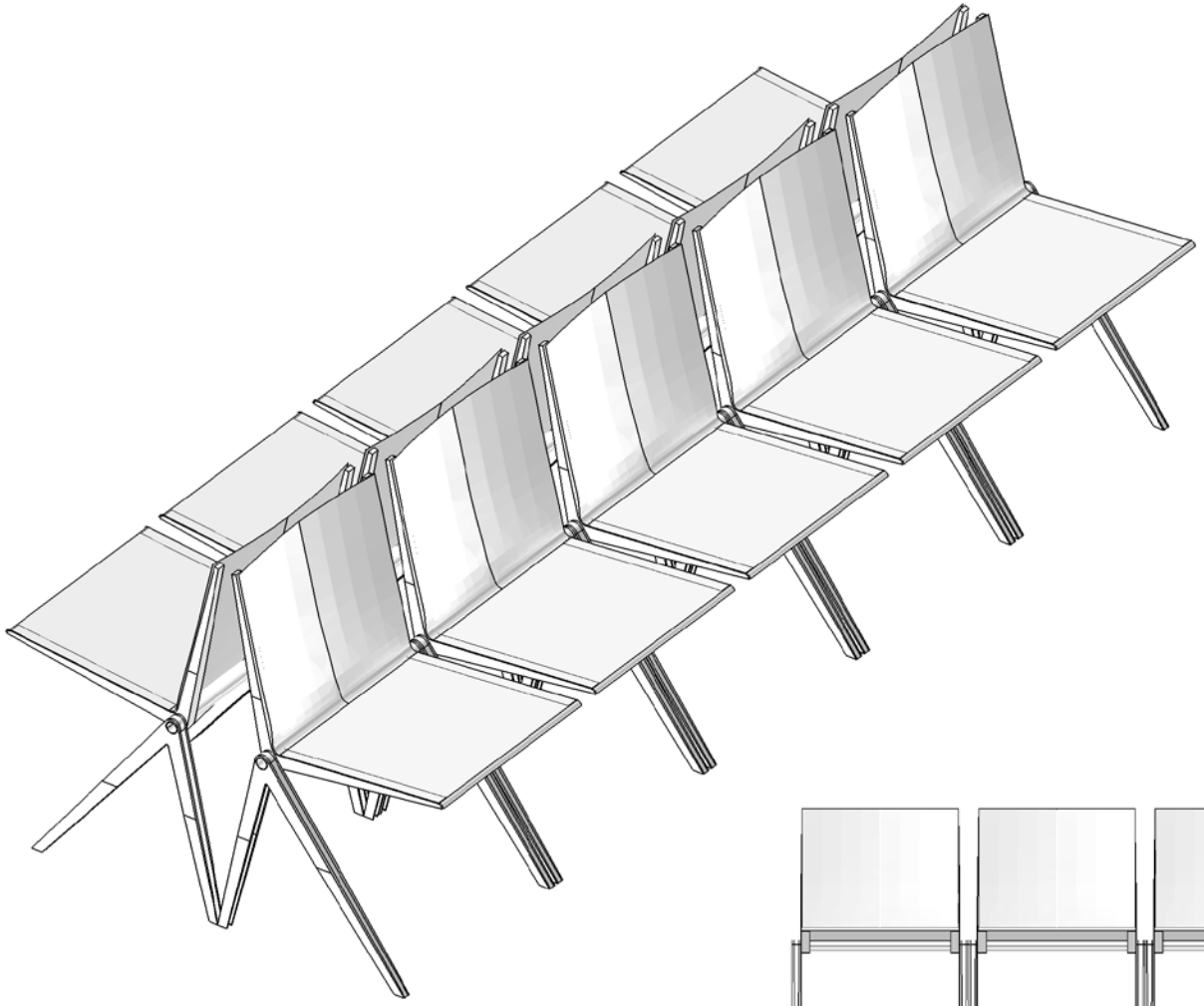
"MONDIAL" CHAIR



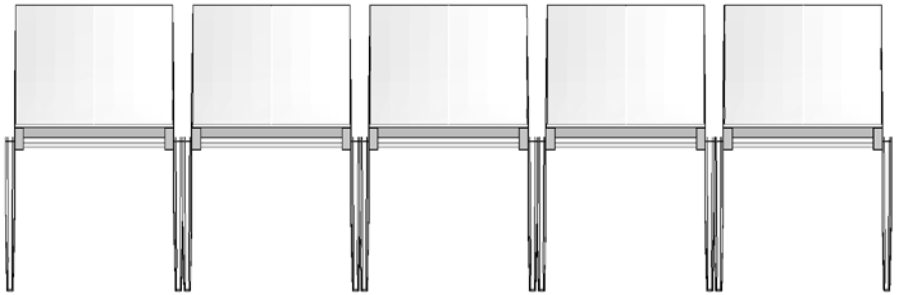
PLANS



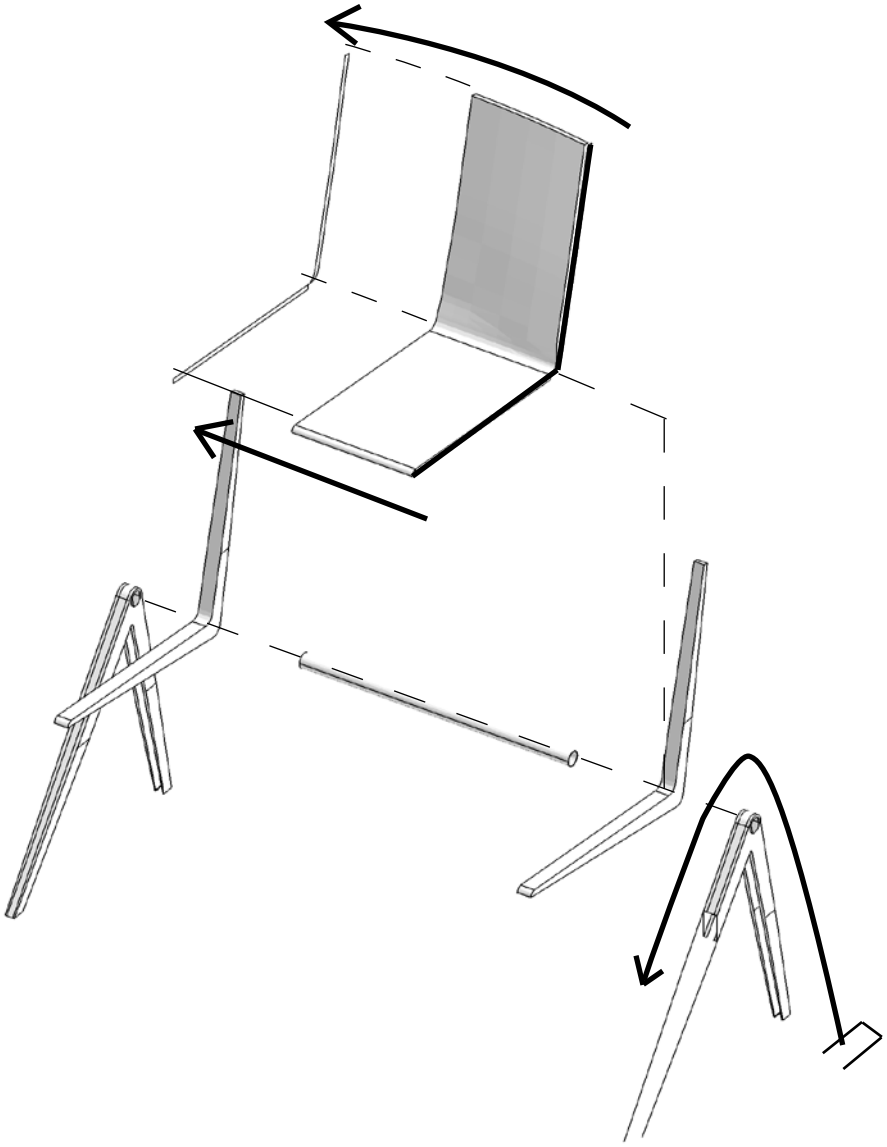
ISO VIEW



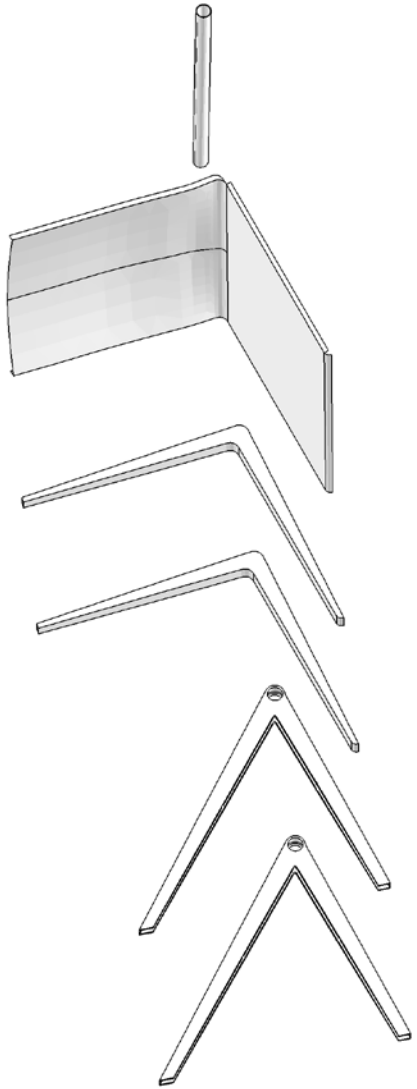
MODULAR AGGREGATION



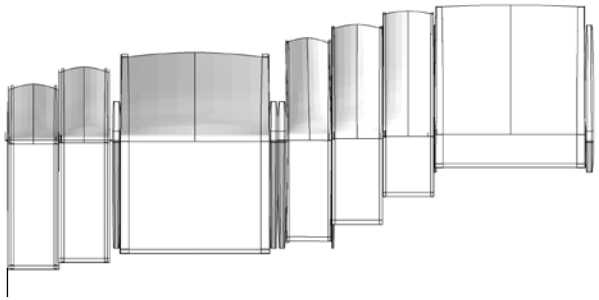
AGGREGATION ELEVATION

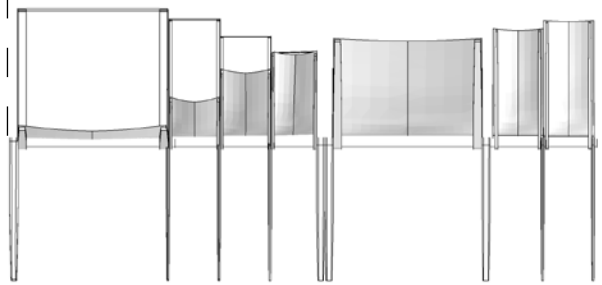


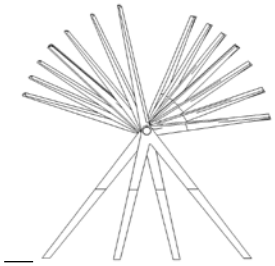
EXPLODED AXO: SWEEP/LOFT



PARTS KIT



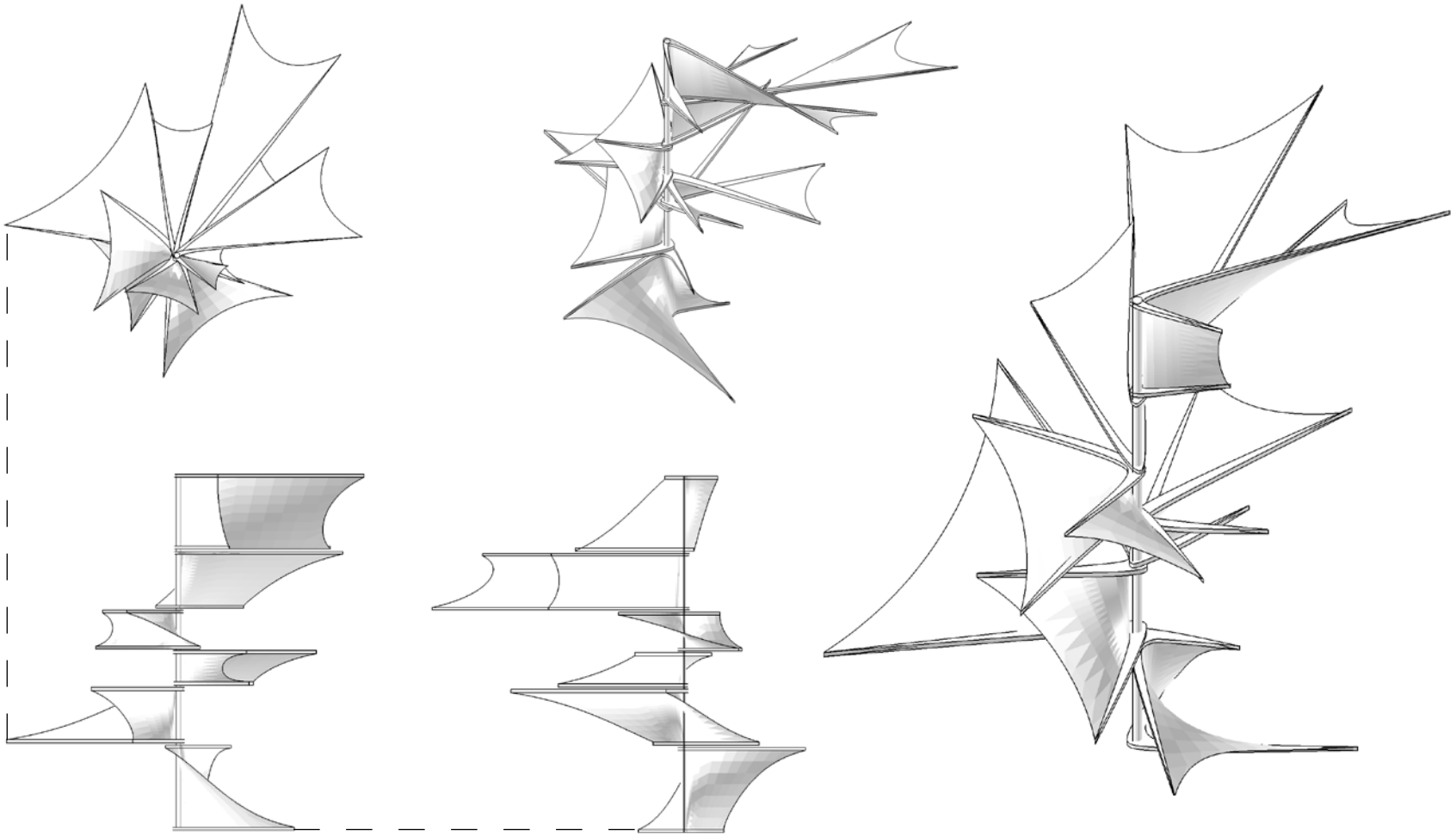




PLANS

AXO VIEW

- SWEEPING/LOFTING BETWEEN ARMATURES
- MODULAR REPITION/ROTATION



PLANS

AXO VIEW

- SWEEPING/LOFTING BETWEEN ARMATURES
- DIMENSIONAL VARIATION

YEAR: 1963

MATERIALITY: WOOD.

CONSTRUCTION: MORTISE TENON TOUNGE AND GROOVE CONNECTION.

FORMAL TECHNIQUES: AXIAL ROTATION, BOOLEAN SUBTRACTION.

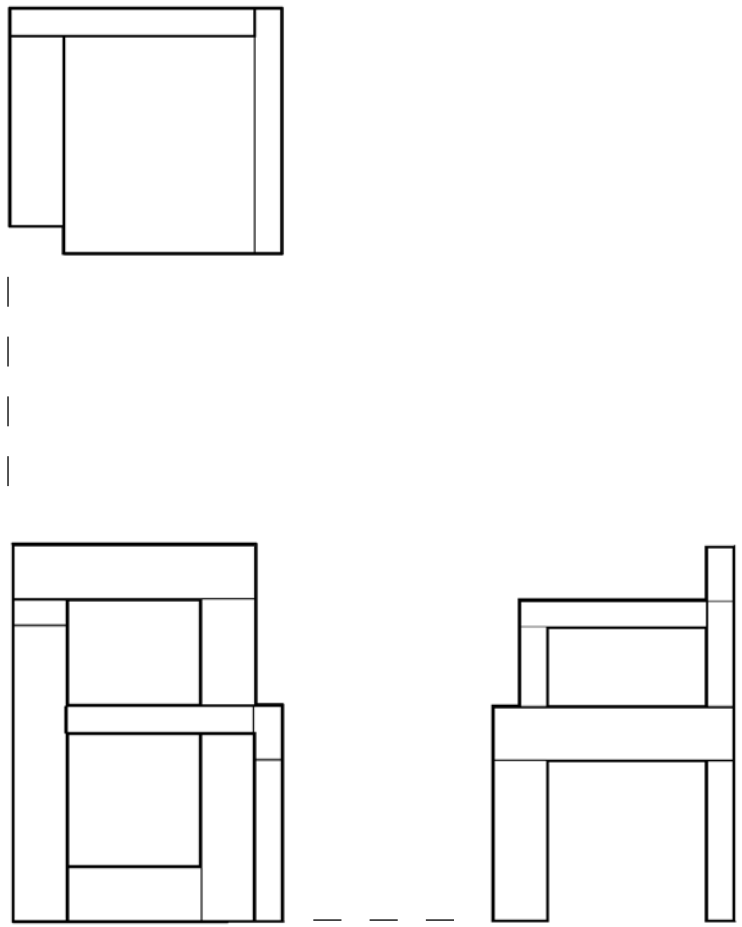
GEOMETRY: ASSYMETRIC AGGREGATION, CONSISTENT THICKNESS.

SPATIAL QUALITIES: SCULPTURAL APPEAL, SIMILAR TO BERLIN CHAIR.

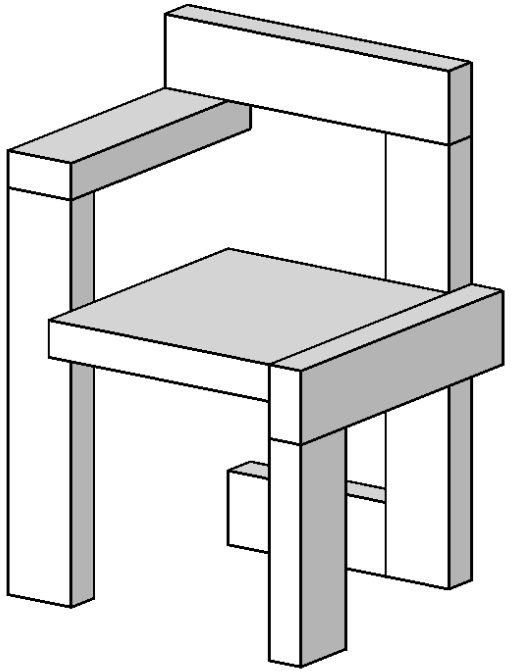
RELATION TO BODY: ASSYMETRIC DESIGN LENDS TO THE NESSECITY OF "LEFT" AND "RIGHT"-HANDED VERSIONS.

DISADVANTAGES: REQUIRES HIGH DEGREE OF CRAFTSMANSHIP, SMALL TOLERACES.

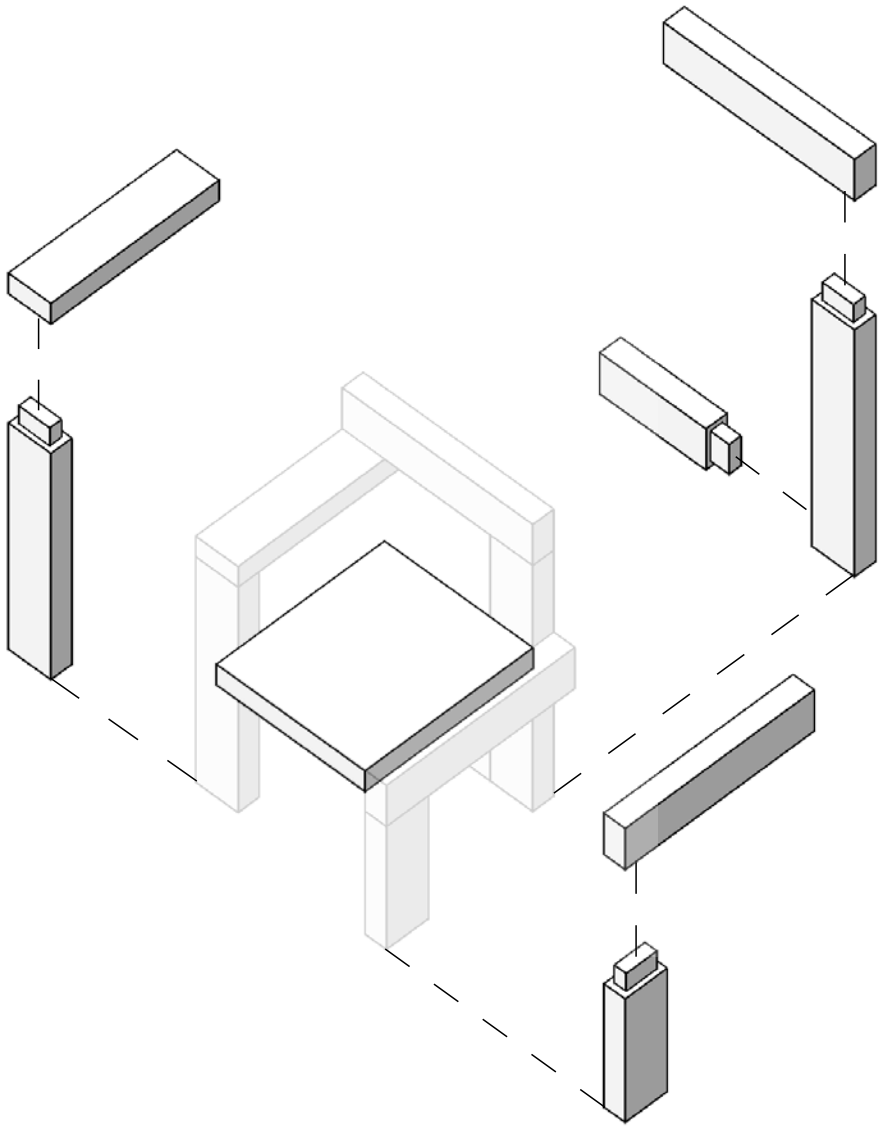
"STELTMAN" CHAIR



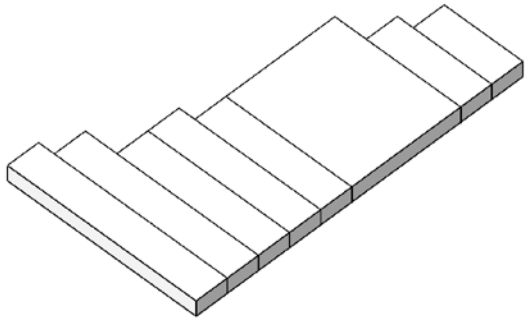
PLANS



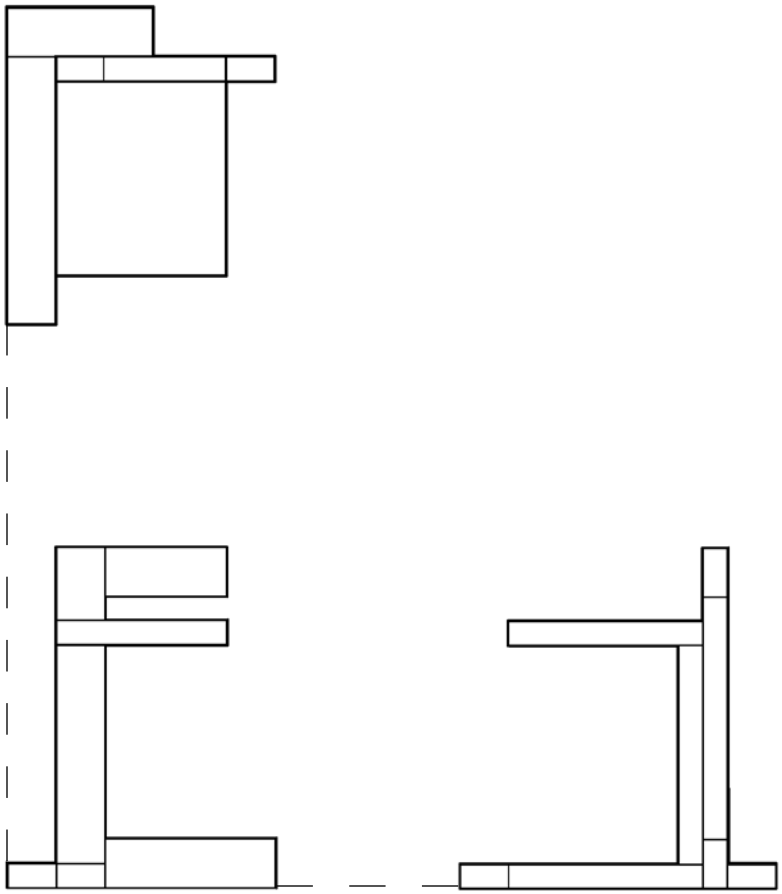
AXO VIEW

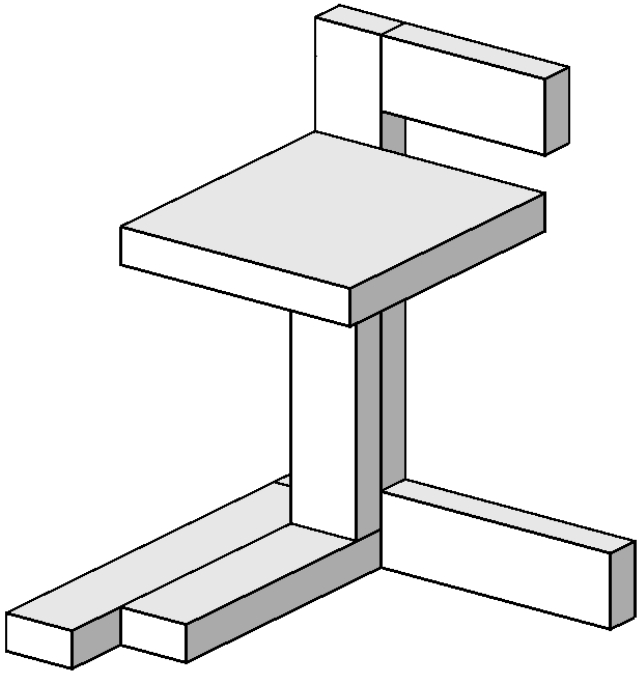


EXPLODED AXO: UNITIZED PROPORTION SHIFT



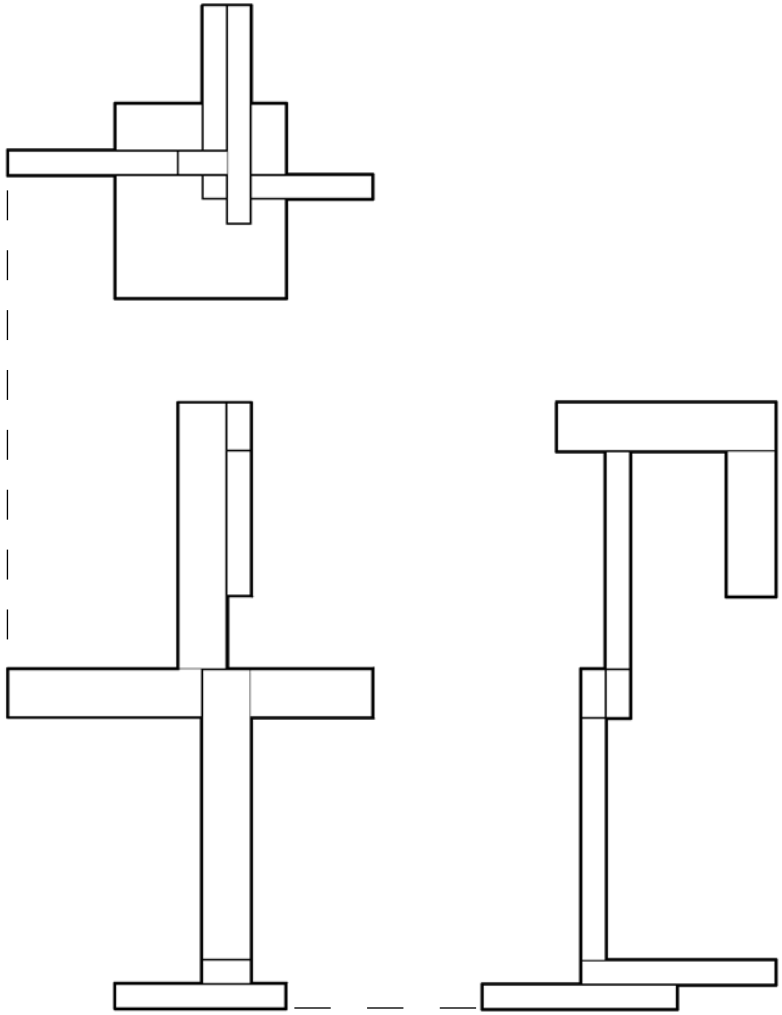
PARIS KIT



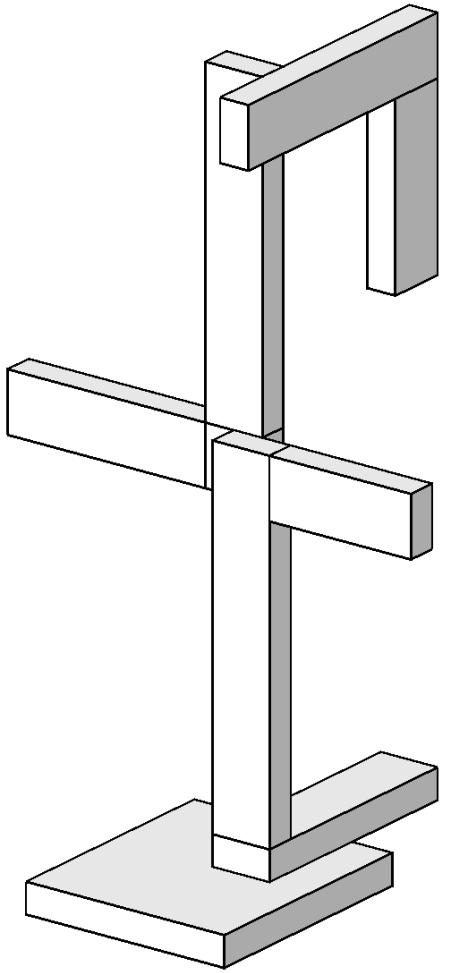


- SHARED UNIT PROPORTION/DIMENSION
- PERPENDICULAR JOINTS
- PROPORTIONAL MASSING OF PARTS
- ORTHAGONAL GEOMETRY
- DEFINES INTERIOR VOLUME

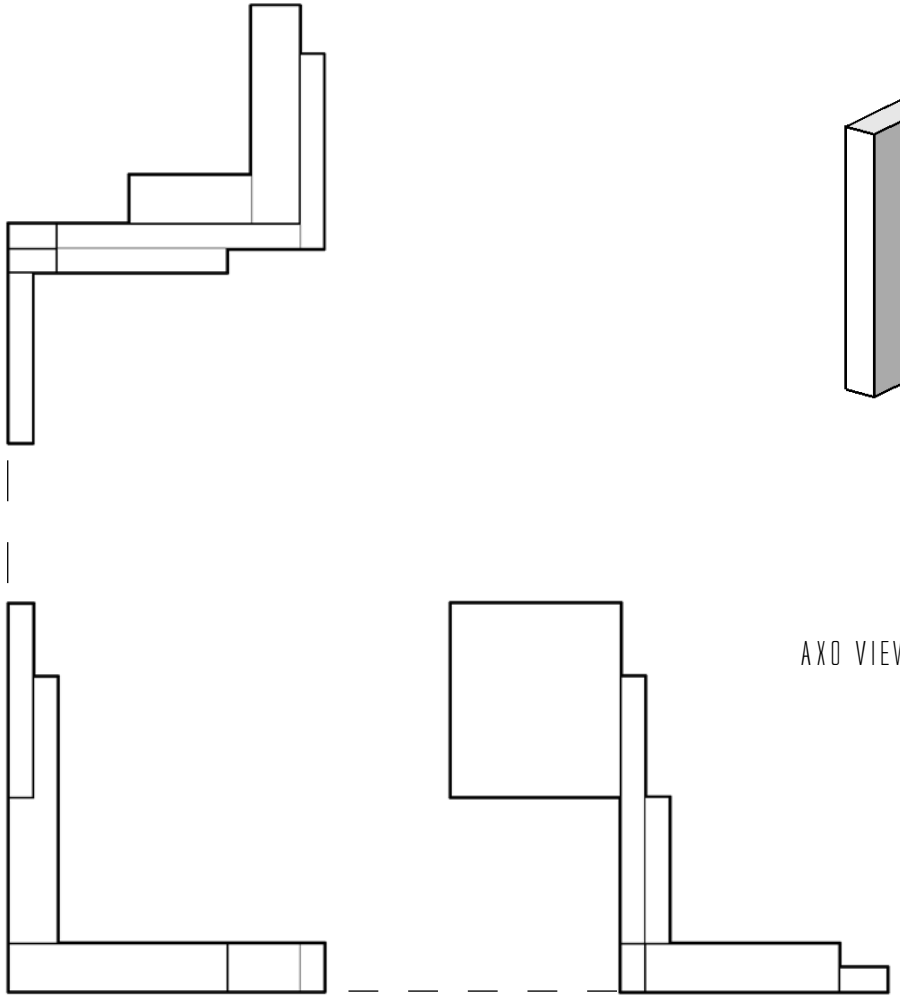
"STELTMAN" REFORMATION 1 MODEL



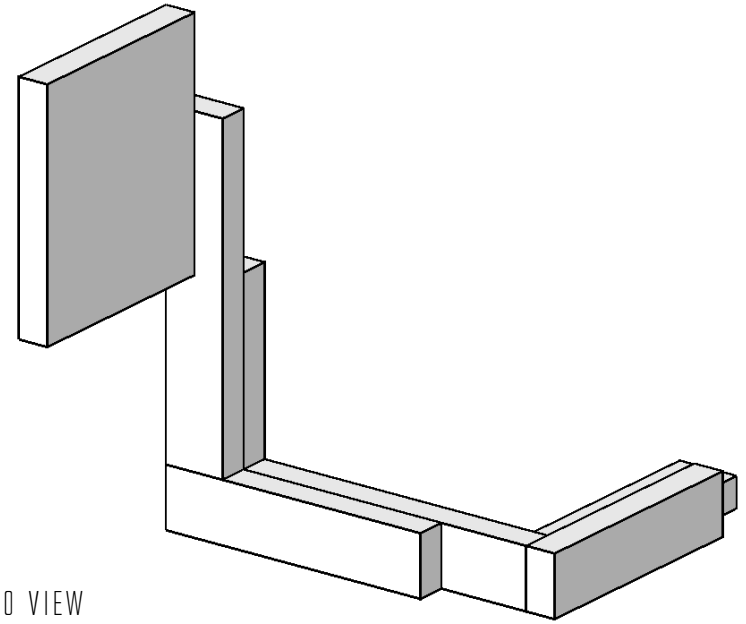
PLANS



AXO VIEW

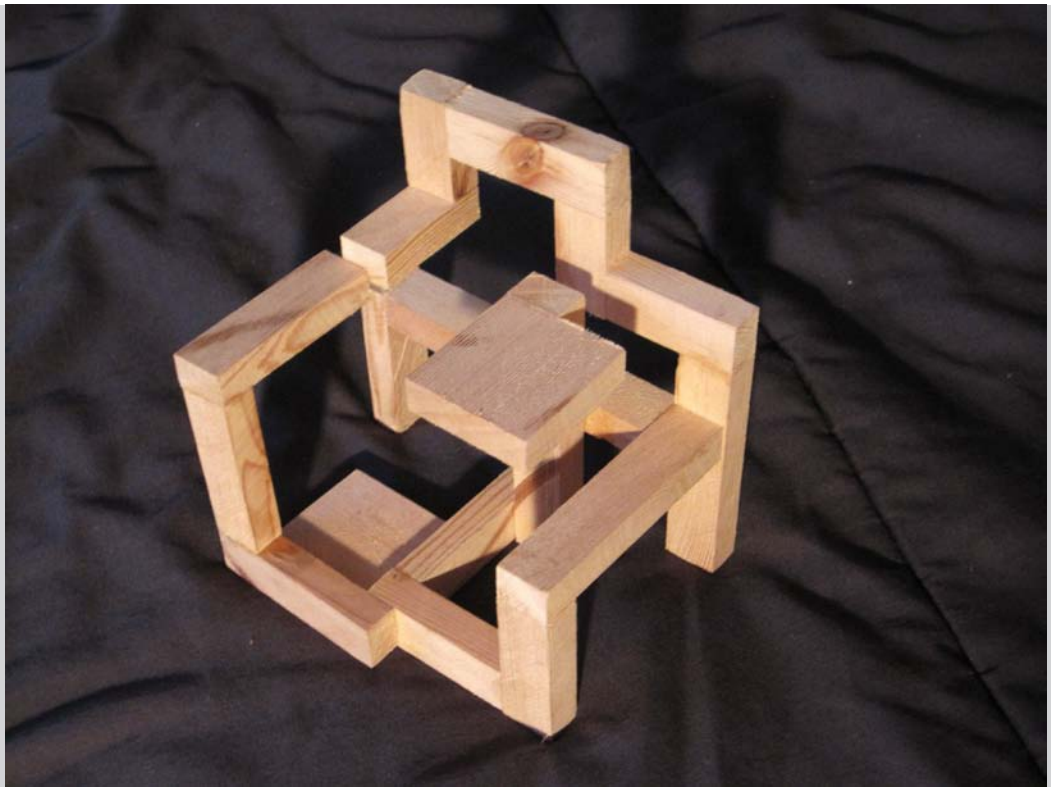


PLANS

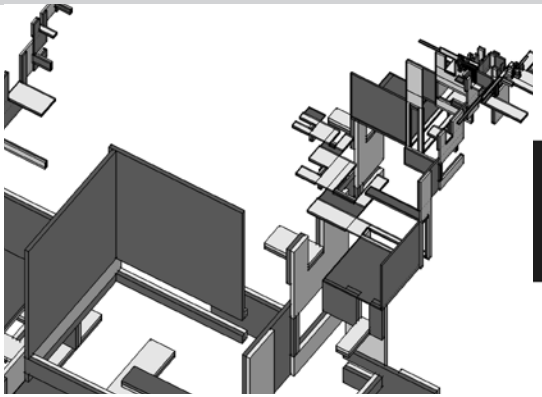


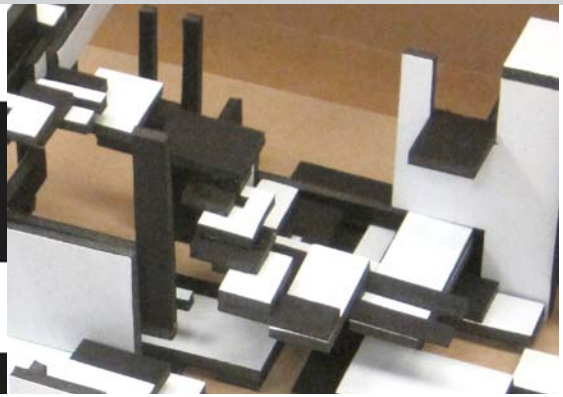
AXO VIEW

- SHARED UNIT PROPORTION/DIMENSION
- PERPENDICULAR JOINTS
- PROPORTIONAL MASSING OF PARTS
- ORTHAGONAL GEOMETRY
- DEFINES LINEAR, VARIED MASS



"STELTMAN" REFORMATION MODEL

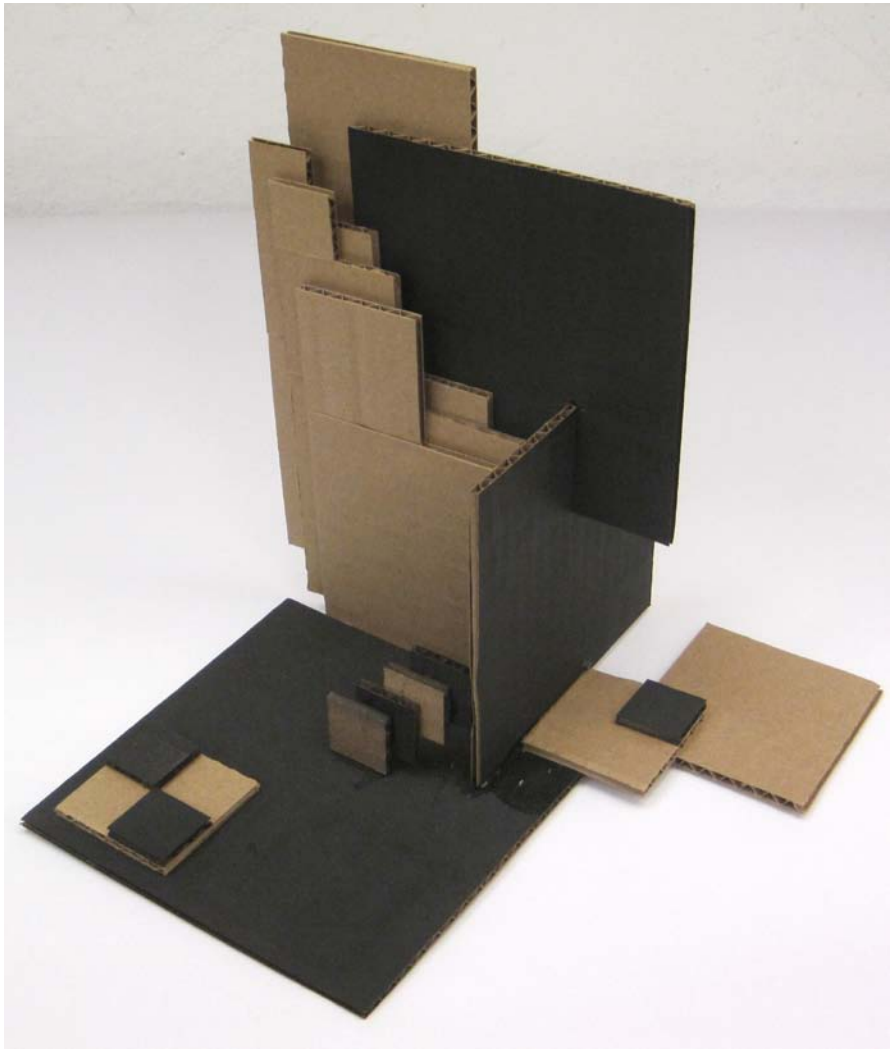


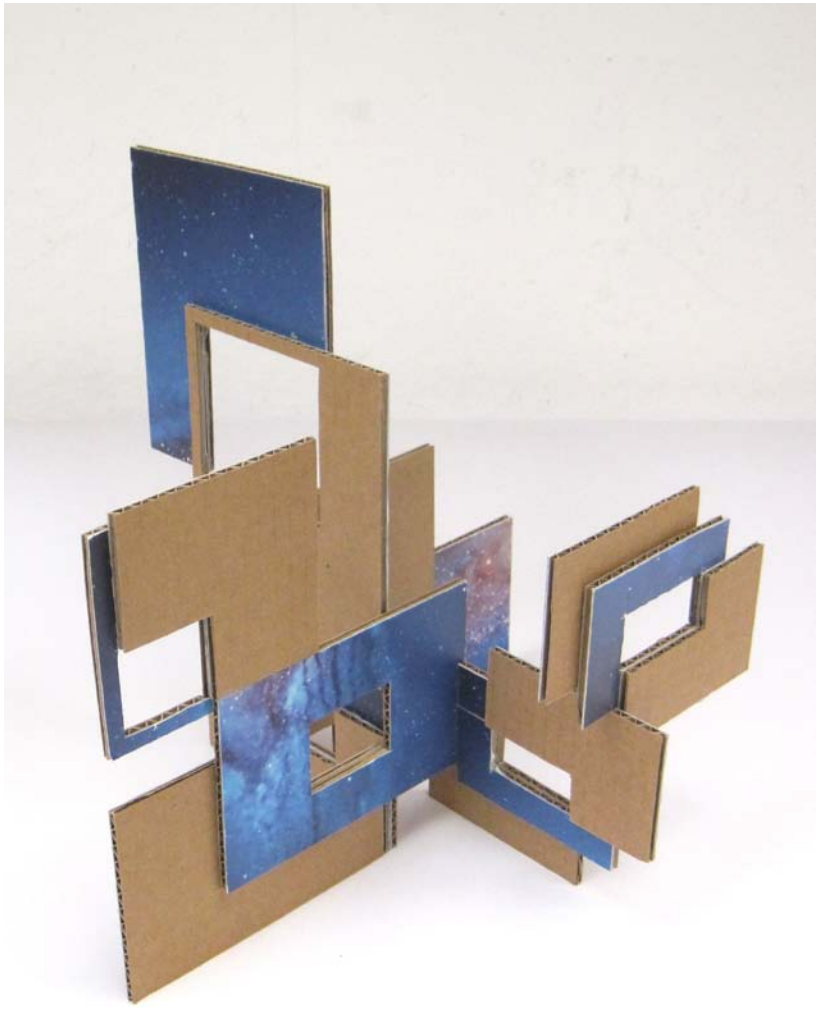


2: FORMAL SYSTEMS DEVELOPMENT

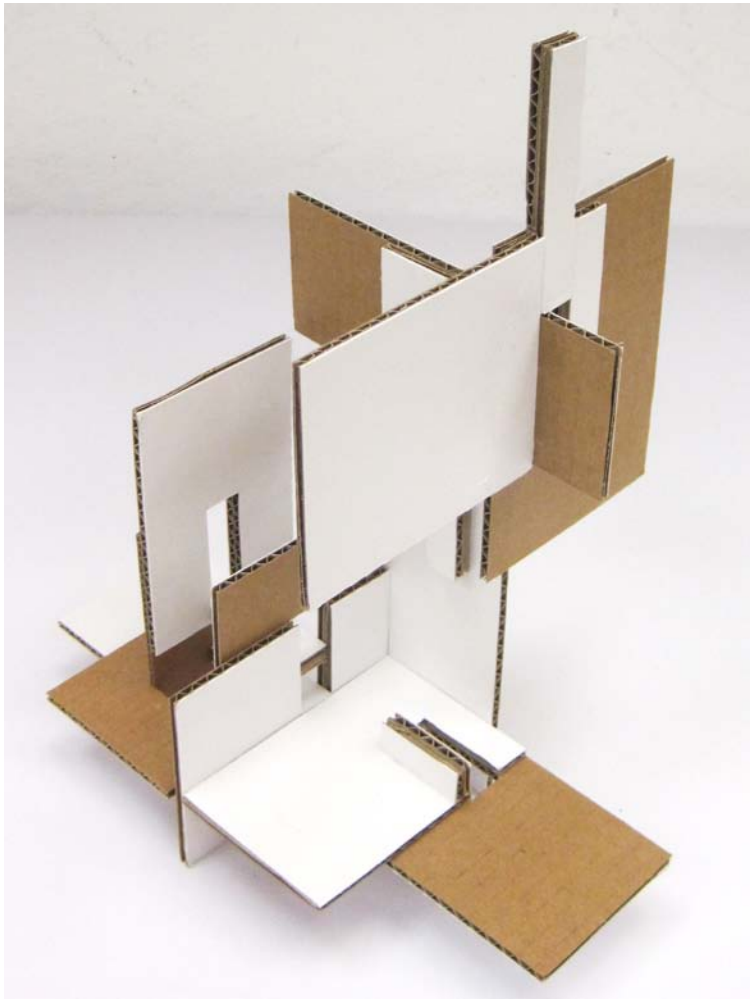
THE FORM-MAKING TECHNIQUES OF PLANAR SANDWICHING, INTERSECTION, AND SLICING WERE USED TO CREATE NEW 3D FORMS IN AN ATTEMPT TO GENERATE OBJECTS OF A PRACTICAL PROGRAMMATIC USE, SUCH AS STAIRS, WALKWAYS, PLATFORMS, AND IMPLIED VOLUMES.

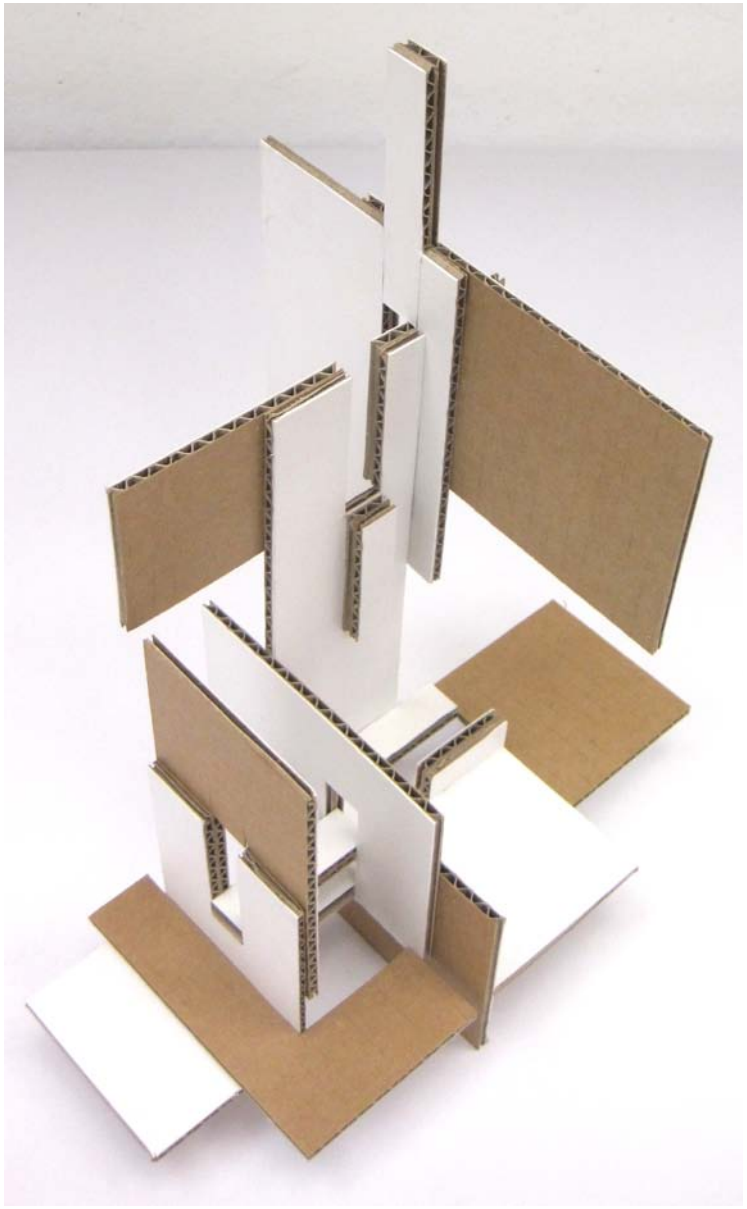
PRELIMINARY PHYSICALS MODELS GAVE WAY TO USE OF COMPUTER MODELING TO ENABLE 3D OBJECTS TO BE FLATTENED INTO 2D AND THEN RE-FOLDED INTO A NEW 3D OBJECT. THIS METHOD OF SWITCHING BETWEEN 2D PROJECTION AND 3D FORM-MAKING ALLOWED FOR THE ENRICHING OF THE SCALAR DETAIL PRODUCED IN THE MODELS, AND EVENTAULLY ALLOWED FORMS TO BE GENERATED IN PHYSICALITY THAT FULFILLED THE REQUIREMENTS FOR PERFORMATIVE OBJECTS AT MULTIPLE SCALES.





SANDWICHING + APERTURE MODELS

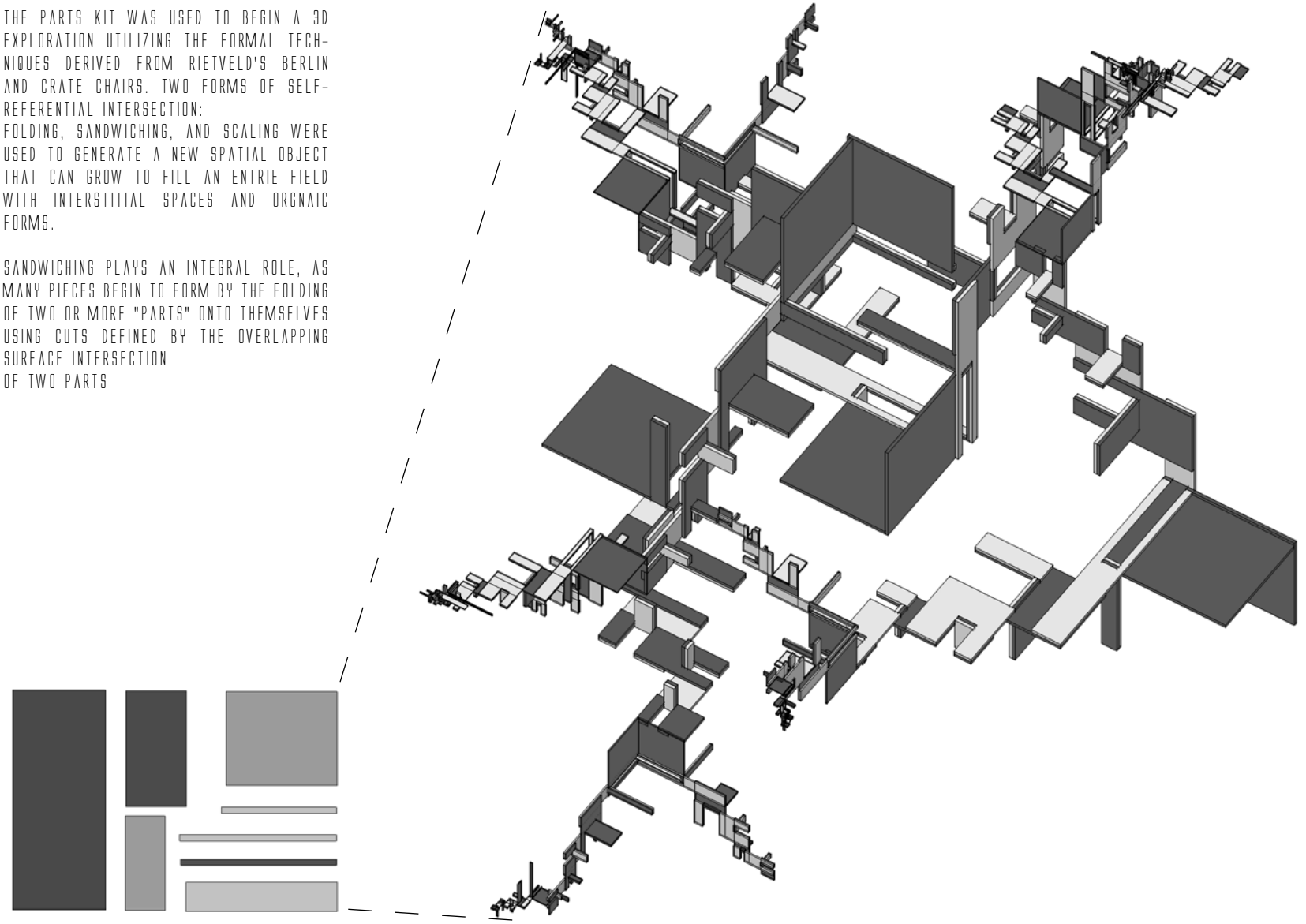




SANDWICHING + SHIFTING PLANES MODEL

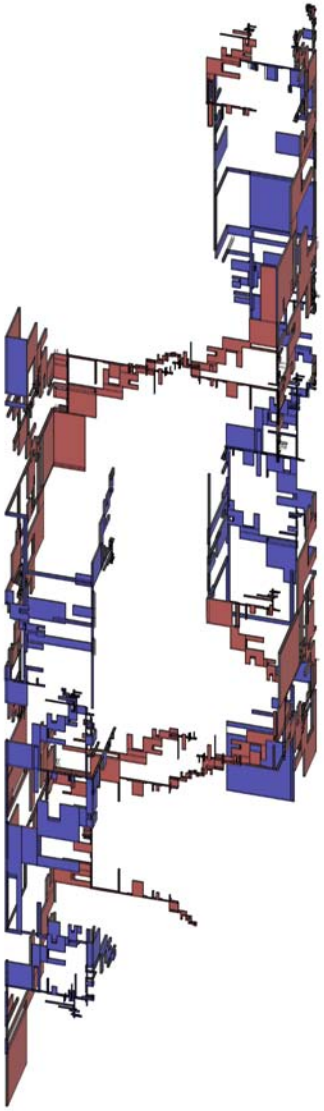
THE PARTS KIT WAS USED TO BEGIN A 3D EXPLORATION UTILIZING THE FORMAL TECHNIQUES DERIVED FROM RIETVELD'S BERLIN AND CRATE CHAIRS. TWO FORMS OF SELF-REFERENTIAL INTERSECTION:
FOLDING, SANDWICHING, AND SCALING WERE USED TO GENERATE A NEW SPATIAL OBJECT THAT CAN GROW TO FILL AN ENTRIE FIELD WITH INTERSTITIAL SPACES AND ORGNAIC FORMS.

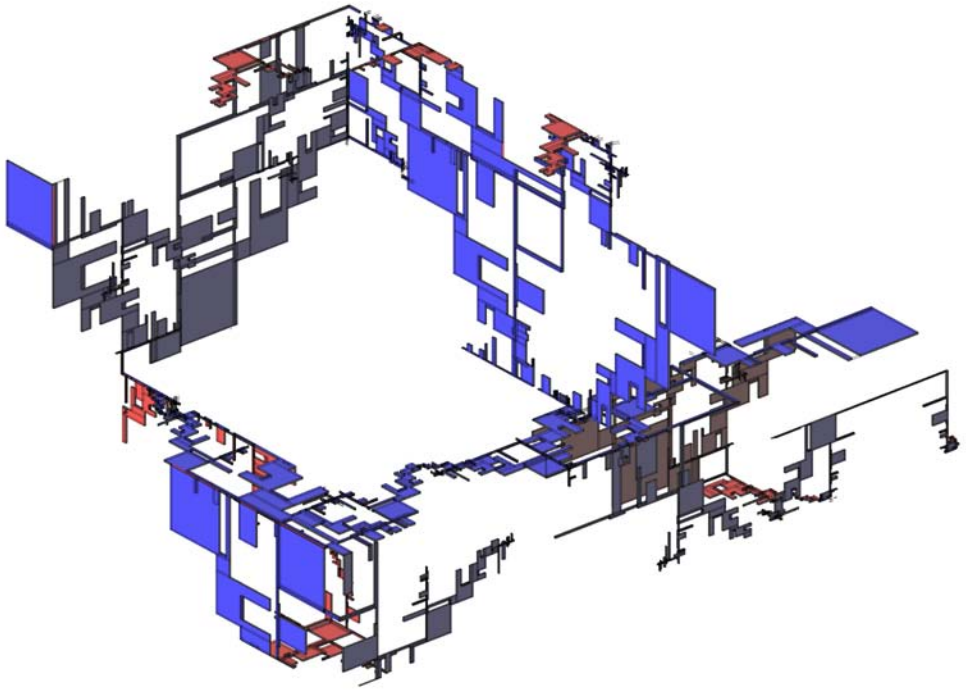
SANDWICHING PLAYS AN INTEGRAL ROLE, AS MANY PIECES BEGIN TO FORM BY THE FOLDING OF TWO OR MORE "PARTS" ONTO THEMSELVES USING CUTS DEFINED BY THE OVERLAPPING SURFACE INTERSECTION
OF TWO PARTS



THE 3D AGGREGATION WAS THEN FLATTENED INTO A FIGURE GROUND FIELD, IMPETUS BEING THAT EVEN MORE LAYERING AND INTRICATE 2D RELATIONSHIPS WERE GENERATED EACH TIME THE 3D FORM WAS FLATTENED ONTO ITSELF INTO A CONTINUOUS SURFACE WITH HOLES.

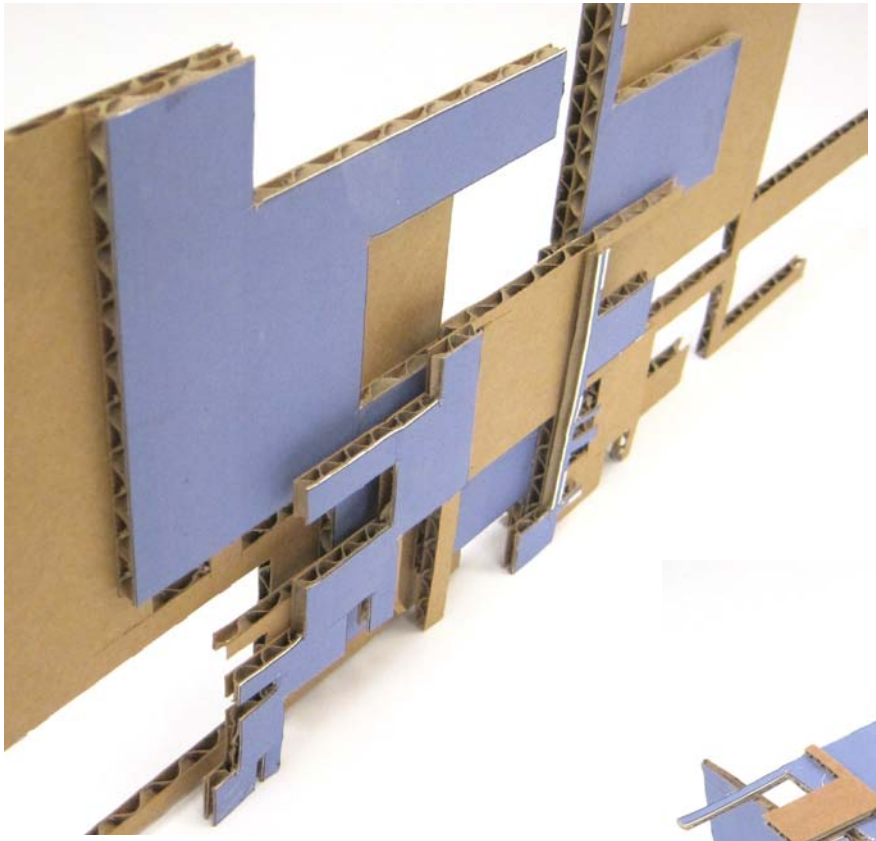
3D AGGREGATION FLATTENED TO 2D FIELD

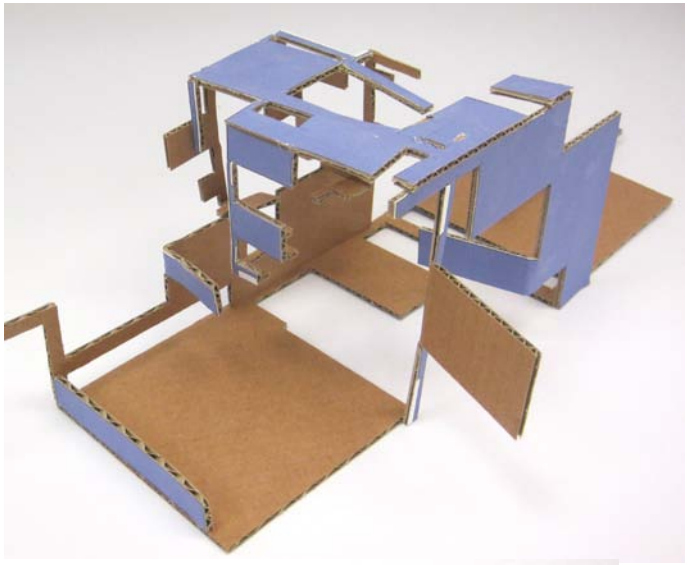


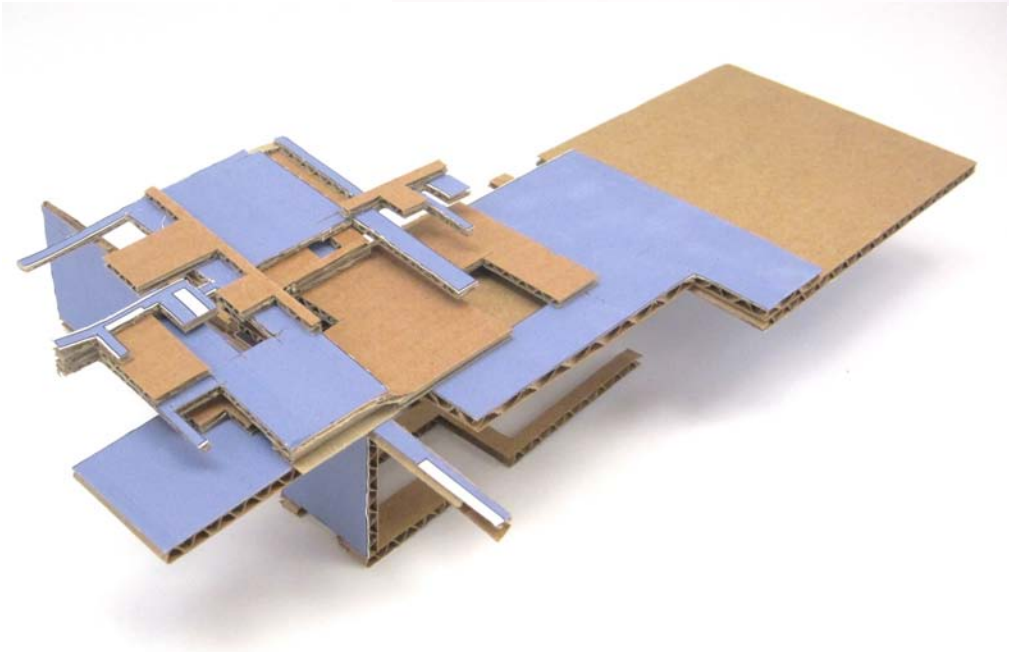


THE FLATTENED 2D FIGURE-GROUND PROJECTION WAS THEN RE-FOLDED ONTO ITSELF IN A NEW SERIES OF SPACE STUDIES. THE NEW 3D OBJECT STUDIES DEMONSTRATED GREATER POTENTIAL IN SPATIAL RICHNESS, COMPLEXITY, AND OPPURTUNITY TO CREATE A WIDER VARIETY AND SCALE OF SPATIAL RELATIONSHIPS IN 3D.

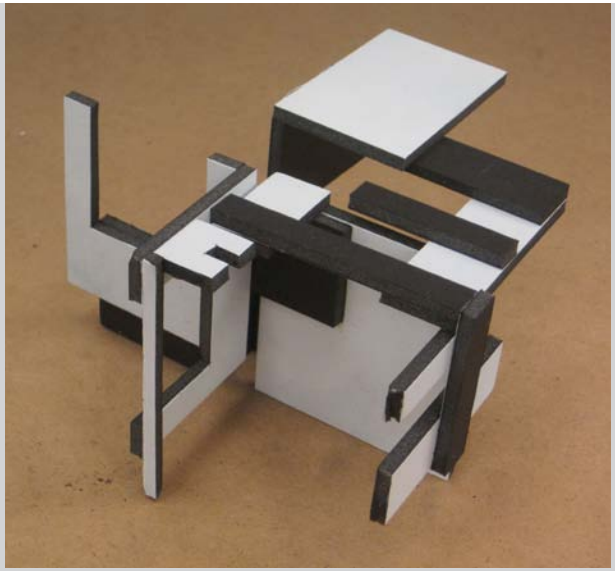
SANDWICHING + SHIFTING PLANES MODEL

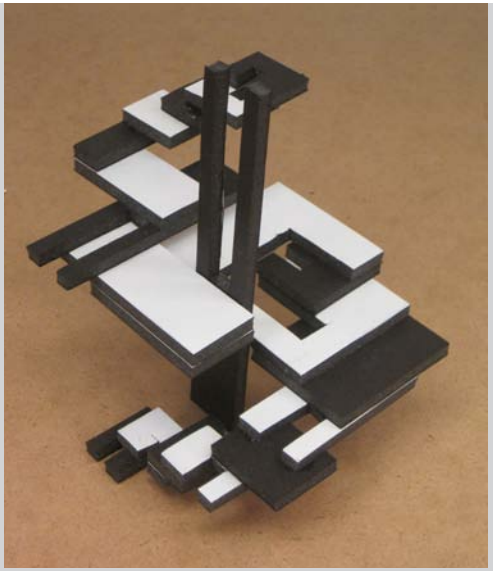


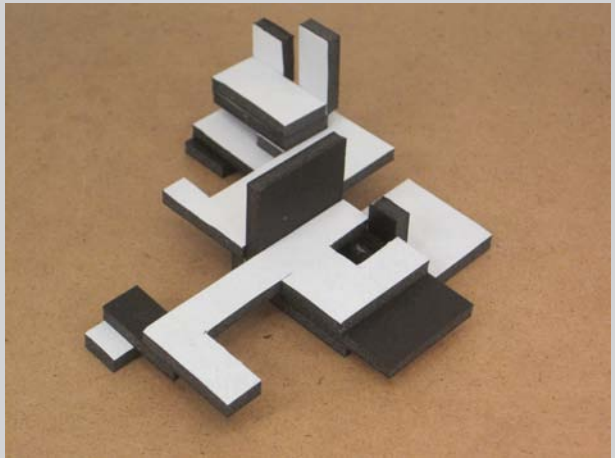




SANDWICHING + SHIFTING PLANES MODEL







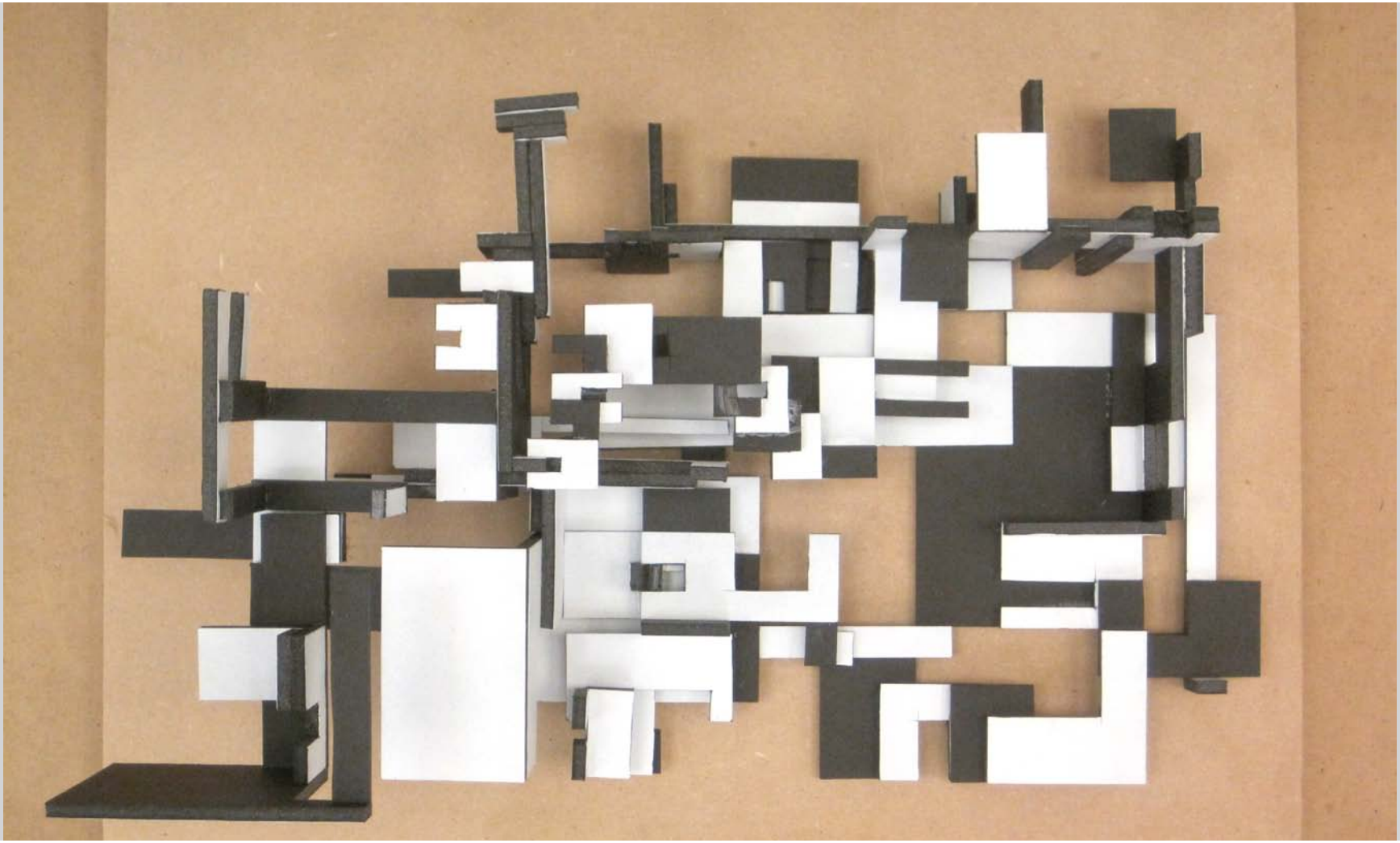
CLOCKWISE FROM BOTTOM:

BENCH

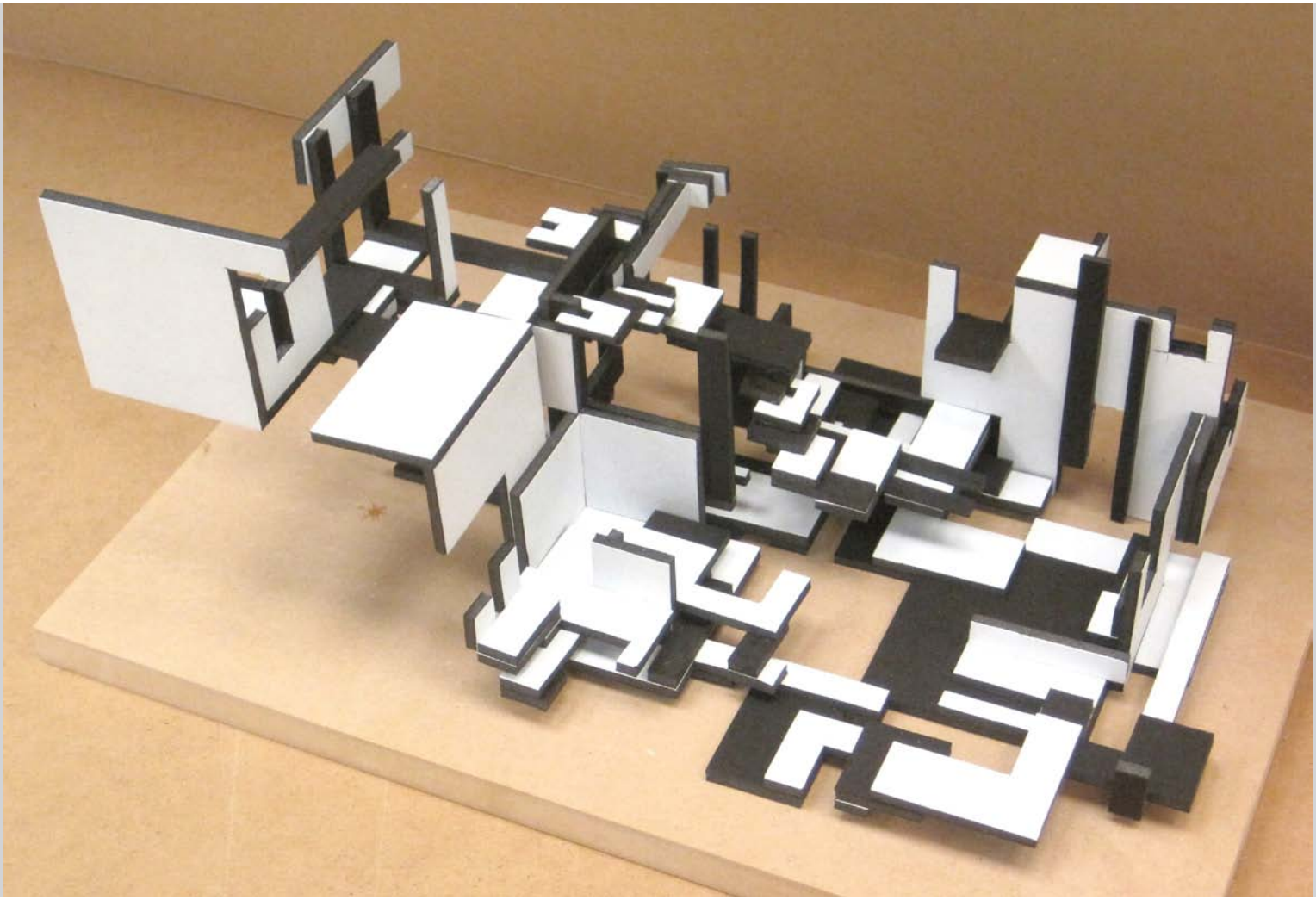
ENCLOSURE

STAIR/BRDIGE

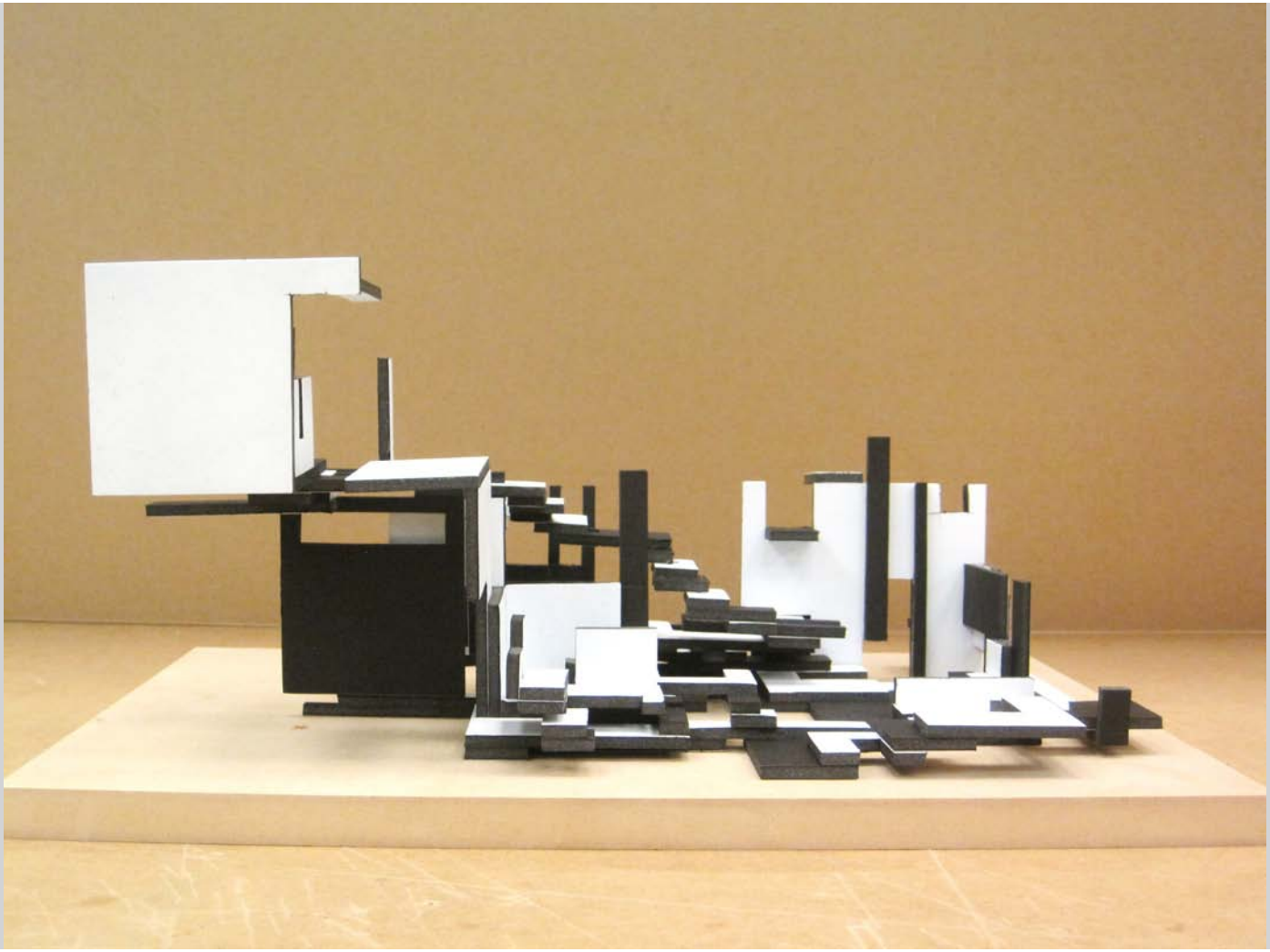
PAVILLION MODEL - CHUNKS



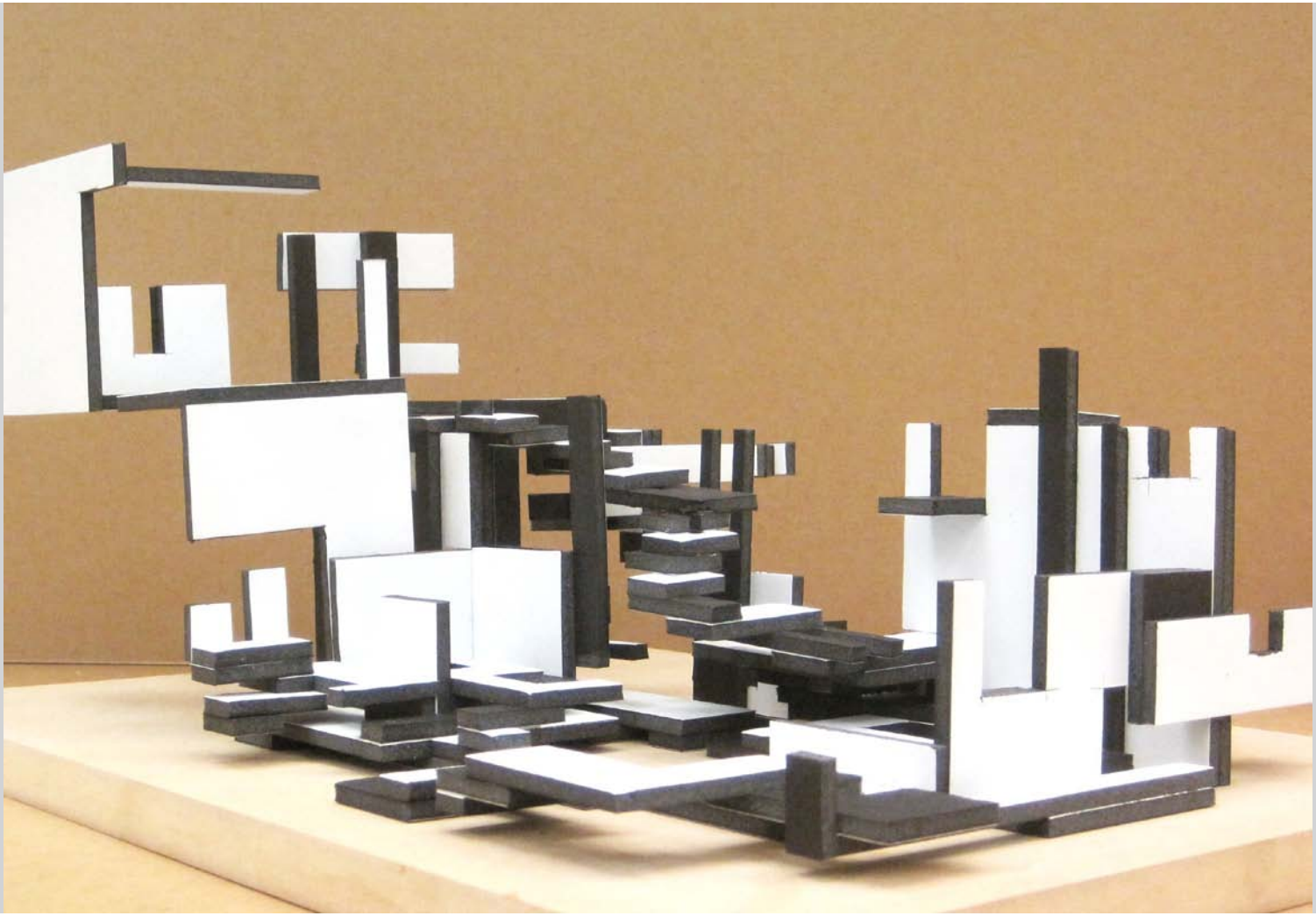
PAVILLION MODEL - PLAN VIEW



PAVILLION MODEL



PAVILLION MODEL

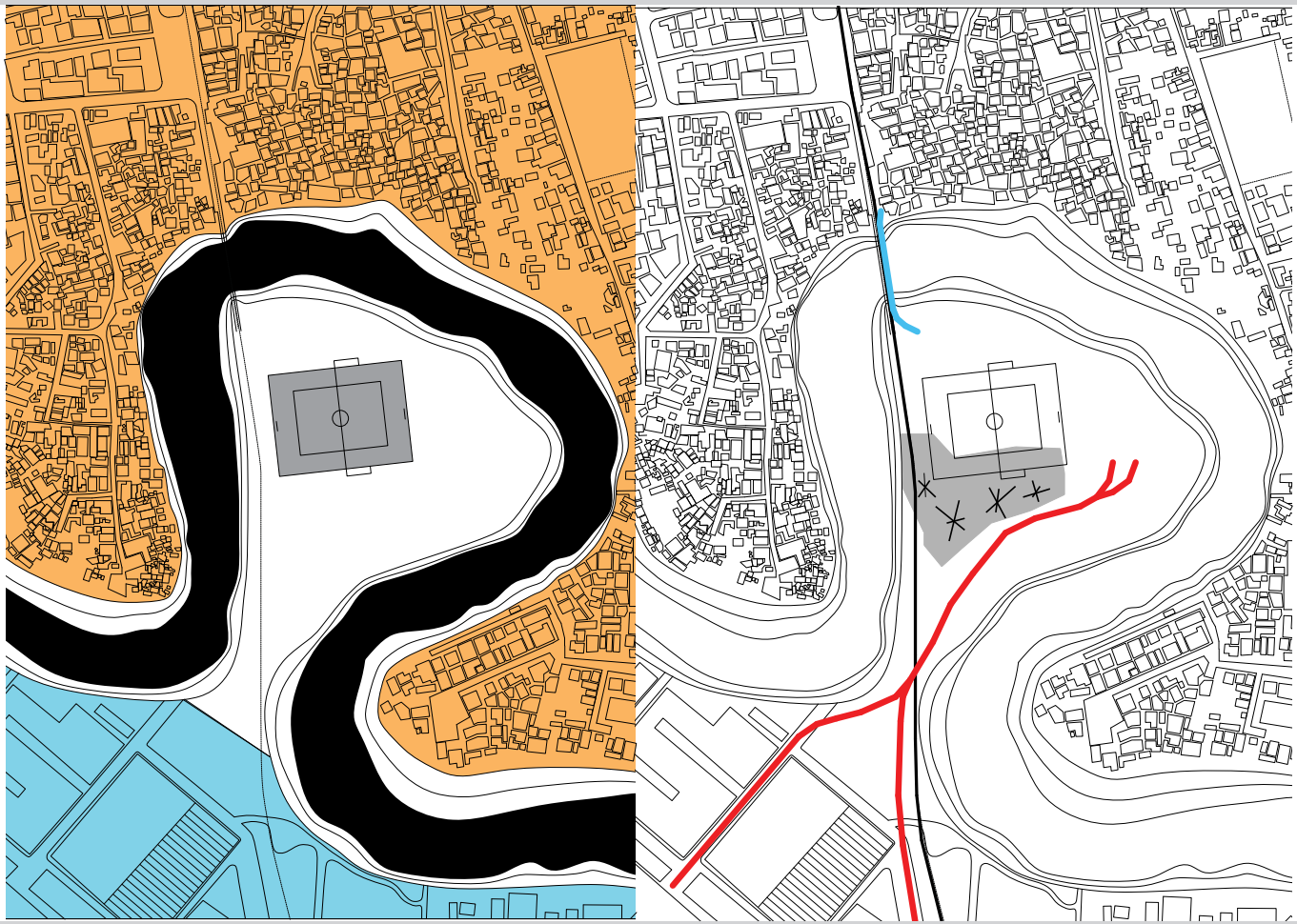


PAVILLION MODEL

3: SITE STRATEGY

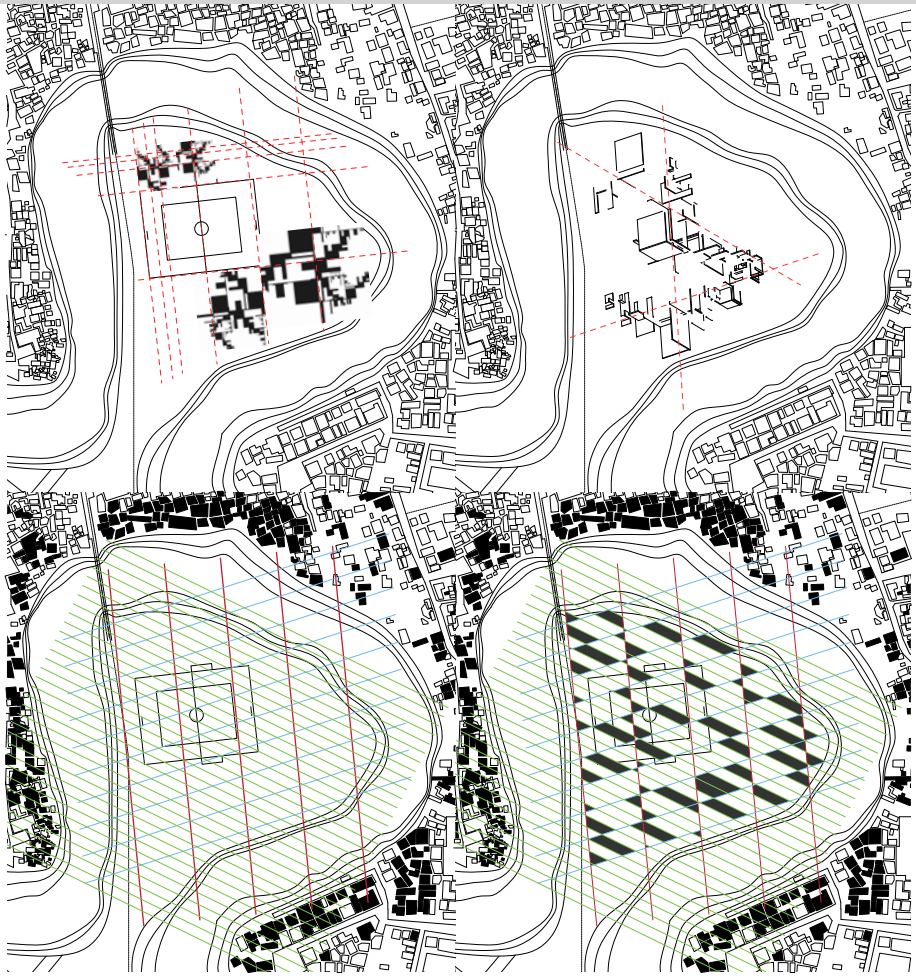
BREAKING FROM FORMAL DEVELOPMENT, A SITE WAS SELECTED, AND RELEVANT SITE INFLUNECES WERE IDENTIFIED, MAINY ITS GEOMETRY, ACCESS POINTS, AND CHARACHTER OF THE SURROUNDING ENVIRONMENT (INDUSTRIAL VS. INFORMAL RESIDENTIAL ZONES).

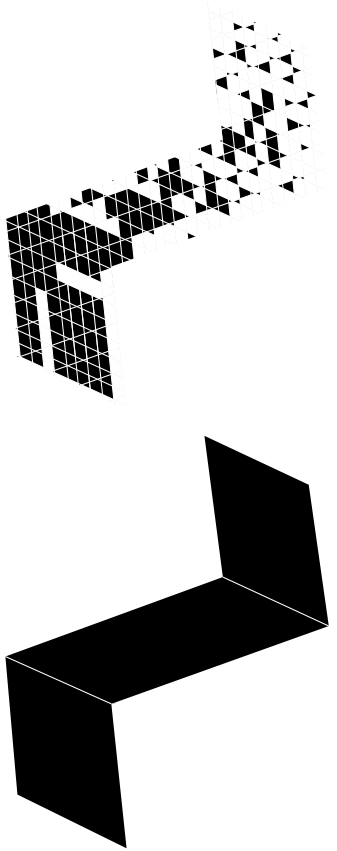
IT WAS DECIDED THAT A GRID SYSTEM WOULD BE USED TO SELF-REFERENTIALLY BLANKET THE SITE IN ALL DIRECTIONS, SETTING A FRAMEWORK THAT WOULD REACT TO LOCALIZED CONDITIONS ON THE SITE AND ORGANAIZE PROGRAM DENSITY AND GEOMETRY ACCORDINGLY. EVENTUALLY A PROGRAMMATIC GRADIENT (REFLECTED IN GEOMETRY AND FORM AS WELL) BEGAN DEVELOPMENT FROM THE INDUSTRIALIZED NECK OF THE PENNINSUALA, EXPANDING OUT TOWARD THE SURROUNDING NEIGHBORHOOD.



RIACHUELO PENNINSUALA, BUENOS AIRES, IS A GRASSY ISLAND-LIKE LAND FORMATION NESTLED BETWEEN THE VILLA 21/24 INFORMAL HOUSING COMMUNITY, AND AN INDUSTRIAL ZONE TO THE SOUTH. A SOCCER FEILD AND A RAILROAD ARE THE ONLY TWO SIGNIFICANT STRUCTURES ON THE SITE. VEHICULAR ACCESS (RED) BY LAND FROM THE SOUTHERN INDUSTRIAL ZONE. PEDESTRIAN ACCESS (BLUE) BY BRIDGE FROM THE NORTH, SOME EXISTING TREES PROVIDE SHADE TO THE SOUTHERN EDGE OF THE FIELD.

SITE ANALYSIS





A GRID SYSTEM WAS DEVELOPED THE COVER THE EXTENTS OF THE SITE AND BEYOND, ALLOWING FOR A LOGICAL, ARBIRATRARY SYSTEM TO DICTATE THE ORGANIZATION OF THE SPORTS COMPLEX AND DISTRIBUTION OF PROGRAM, AS WELL AS ESTABLISH A RULE SET FOR FUTURE DEVELOPMENT OF THE SITE THAT IS SELF-REFERENTIAL AND POSSESSES THE POTENTIAL TO BEGIN GENERATING ITS OWN NEW RULES AND METHODS
OF GENERATION BASED ON ITS EXISTING RELATIONSHIPS. AFTER INITIAL ITERATIONS (PICTURED), A TRI-GRID SCHEME USING THREE MAJOR AXES DEFINED BY THE OVERALL SHAPE OF THE SITE WAS DECIDED UPON, AND SYSTEM OF VARIATION IN IT'S UNIT SPACING WAS INTRODUCED (SEE SITE PLAN).

PRELIMINARY SITE GRID PERMUTATIONS

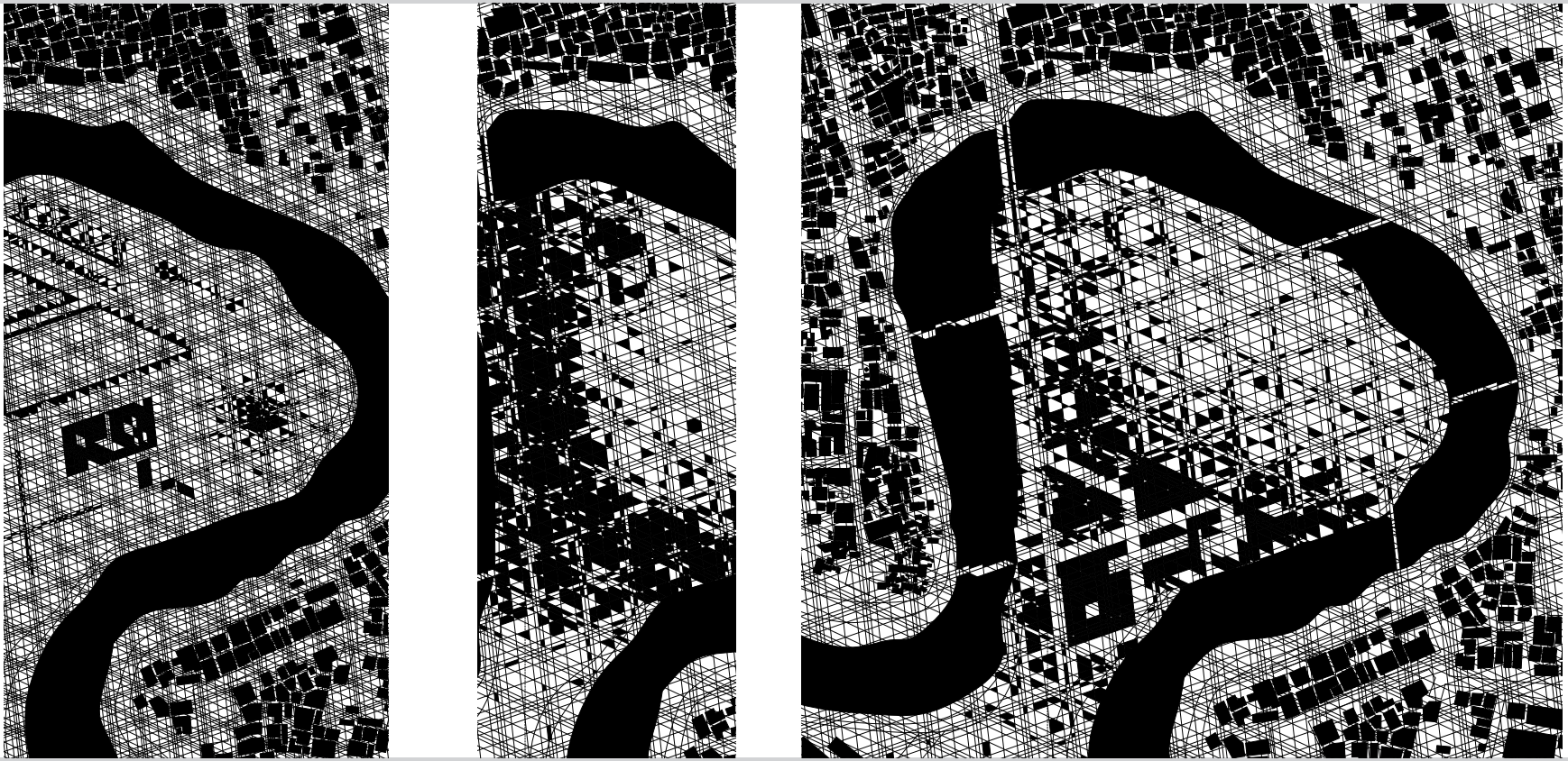
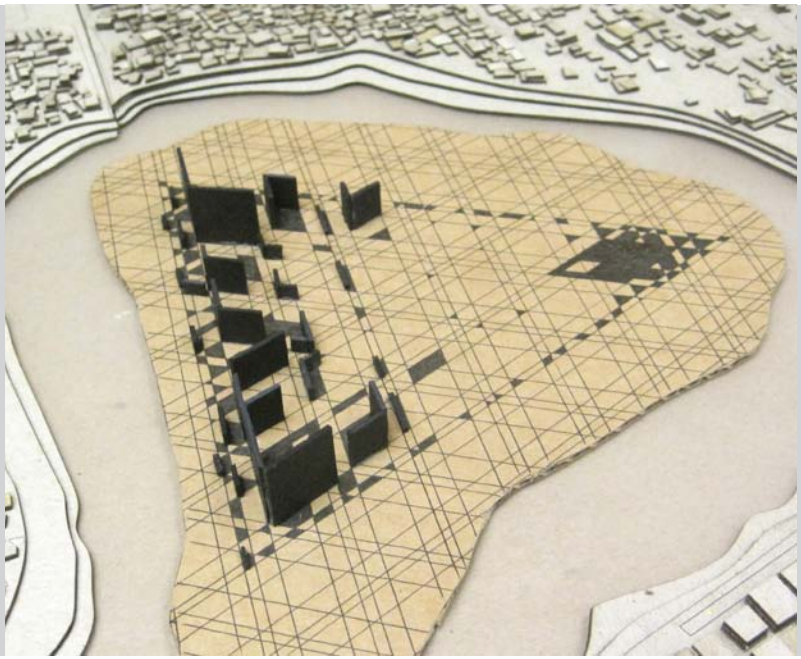
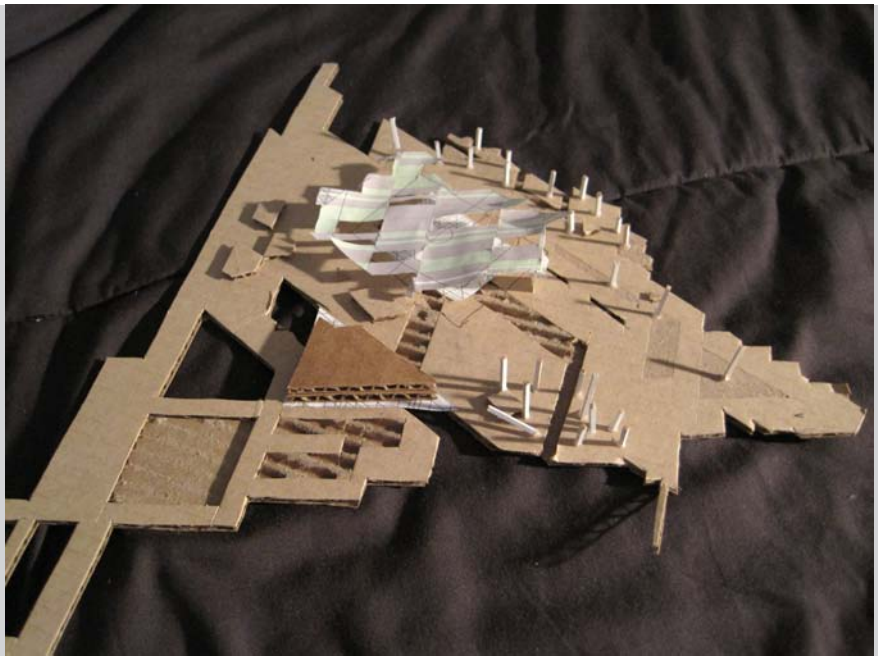


FIGURE GROUND SITE PLAN DEVELOPMENT

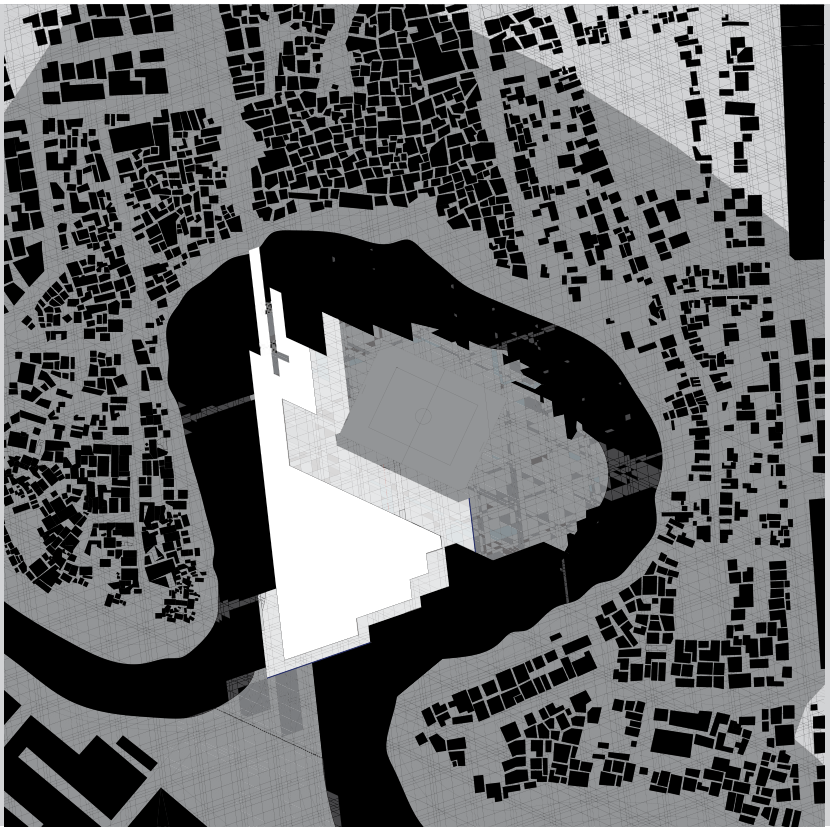


MODEL SHOWING FIRST TRI-GRID SCHEME AND BAND OF DENSER PROGRAM ALONG RAIL LINES, CREATING AN 'INDUSTRIAL CORRIDOR"

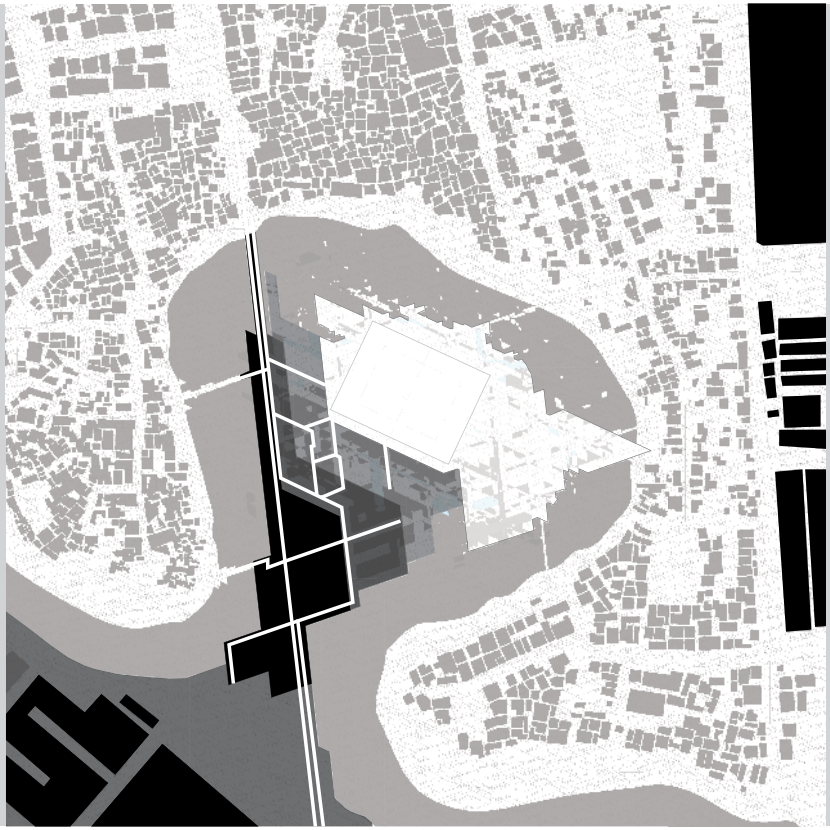


MODEL DEMONSTRATING THE RE-SHAPING OF THE SITE BOUNDARY AND ROUGH PLACEMENT OF SPORTS CENTER ON SITE.

PRELIMINARY SITE MODELS



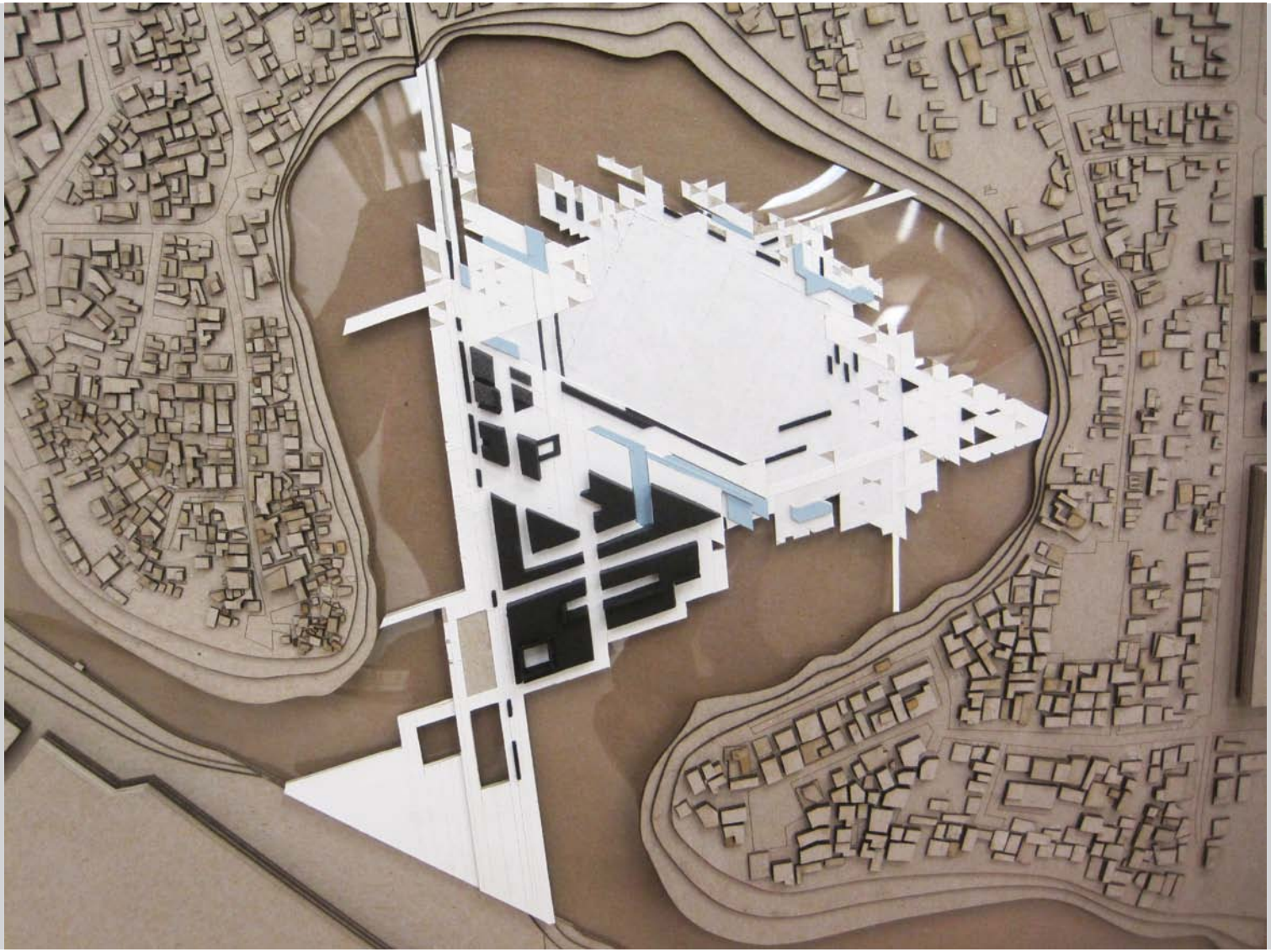
THE SITE FLOOD SOMETIMES, AND ZONES OF DENSER PROGRAMMATIC ELEMENTS ARE PLACED ON RAISED TERRACES TO PROVIDE PROTECTION FROM WATER INVASION.



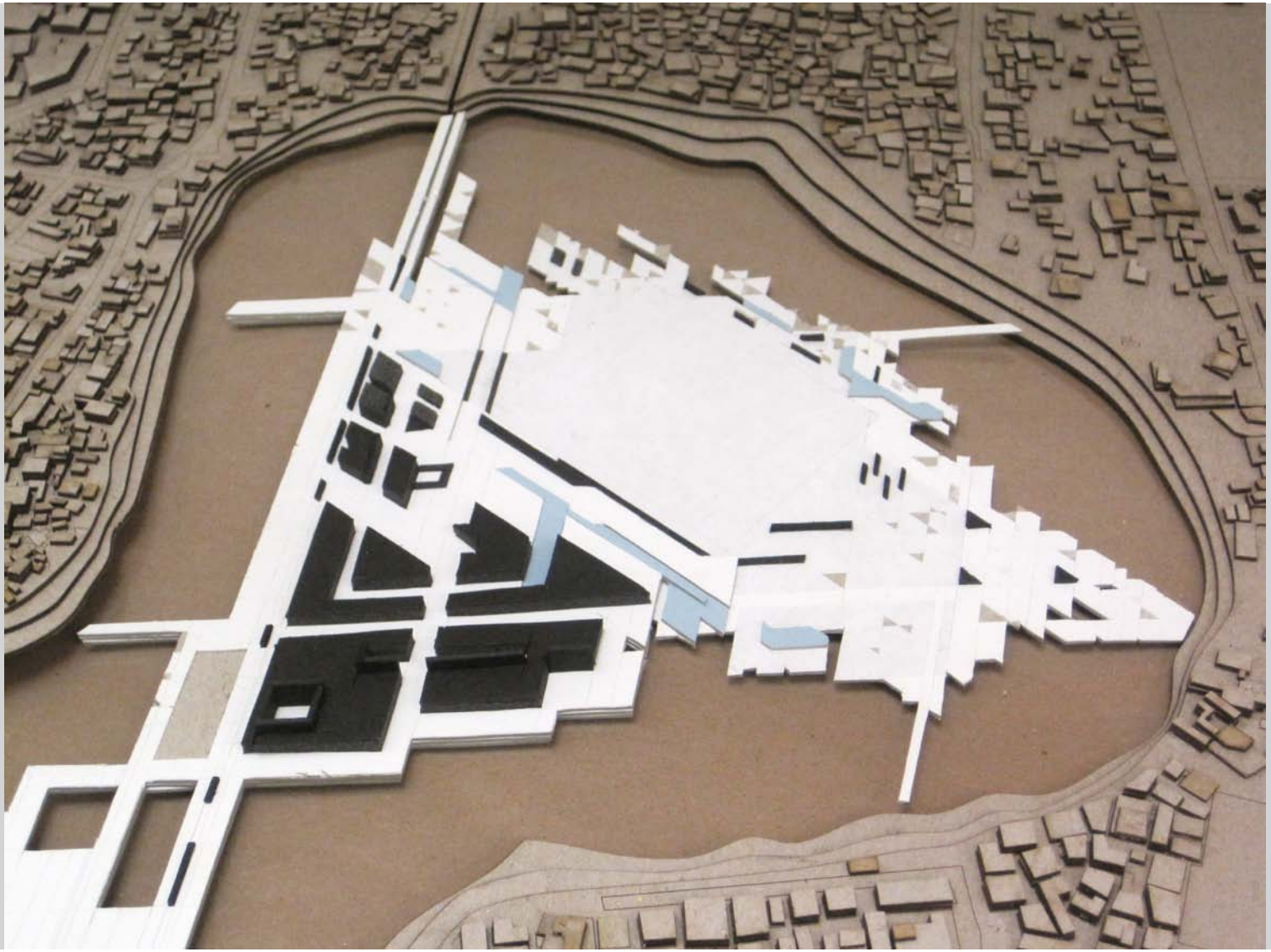
PROGRAM ORGANIZATION IS BASED UPON EXISTING ACCESS POINTS TO SITE, AND IT'S SURROUNDING ENVIRONMENT. HEAVY-DUTY PROGRAM AND FURTURE EXPANSION SPACE OCCUPIED LARGE, DEFINED BLOCKS WITH TALL ELEVATIONS ON THE SOUTH END OF THE SITE, REFLECTING THE EXISTING INDUSTRIAL ZONE IT IS CONNECTED TO. AS THE PLAN REACHES NORTH TOWARD VILLA 21/24, PROGRAM ZONES BECOME LESS DENSE AND MORE FRAGMENTED, FEATURING LOWER ELEVATION CONSTRUCTIONS SUCH AS BENCHES, TERRACES, AND VARYING GROUNDCOVER.

SITE STRATEGY DIAGRAMS

FINAL SITE PLAN



FINAL SITE MODEL



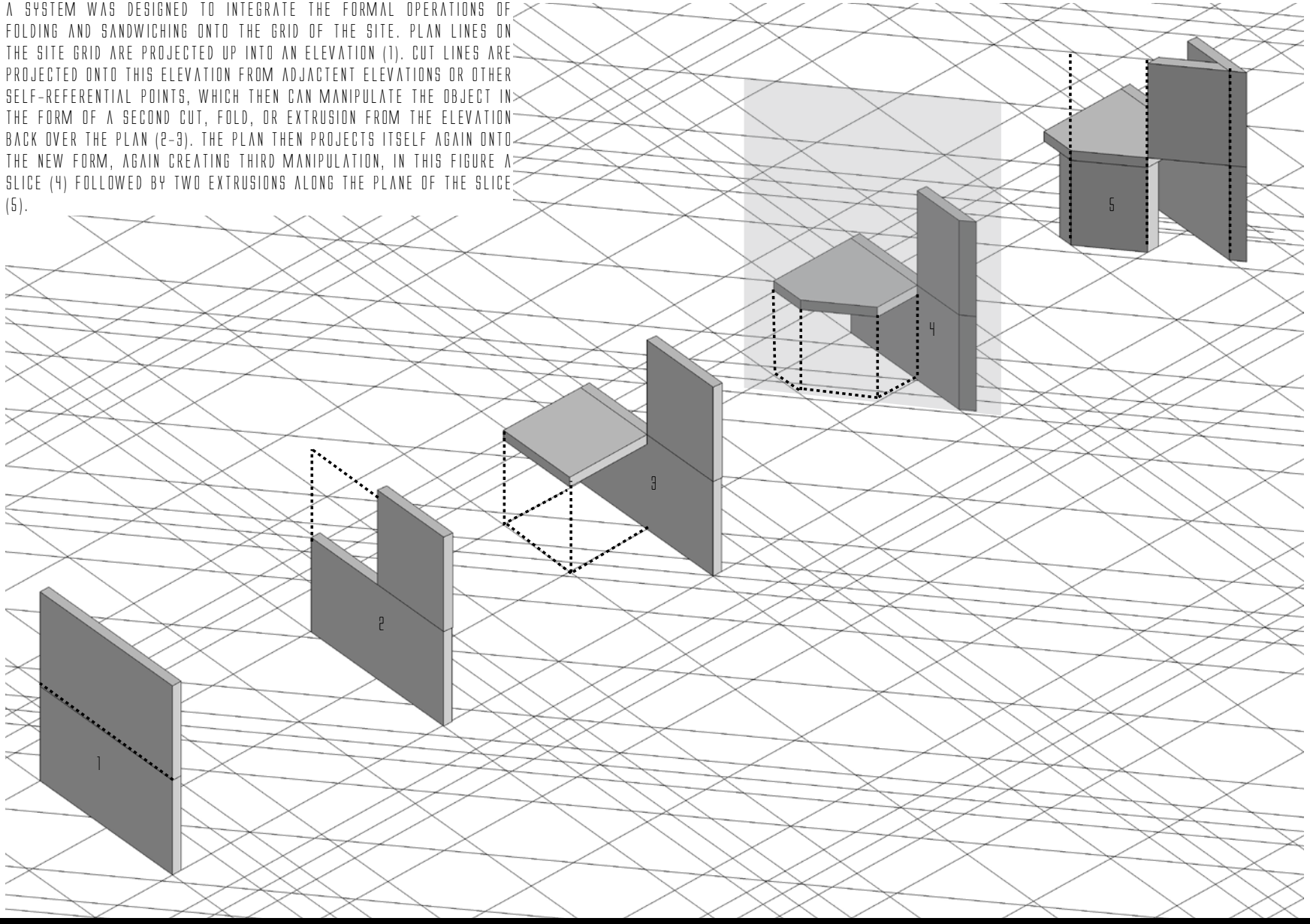
FINAL SITE MODEL

4: SPORTS COMPLEX / FORMAL INTEGRATION

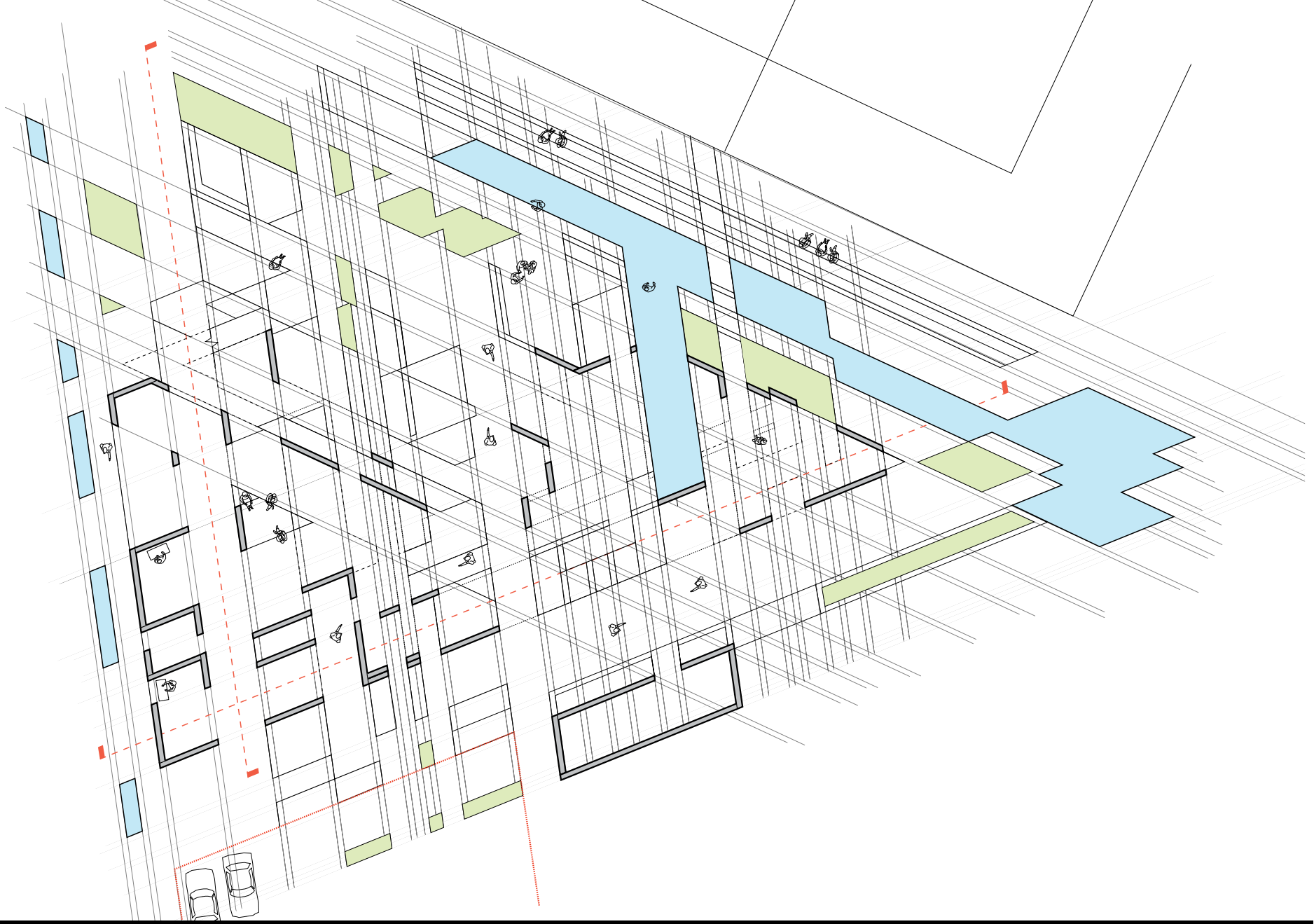
AFTER FINALIZING OVERALL SITE STRATEGY, THE DEVELOPMENT OF THE SPORTS CENTER AT CLOSER SCALE BEGAN. THE MOST CHALLENGING ASPECT WAS RE-INCORPORATING THE FORMAL TECHNIQUES AND RULES THAT WORK IN ORTHAGONAL FORMS INTO THE TRIANGULAR GRID.

USING THE GRID AS A PROJECTOR OF CUT-AND-FOLD LINES, THE FORMAL DEVELOPMENT OF THE SPORTS CENTER ITSELF BEGAN IN TANDEM WITH THE PROGRAM PLAN, WITH MORE PRIVATE/INDUSTRIAL PROGRAM OCCUPYING THE STRICTER GEOMETRIES AND LARGER MASSES OF THE GRADIENT, AND MORE PUBLIC, OPEN PROGRAM OCCUPYING THE FLATTER, MORE FRAGMENTED ZONES OF THE SITE.

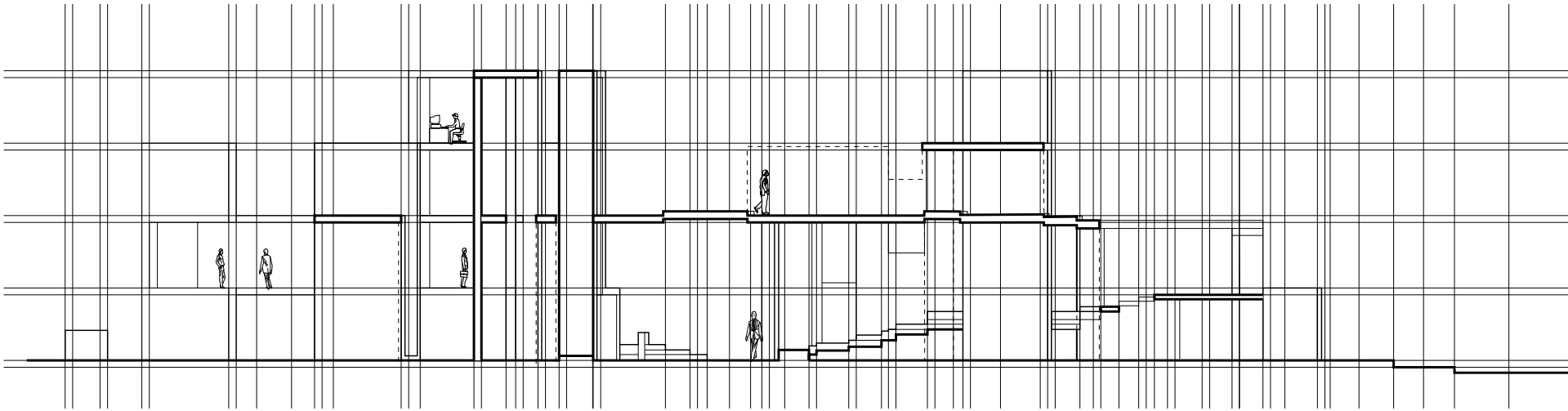
A SYSTEM WAS DESIGNED TO INTEGRATE THE FORMAL OPERATIONS OF FOLDING AND SANDWICHING ONTO THE GRID OF THE SITE. PLAN LINES ON THE SITE GRID ARE PROJECTED UP INTO AN ELEVATION (1). CUT LINES ARE PROJECTED ONTO THIS ELEVATION FROM ADJACENT ELEVATIONS OR OTHER SELF-REFERENTIAL POINTS, WHICH THEN CAN MANIPULATE THE OBJECT IN THE FORM OF A SECOND CUT, FOLD, OR EXTRUSION FROM THE ELEVATION BACK OVER THE PLAN (2-3). THE PLAN THEN PROJECTS ITSELF AGAIN ONTO THE NEW FORM, AGAIN CREATING THIRD MANIPULATION, IN THIS FIGURE A SLICE (4) FOLLOWED BY TWO EXTRUSIONS ALONG THE PLANE OF THE SLICE (5).

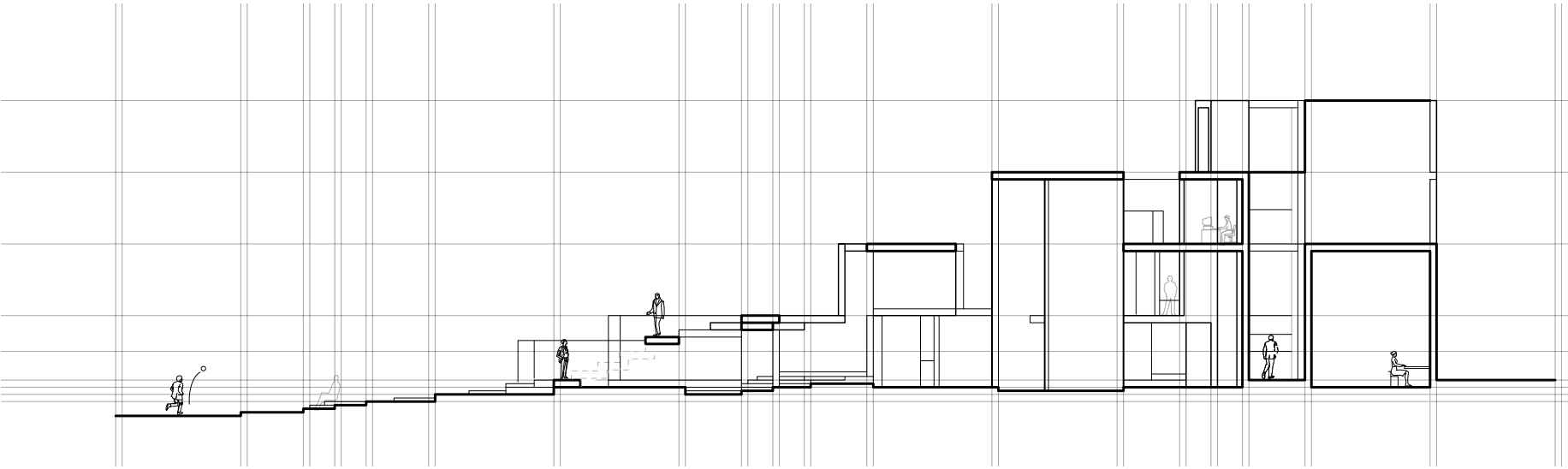


FORMAL INTEGRATION DIAGRAM

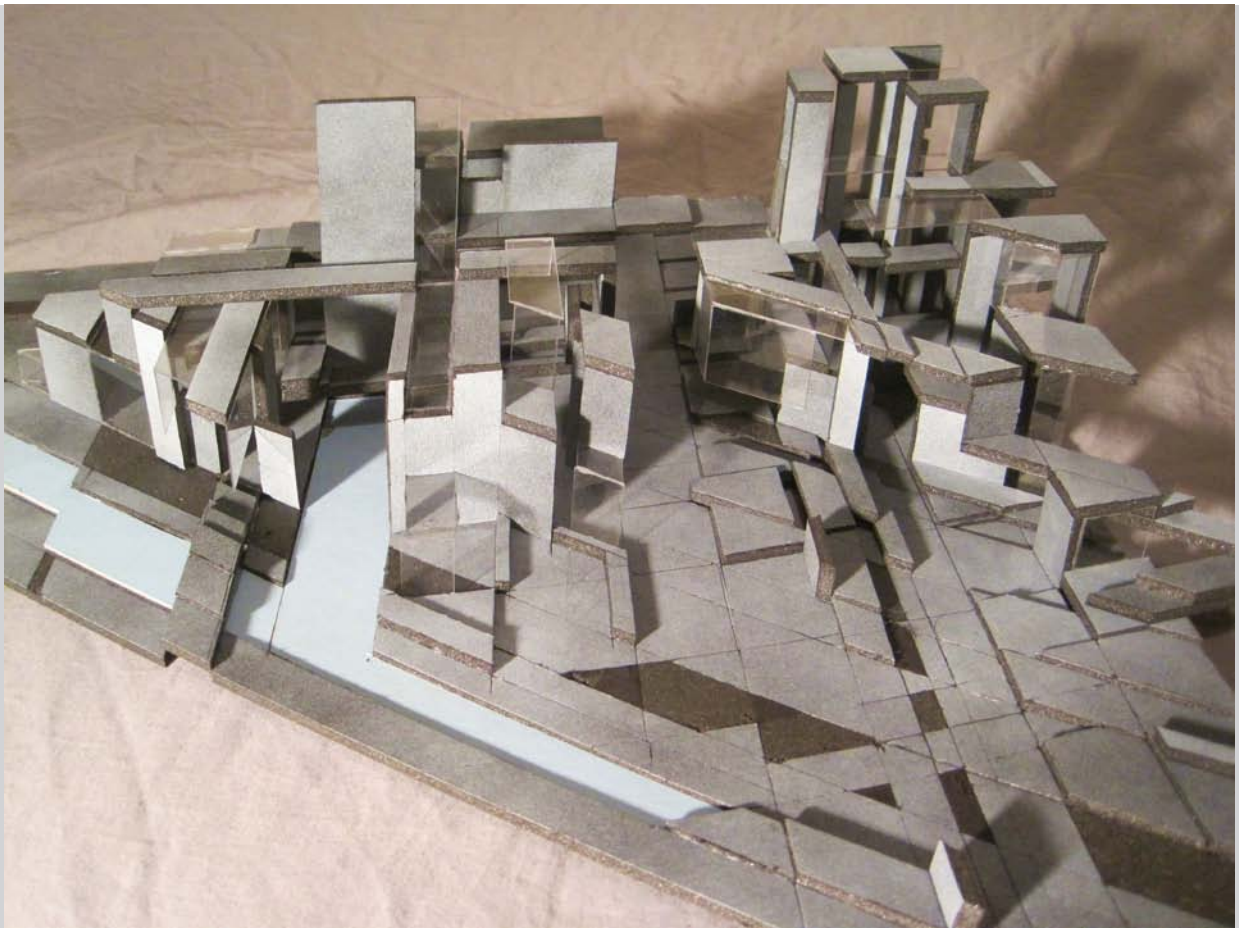


SPORTS CENTER - FLOOR PLAN

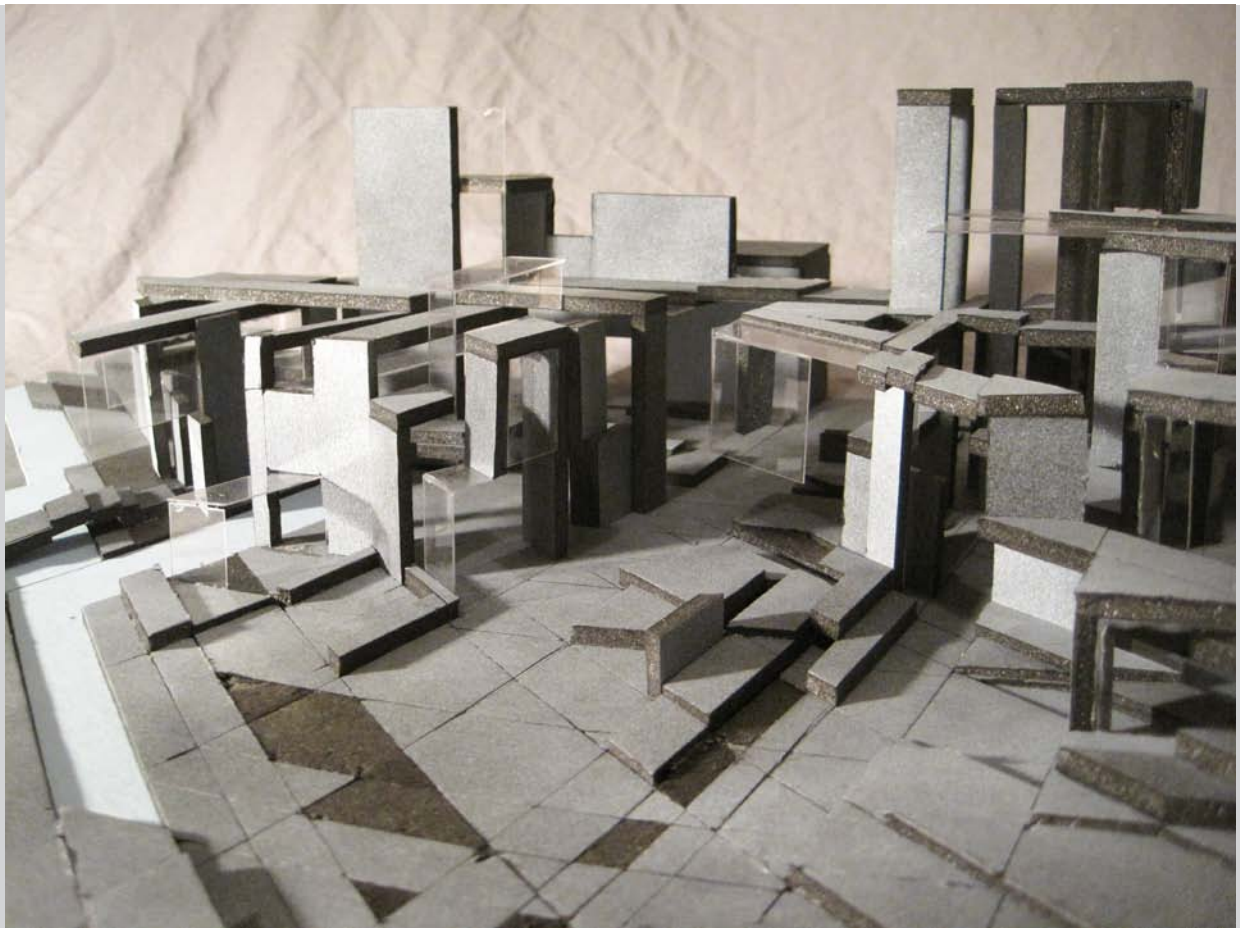




SPORTS CENTER - SECTIONS

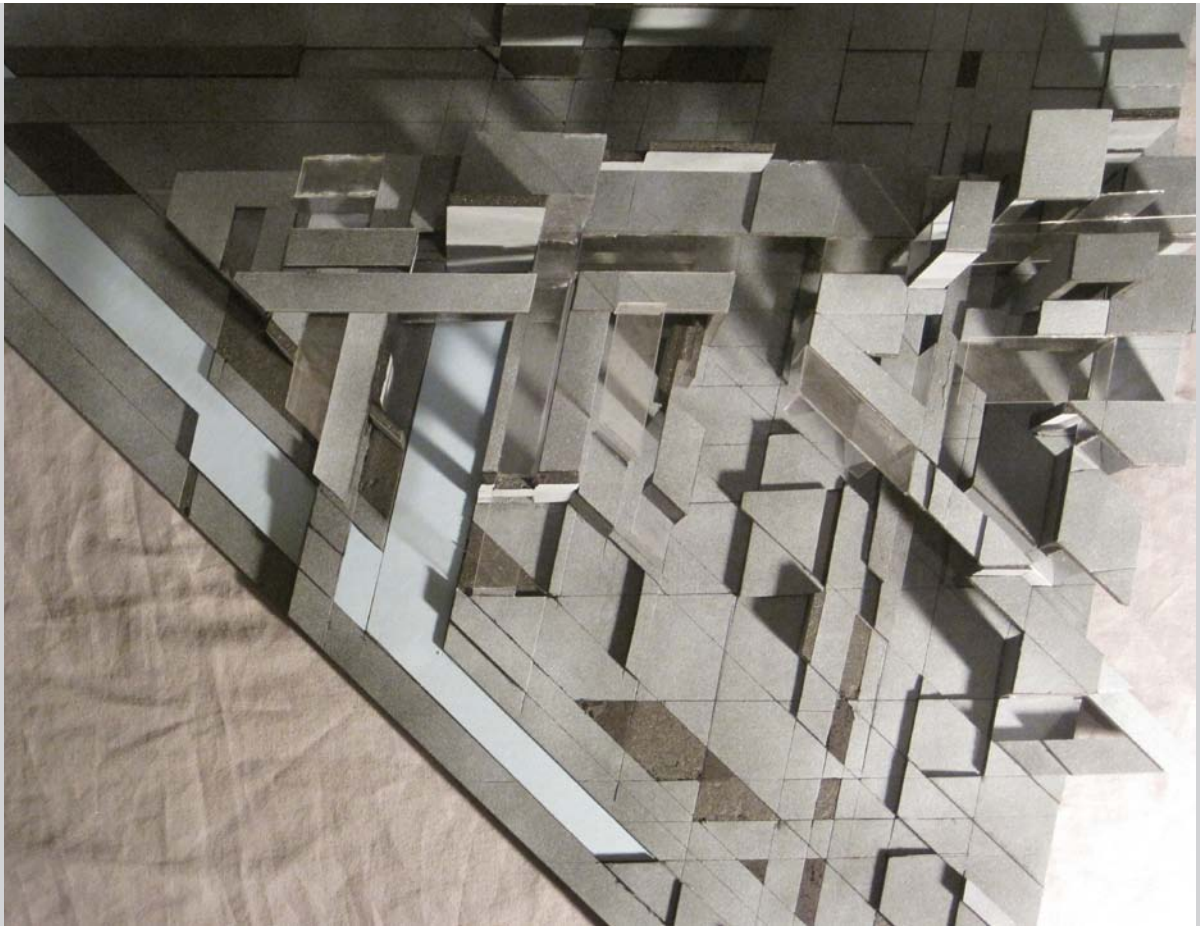


SPORTS CENTER – BIRD'S-EYE VIEW

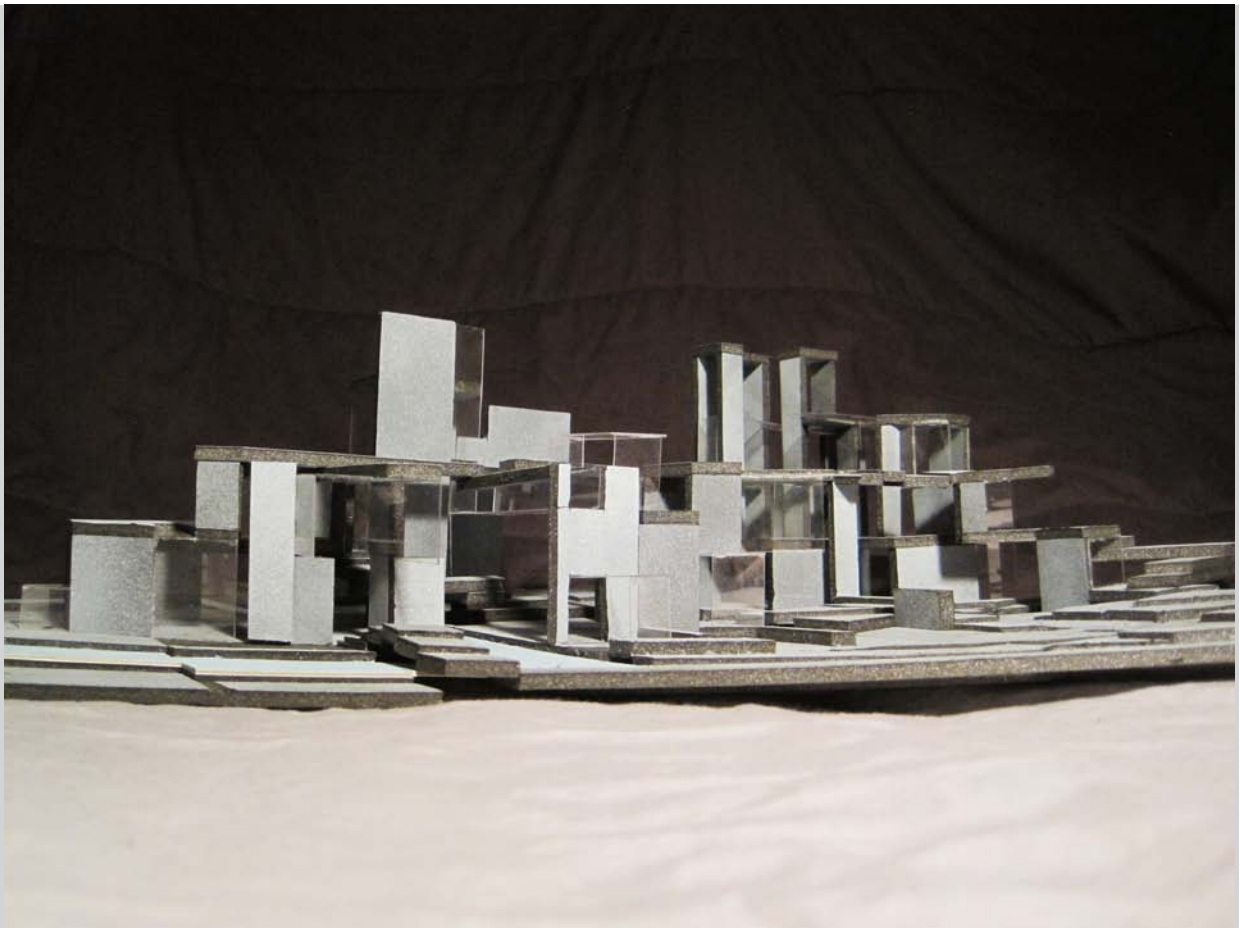


SPORTS CENTER - SOUTHEAST VIEW

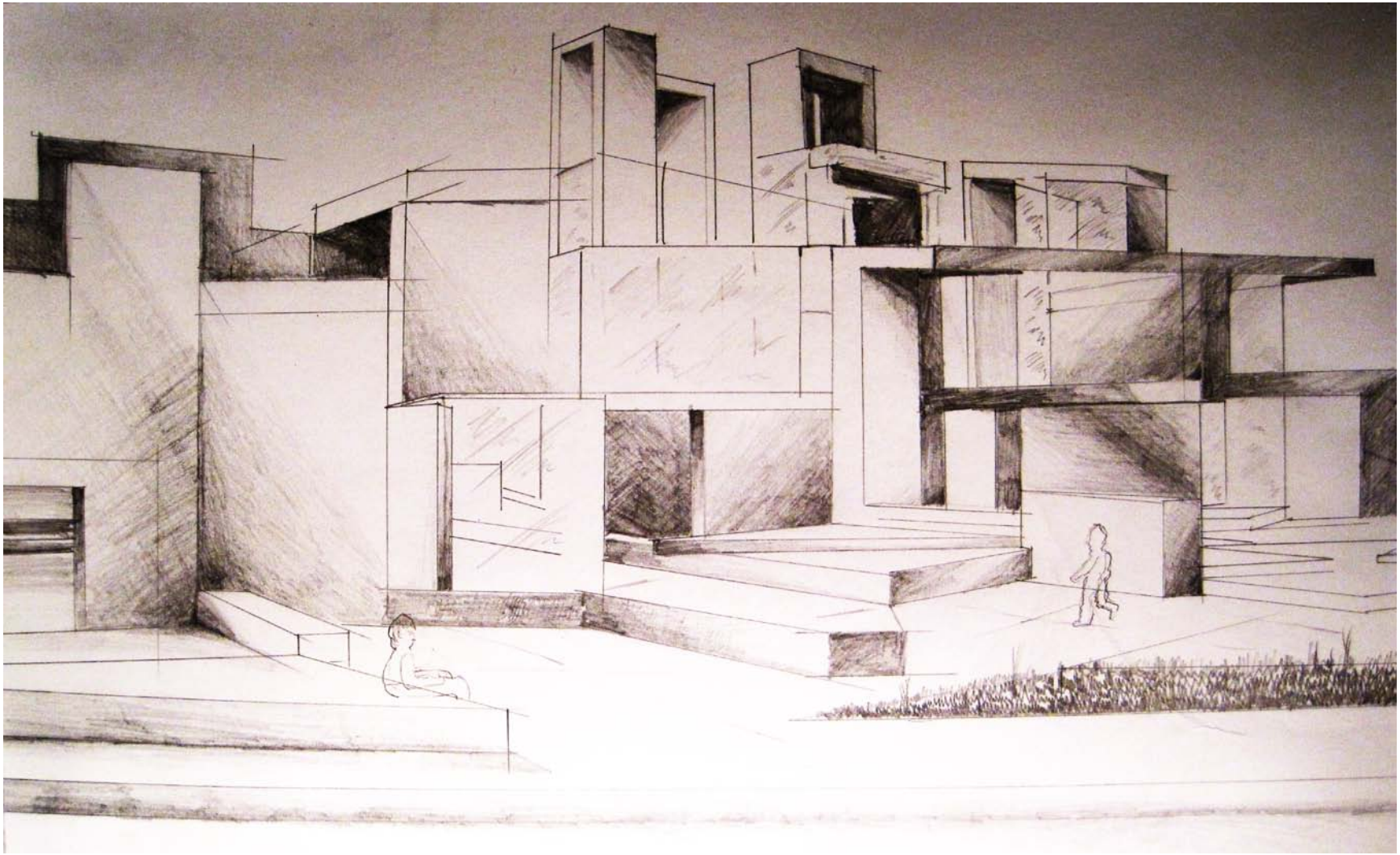
SPORTS CENTER – DETAIL VIEWS



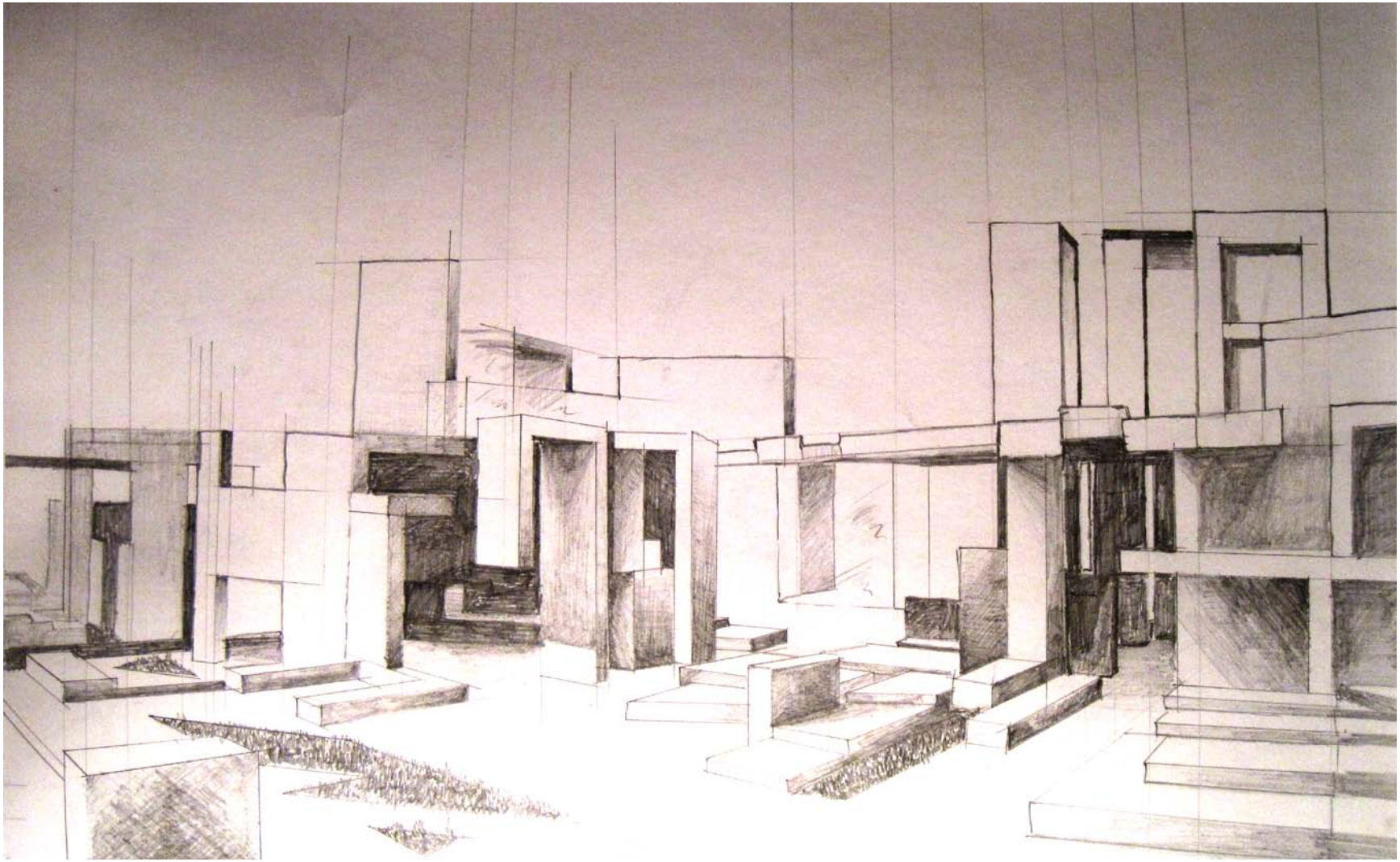
SPORTS CENTER – PLAN VIEW



SPORTS CENTER – SOUTHWEST VIEW



SPORTS CENTER – EXPERIENTIAL RENDERINGS



SPORTS CENTER – EXPERIENTIAL RENDERINGS

- MOM AND DAD
- VICTORIA COALOA
- PEERS AND PROFESSORS

SPECIAL THANKS