PORTFOLIO

Felix Novoa Cordova

M.Sc. Resource Efficient and Sustainable Building /
Architecture & Sustainability

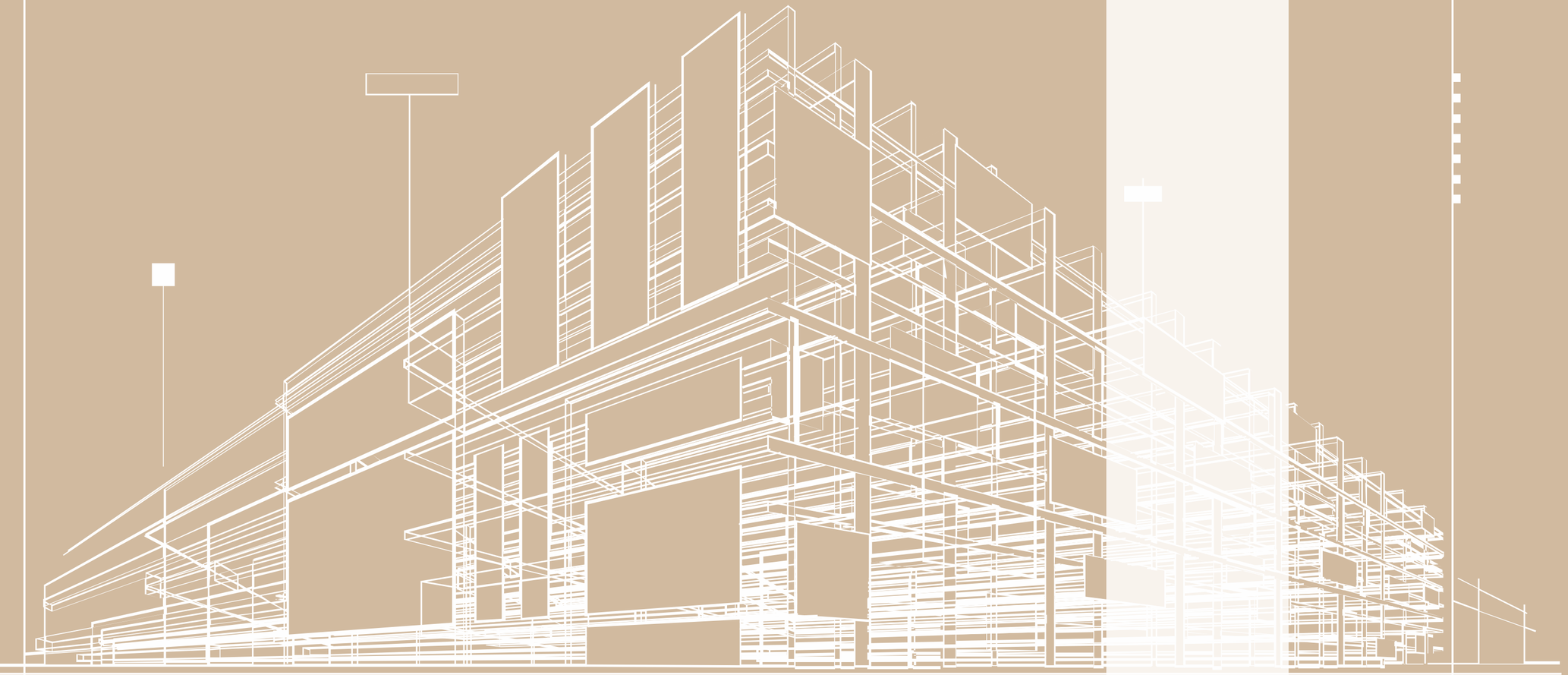
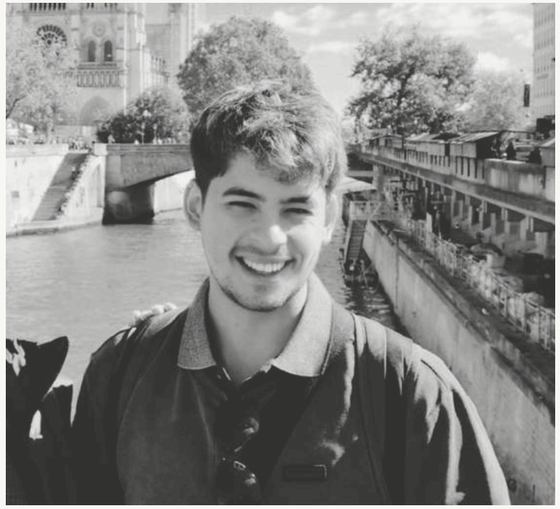


TABLE OF CONTENTS

PROFILE

"I AM A MULTILINGUAL ARCHITECT AND SUSTAINABILITY CONSULTANT WHO RECENTLY COMPLETED MY MASTER'S THESIS IN RESOURCE EFFICIENT AND SUSTAINABLE BUILDING AT THE TECHNICAL UNIVERSITY OF MUNICH (TUM), WITH THE DEGREE PENDING. MY EXPERTISE LIES IN SUSTAINABLE CONSTRUCTION, ENERGY EFFICIENCY, AND LIFE CYCLE ASSESSMENT (LCA). I ALSO HOLD A BACHELOR'S DEGREE IN ARCHITECTURE FROM TUM, WHICH PROVIDED A STRONG FOUNDATION IN DESIGN AND DIGITAL MODELING (BIM). OVER THE PAST YEARS, I HAVE WORKED ON ACADEMIC AND PROFESSIONAL PROJECTS IN GERMANY, ITALY, AND INTERNATIONALLY, COVERING ARCHITECTURAL DESIGN, URBAN CONCEPTS, AND CONSULTING. THIS PORTFOLIO PRESENTS A SELECTION OF MY PROJECTS – FROM ARCHITECTURAL DESIGNS AND MASTER-LEVEL RESEARCH TO PROFESSIONAL CONSULTING WORK – HIGHLIGHTING MY ANALYTICAL, CREATIVE, AND TECHNICAL SKILLS."



MASTER OF SCIENCE

RESOURCE EFFICIENT AND SUSTAINABLE BUILDING
TECHNICAL UNIVERSITY OF MUNICH

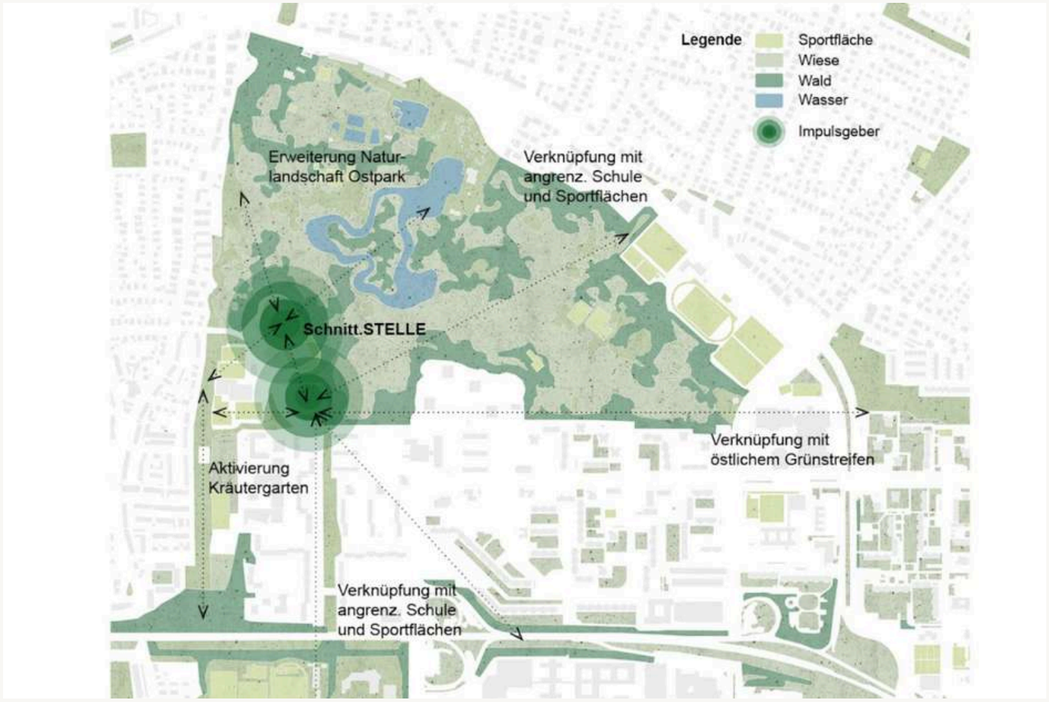
COLLECTION OF WORKS

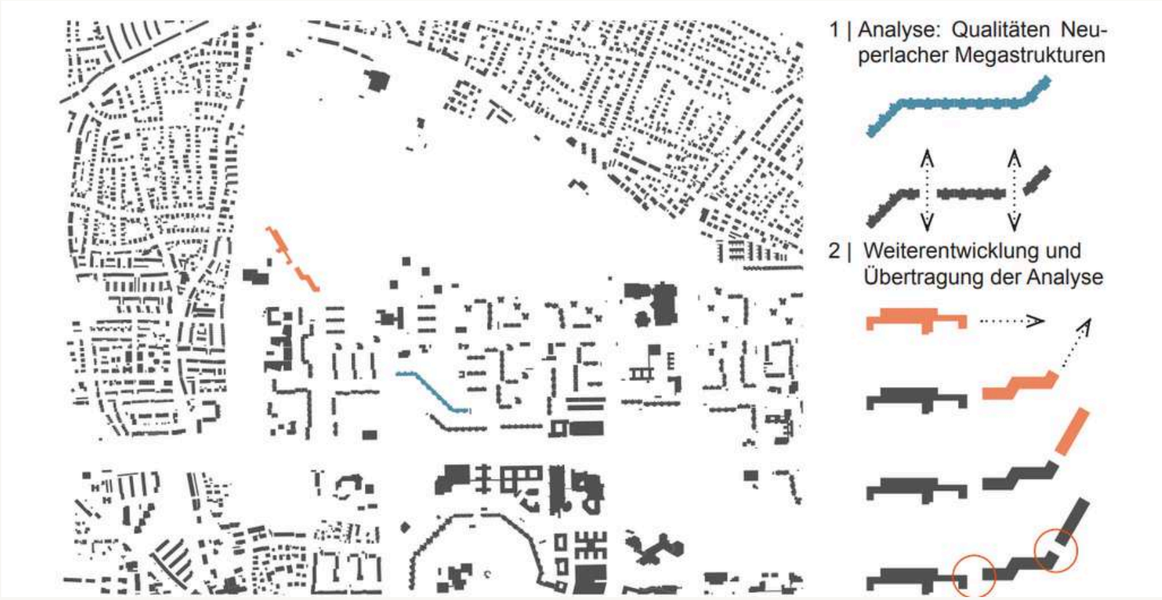
INTERDISCIPLINARY PROJECT – “SCHNITT.STELLE”

THIS PROJECT REIMAGINED THE EIS- UND FUNSPORTZENTRUM OST IN MUNICH AS A NEW URBAN INTERFACE BETWEEN BUILT AND NATURAL ENVIRONMENTS. THE DESIGN PROPOSED THE RENOVATION OF THE EXISTING ICE ARENA, A SUSTAINABLE TIMBER-AND-STRAW-CONSTRUCTED EXTENSION, AND THE CREATION OF MULTI-USE PUBLIC SPACES. EMPHASIS WAS PLACED ON ENERGY EFFICIENCY, REUSE OF EXISTING STRUCTURES, AND INTEGRATION WITH THE SURROUNDING OSTPARK. THE OUTCOME WAS A HOLISTIC MASTERPLAN COMBINING SPORTS, HOUSING, COWORKING, AND CULTURAL ACTIVITIES WITHIN A CLIMATE-RESPONSIVE DESIGN FRAMEWORK.

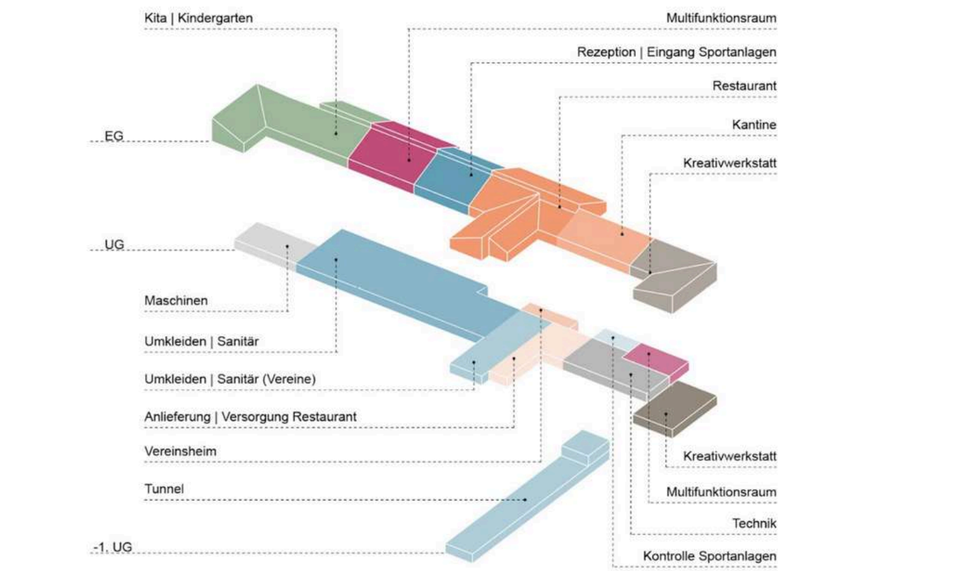
URBAN VISION

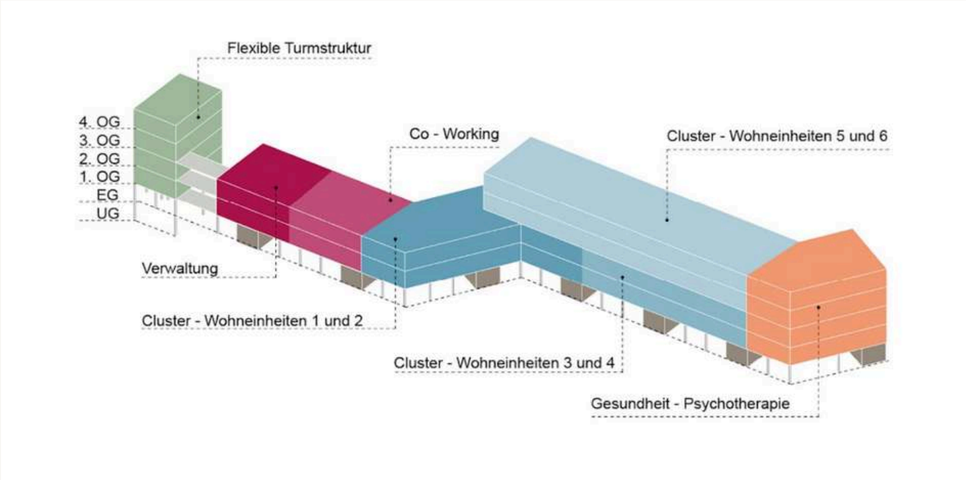
THE PROJECT SITE IN NEUPERLACH, A DISTRICT IN THE SOUTHEAST OF MUNICH, PRESENTED A TYPICAL CHALLENGE OF MODERN SATELLITE TOWNS: FRAGMENTED STRUCTURES, LARGE SEALED SURFACES, AND A WEAK CONNECTION TO THE SURROUNDING NATURAL ENVIRONMENT. THE ICE AND FUN SPORTS CENTER SAT AS AN ISOLATED BLOCK BETWEEN THE DENSE RESIDENTIAL AREAS OF RAMERSDORF AND THE VIBRANT OSTPARK, FAILING TO FUNCTION AS AN INTEGRATED PART OF THE URBAN FABRIC. OUR DESIGN ADDRESSED THIS DISCONNECT BY POSITIONING THE PROJECT AS A SCHNITT.STELLE – A POINT OF INTERSECTION WHERE BUILT AND NATURAL SYSTEMS MERGE. THE CONCEPT EMPHASIZED PERMEABILITY, ECOLOGICAL RENEWAL, AND MULTIFUNCTIONALITY. BY TRANSFORMING THE SEALED GROUNDS INTO ACCESSIBLE GREEN CORRIDORS, LINKING THE PROGRAM TO THE OSTPARK, AND CREATING SPACES FOR BOTH WINTER AND SUMMER ACTIVITIES, THE PROJECT INTRODUCED A NEW KIND OF URBAN LANDMARK: ONE THAT IS AT ONCE ECOLOGICAL, SOCIAL, AND ARCHITECTURAL.





ARCHITECTURAL APPROACH

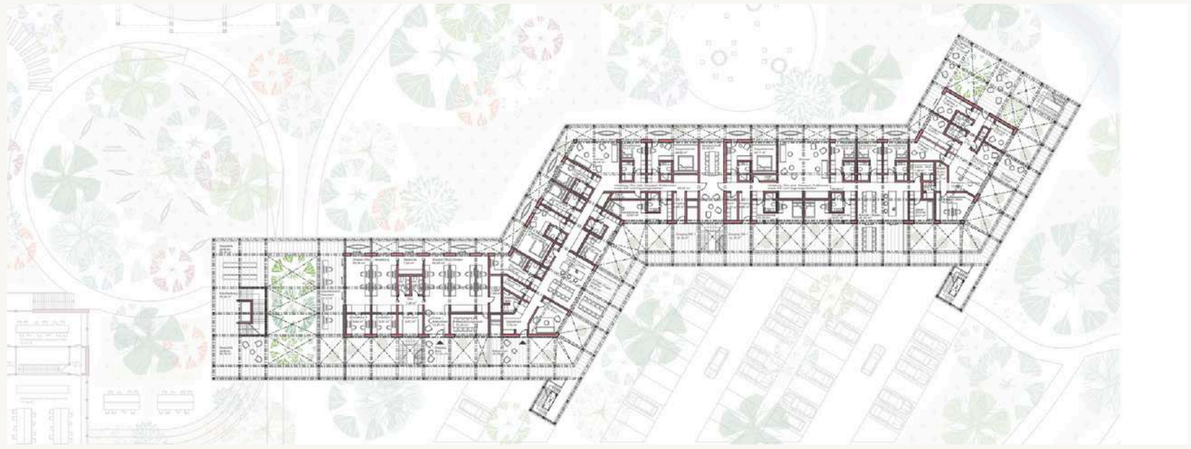


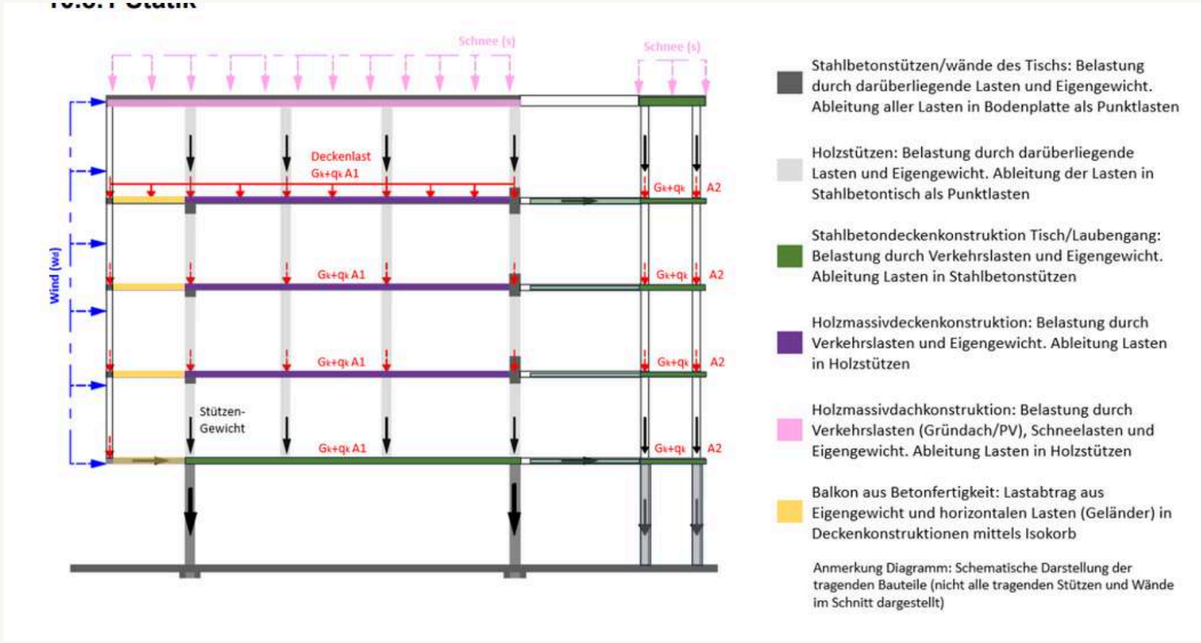


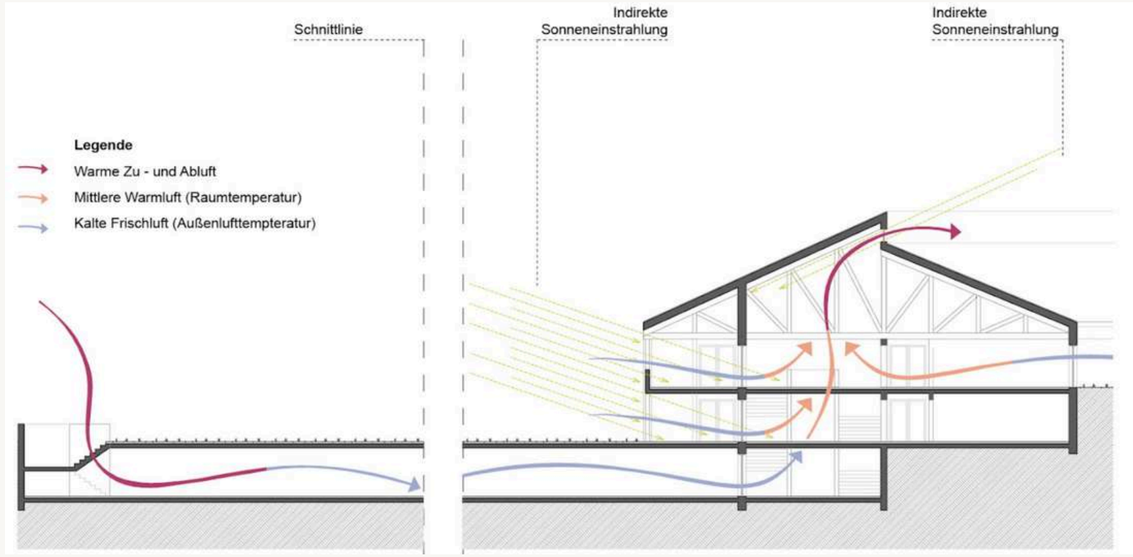
AT THE HEART OF THE PROPOSAL WAS THE DUAL STRATEGY OF REVITALIZING THE EXISTING ICE ARENA AND INTRODUCING A NEW ELEVATED TIMBER BUILDING. THE ICE RINK, PREVIOUSLY UNCOVERED AND HIGHLY ENERGY-INTENSIVE, WAS RETHOUGHT WITH A DISTINCTIVE NORTH-FACING SHEDDACH ROOF. THIS ALLOWED FOR REDUCED SOLAR HEAT GAIN ON THE ICE SURFACE WHILE PROVIDING NATURAL VENTILATION AND PHOTOVOLTAIC INTEGRATION. THE EXISTING CONCRETE BUILDING, LARGELY UNDERUSED, WAS CAREFULLY RENOVATED RATHER THAN DEMOLISHED, PRESERVING ITS STRUCTURAL VALUE AND ADAPTING ITS INTERIORS FOR FLEXIBLE PROGRAMS SUCH AS A KINDERGARTEN, COMMUNITY WORKSHOPS, AND CULTURAL USES. SOUTH OF THE SITE, THE FORMER PARKING LOT WAS REINTERPRETED AS THE BASE FOR A NEW TIMBER-AND-STRAW STRUCTURE. ELEVATED ON A "CONCRETE TABLE," THIS NEW VOLUME CONTAINED CLUSTER HOUSING, COWORKING AREAS, AND MEDICAL PRACTICES, WHILE LEAVING THE GROUND LEVEL ADAPTABLE FOR CHANGING MOBILITY SCENARIOS. TOGETHER, THESE INTERVENTIONS CREATED A LAYERED ARCHITECTURAL ENSEMBLE WHERE REUSE, LOW-CARBON CONSTRUCTION, AND COMMUNITY-ORIENTED DESIGN STOOD IN BALANCE.

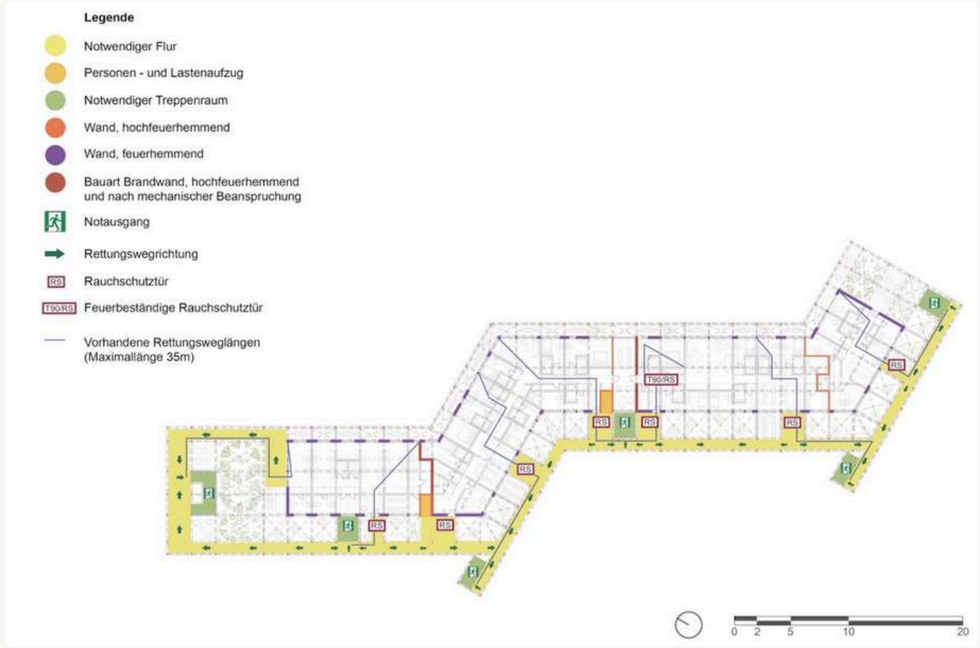
CONSTRUCTION AND SUSTAINABILITY

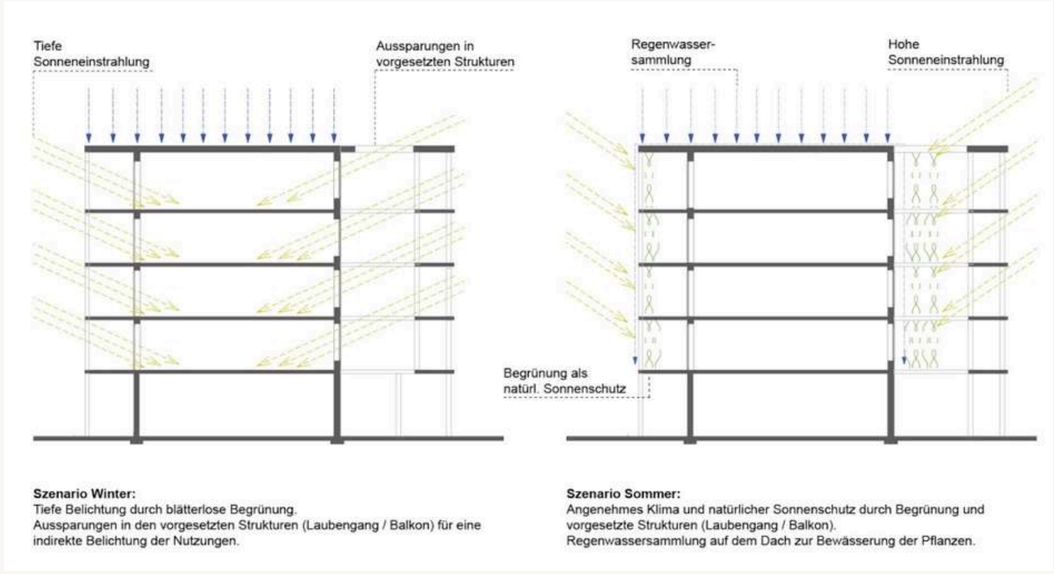
THE DESIGN APPROACH STRONGLY PRIORITIZED ECOLOGICAL BUILDING METHODS. THE NEW CONSTRUCTION RELIED ON A TIMBER SKELETON STRUCTURE WITH PREFABRICATED STRAW INSULATION MODULES, FINISHED WITH CLAY AND LIME PLASTERS TO ACHIEVE BOTH THERMAL COMFORT AND MATERIAL BREATHABILITY. THIS COMPOSITION PROVIDED EXCELLENT ENERGY PERFORMANCE WITH LOW EMBODIED CARBON, ALIGNING WITH PRINCIPLES OF CIRCULARITY AND HEALTHY INDOOR ENVIRONMENTS. THE EXISTING BUILDING, ORIGINALLY CONSTRUCTED IN REINFORCED CONCRETE, WAS UPGRADED THROUGH SELECTIVE INSULATION WITH NATURAL MATERIALS, OPTIMIZED DAYLIGHT OPENINGS, AND AN INNOVATIVE PASSIVE VENTILATION STRATEGY. THIS COMBINATION OF REFURBISHMENT AND LOW-IMPACT NEW CONSTRUCTION EMBODIED THE PROJECT'S PHILOSOPHY: NEVER DEMOLISH WHERE VALUE REMAINS, AND ALWAYS BUILD WITH FUTURE DISMANTLING AND REUSE IN MIND. BY APPLYING THESE STRATEGIES, THE DESIGN NOT ONLY REDUCED THE OPERATIONAL ENERGY DEMAND BUT ALSO DEMONSTRATED HOW CONSTRUCTION ITSELF COULD BECOME A POSITIVE CONTRIBUTOR TO ECOLOGICAL BALANCE.





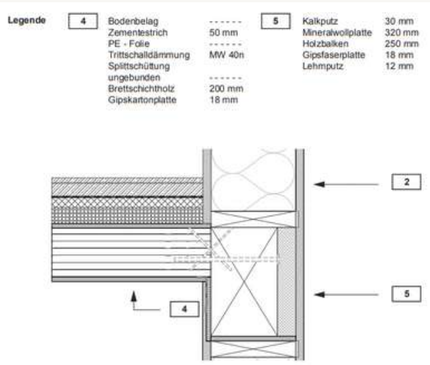




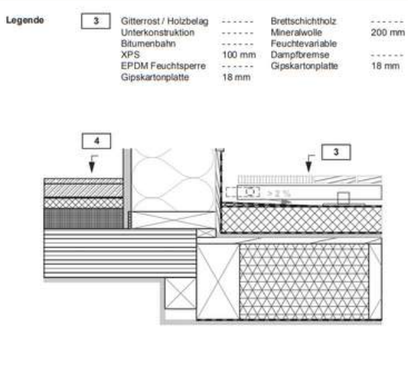


Szenario Winter:
Tiefe Belichtung durch blätterlose Begrünung.
Aussparungen in den vorgesetzten Strukturen (Laubengang / Balkon) für eine indirekte Belichtung der Nutzungen.

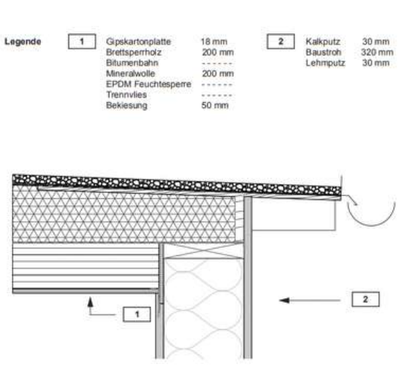
Szenario Sommer:
Angenehmes Klima und natürlicher Sonnenschutz durch Begrünung und vorgesetzte Strukturen (Laubengang / Balkon).
Regenwassersammlung auf dem Dach zur Bewässerung der Pflanzen.



Neubau Detail _ Geschossdecke an Außenwand | M 1:10

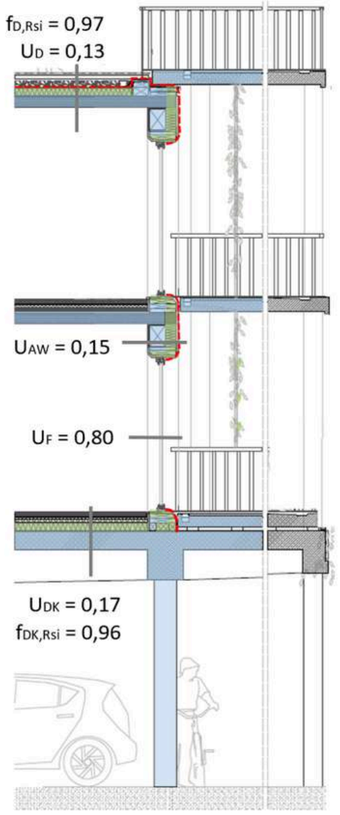


Neubau Detail _ Anschluss Dachterrasse (über 2. Obergeschoss) | M 1:10



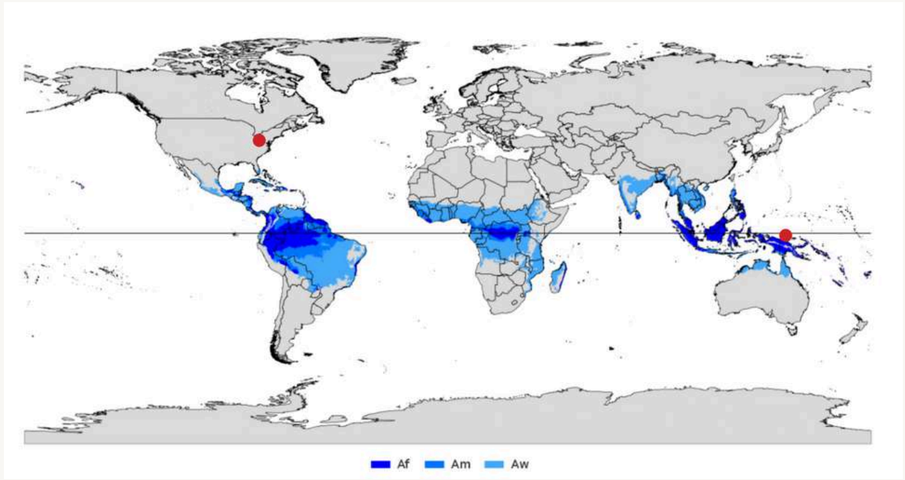
Neubau Detail _ Dach - Wand (4. Obergeschoss) | M 1:10

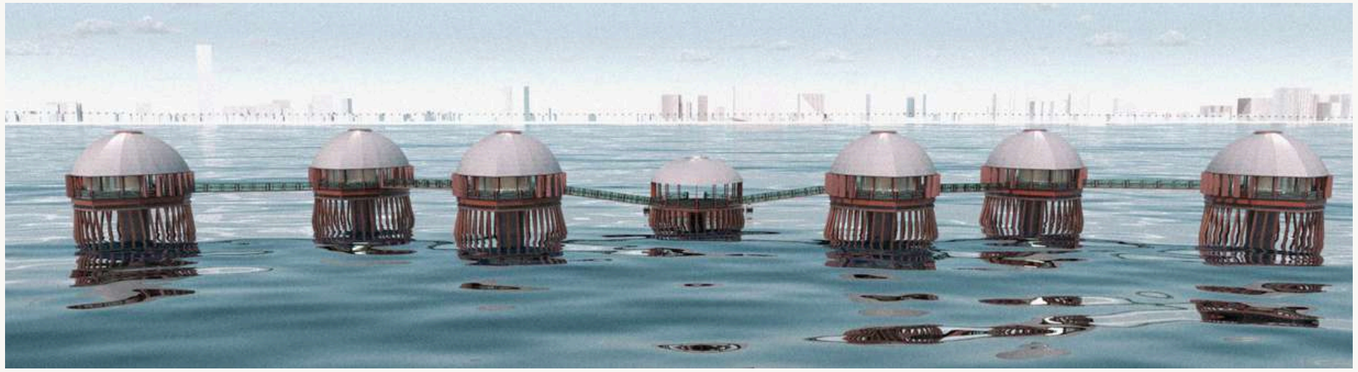
Neubau _ Fassadenschnitt - und ansicht | M 1:25



SWIM I AM (I)

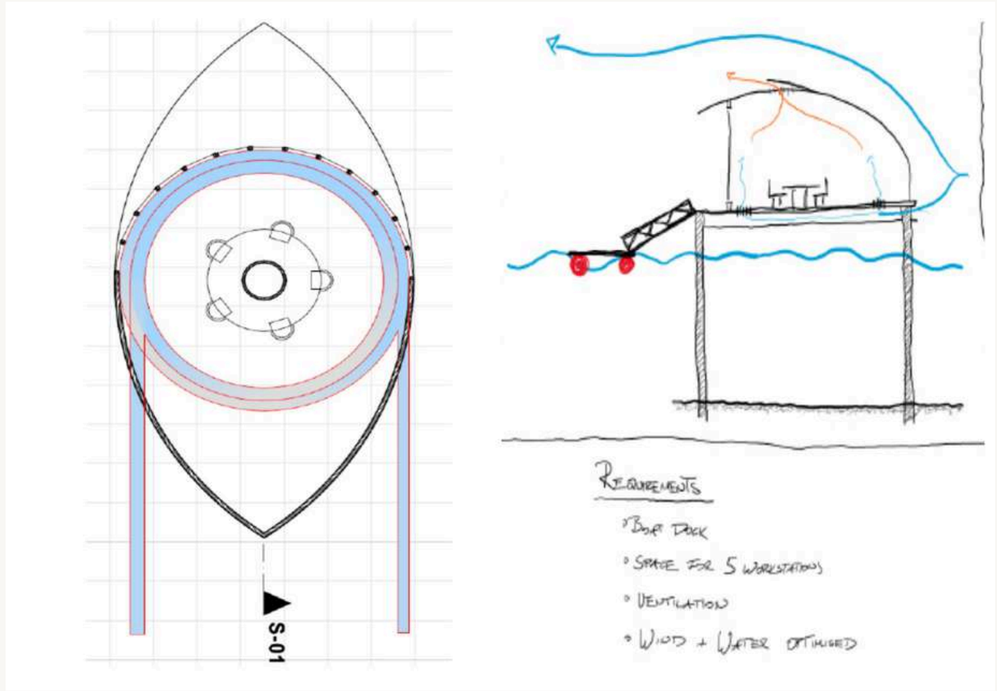
SWIM I AM (I) EXPLORES HOW VERNACULAR INTELLIGENCE CAN SHAPE FUTURE-READY REMOTE-WORKING SPACES ON MIAMI BEACH. SET BETWEEN OCEAN AND CITY, THE PROJECT REFRAMES A WORK HABITAT AS AN AMPHIBIOUS CIVIC DEVICE, ONE THAT DRAWS CULTURAL CUES FROM ART DECO, MIMO, AND MEDITERRANEAN REVIVAL WHILE ANSWERING THE PRESSING REALITIES OF HEAT, HUMIDITY, HURRICANES, AND SEA-LEVEL RISE. RATHER THAN A SEALED, ENERGY-HUNGRY BOX, THE PROPOSAL IS A CLIMATE-RESPONSIVE WORKSPACE THAT PRIVILEGES SHADE, AIR MOVEMENT, AND ADAPTABLE PROGRAM. ELEVATED ABOVE WATER ON RESILIENT PILES, THE STRUCTURE LEVERAGES MARITIME BREEZES, MODULAR CONSTRUCTION, AND LOW-CARBON SYSTEMS TO CREATE A LIGHTWEIGHT, DURABLE PLATFORM FOR FOCUSED WORK, SMALL TEAMS, AND COMMUNITY USE. THE RESULT IS A COMPACT, SELF-SUFFICIENT MICRO-CAMPUS—WORKPLACES, SHARED TERRACES, AND CONTEMPLATIVE EDGES—WHERE TECHNICAL PERFORMANCE AND SENSORY COMFORT REINFORCE EACH OTHER.

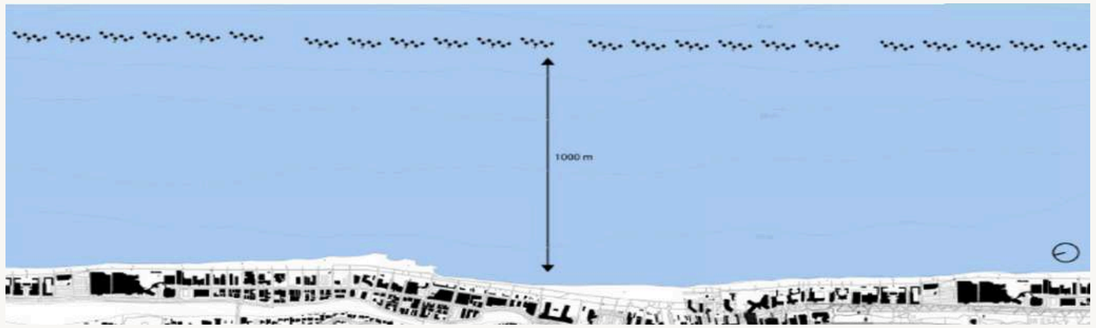


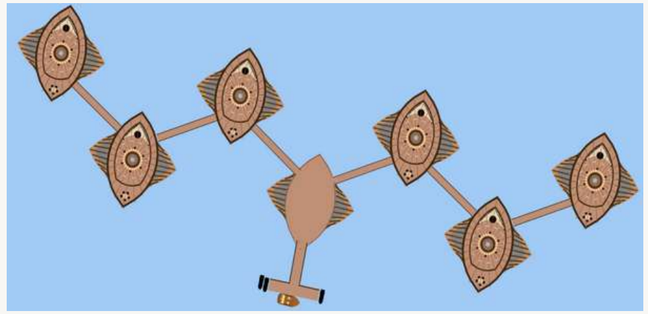


SITE & CLIMATE INTELLIGENCE

THE SITING STRATEGY TREATS MIAMI'S COAST AS BOTH RESOURCE AND RISK. PREVAILING EASTERLIES, HIGH HUMIDITY, A PRONOUNCED WET SEASON, AND SALINE AIR DICTATE A BUILDING THAT BREATHES, SHEDS HEAT, AND RESISTS CORROSION. WIND STUDIES AND SKY-DOME ANALYSES DROVE AN EAST-OPEN, LEEWARD-SHELTERED PLAN THAT CAPTURES SEA BREEZES WHILE SHIELDING FAÇADES FROM WIND PRESSURE SPIKES. A LIFTED DECK KEEPS THE PROGRAM CLEAR OF STORM SURGE AND ALLOWS CONTINUOUS AIRFLOW BENEATH, TEMPERING THE MICROCLIMATE. SHADING IS CONCEIVED AS A LAYERED CANOPY—DEEP OVERHANGS, SCREENS, AND A SHAPED ROOF THAT INDUCES WIND SUCTION TO EXHAUST HOT AIR. DAYLIGHT MODELLING SET AN ENVELOPE THAT BALANCES GLARE CONTROL WITH A HIGH UDI BAND FOR LAPTOP-BASED WORK. MATERIALS AND COATINGS ARE SPECIFIED FOR SALT TOLERANCE; SERVICE ZONES ARE CONSOLIDATED TO SIMPLIFY MAINTENANCE IN A MARINE ENVIRONMENT. IN SHORT, CLIMATE IS NOT AN AFTERTHOUGHT BUT THE GENERATOR OF FORM, SECTION, AND DETAIL.

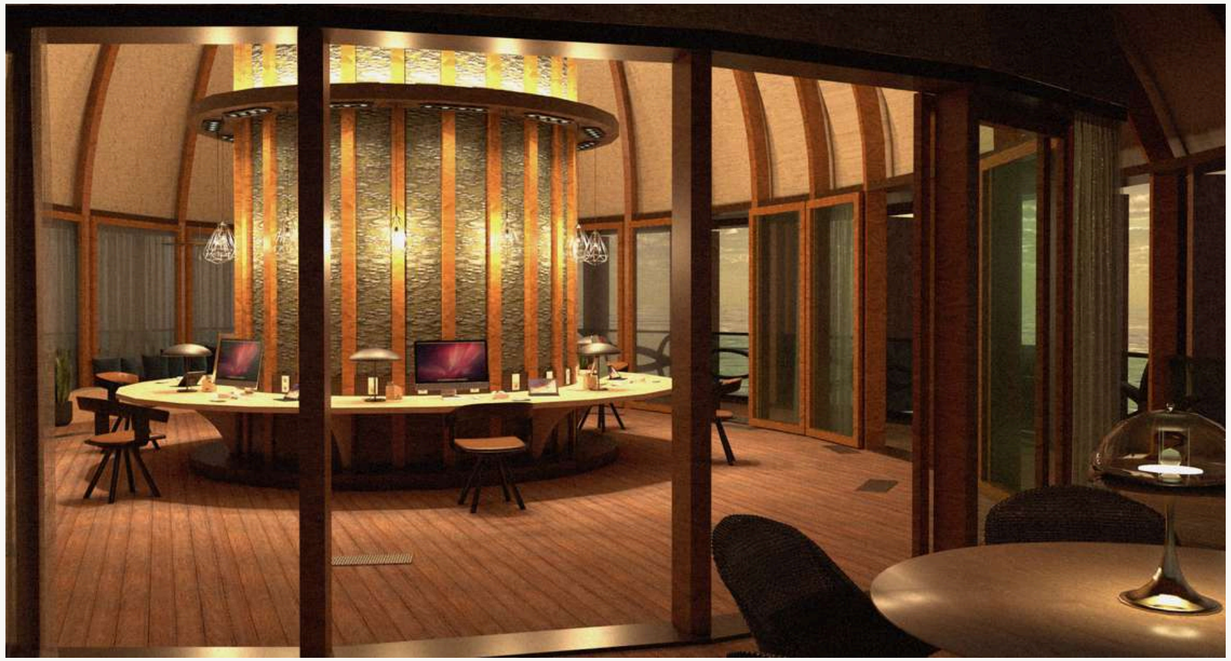


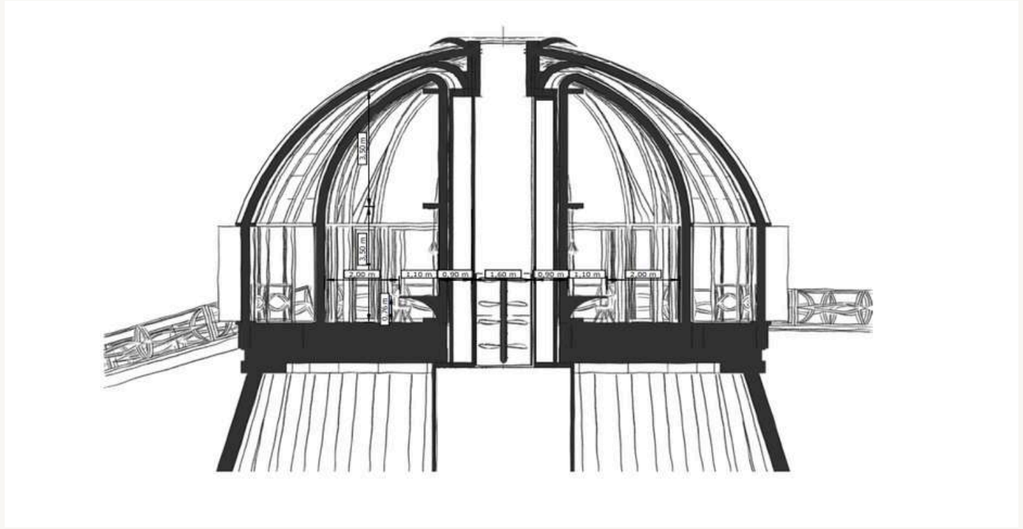




VERNACULAR → MODERN DESIGN LOGIC

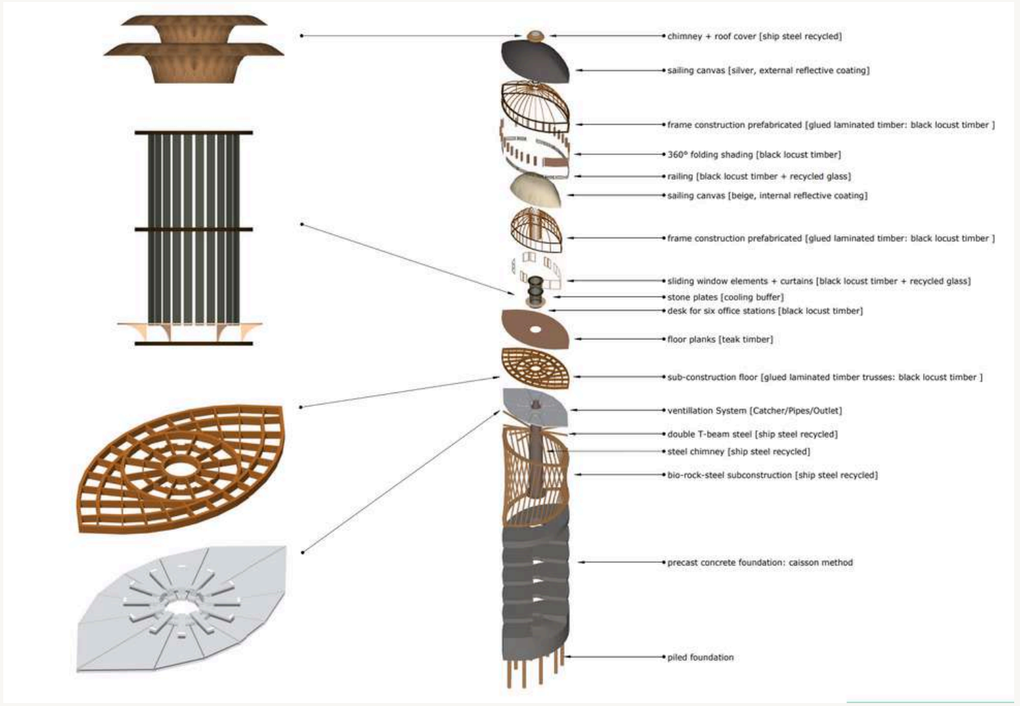
THE ARCHITECTURE TRANSLATES SUBTROPICAL VERNACULAR LESSONS INTO A CONTEMPORARY WORKSPACE TYPOLOGY. HIGH, VENTILATING ROOFS; GENEROUS VERANDAS; POROUS EDGES; AND STILTED STRUCTURES—SEEN FROM QUEENSLANDERS TO CHICKEE HUTS AND AMAZONIAN PALAFITAS—INFORMED A BUILDING THAT IS LIGHT, ELEVATED, AND CROSS-VENTILATED. CURVED OUTER WALLS REDUCE WIND DRAG AND DISTRIBUTE LOADS, WHILE A SPLIT, TENT-LIKE ROOF AMPLIFIES STACK EFFECT AND ADMITS SOFT, CONTROLLED LIGHT FROM THE WEST. OPEN FLOOR PLATES ENABLE MULTIPLE WORK MODES—QUIET NOOKS, COLLABORATIVE BENCHES, SHADED OUTDOOR "PORCHES"—WITH SLIDING SCREENS THAT TUNE EXPOSURE THROUGH THE DAY. WHERE THE MIAMI TRADITION CELEBRATES COLOR AND ORNAMENT, THIS PROJECT CHANNELS THAT SPIRIT INTO PERFORMATIVE SURFACES: LOUVERS, PERFORATED PANELS, AND RIBBED SOFFITS THAT ARE BEAUTIFUL BECAUSE THEY WORK. THE RESULT IS NEITHER NOSTALGIC NOR PURELY TECHNOLOGICAL; IT IS A CALIBRATED HYBRID THAT FEELS LOCAL IN CHARACTER AND GLOBAL IN PERFORMANCE.

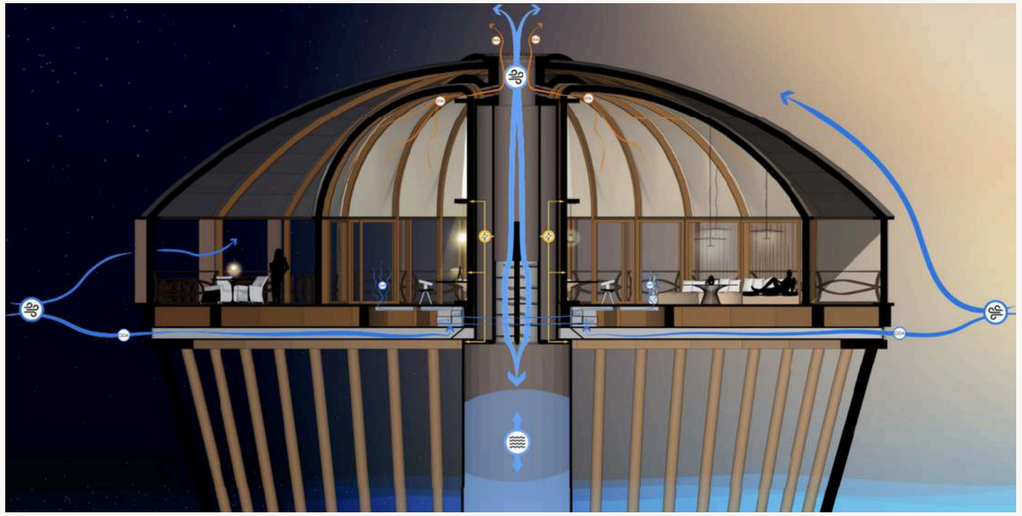


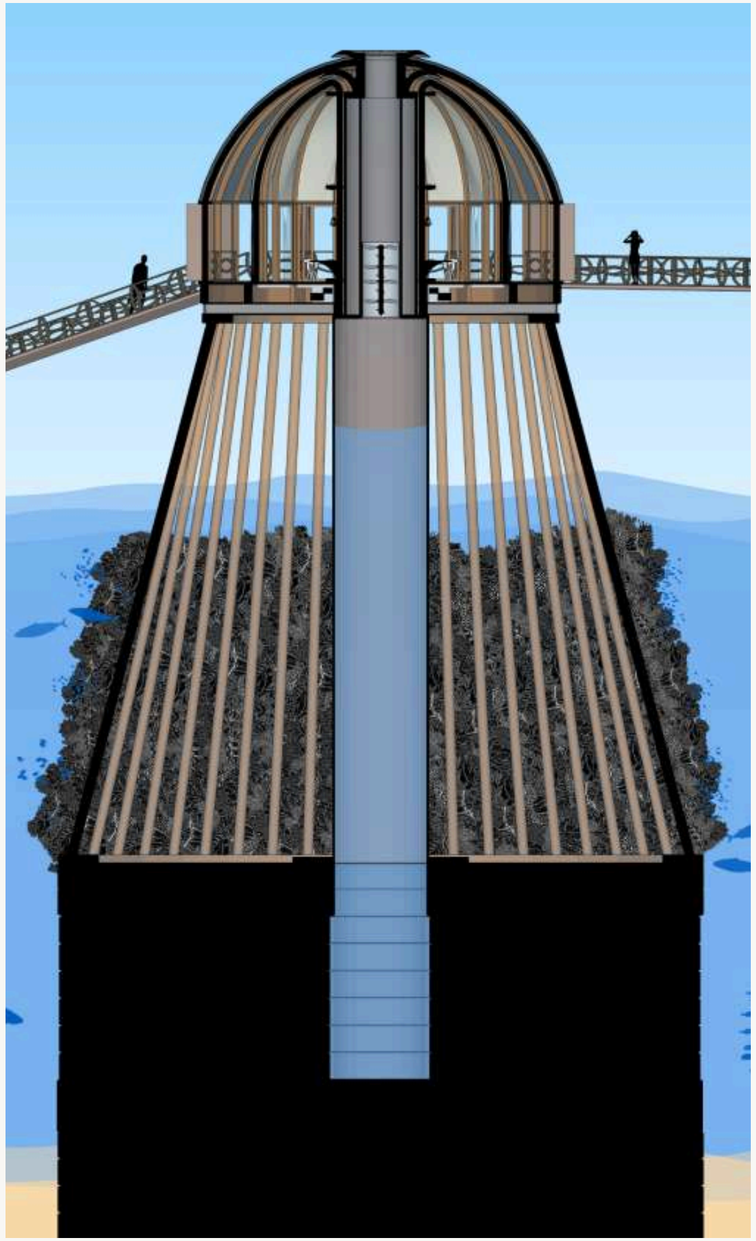


STRUCTURE, ENERGY & ECOLOGY

A CORROSION-PROTECTED STEEL PRIMARY FRAME SPANS BETWEEN HIGH PILES DRIVEN OFFSHORE, DELIVERING STIFFNESS AGAINST UPLIFT WHILE MINIMIZING SEABED DISTURBANCE. ABOVE, A LIGHTWEIGHT ENVELOPE PAIRS MARINE-GRADE METALS WITH DURABLE WOODS (E.G., TEAK OR BLACK LOCUST IN WEAR ZONES) AND INTERIOR CLAY PLASTERS FOR MOISTURE BUFFERING AND ACOUSTIC CALM. THE ENERGY CONCEPT COUPLES ROOF-INTEGRATED PHOTOVOLTAICS WITH WAVE-ENERGY MICRO-TURBINES SET WITHIN THE BREAKWATER, COVERING CORE LOADS FOR LAPTOPS, LIGHTING, AND CONNECTIVITY WHILE ENABLING BATTERY-BACKED AUTONOMY. VENTILATION IS PRIMARILY PASSIVE—ROOF GEOMETRY AND OPERABLE INLETS ESTABLISH A RELIABLE AIR PATH—SUPPLEMENTED BY EFFICIENT, HUMIDITY-TARGETED CONDITIONING SIZED TO ASHRAE GUIDANCE RATHER THAN BRUTE-FORCE COOLING. RAINWATER IS HARVESTED FOR NON-POTABLE USES; WARM, HUMID EXHAUST IS ROUTED TO DISCOURAGE CONDENSATION. AT THE SHORELINE, BIOROCK ELEMENTS SEED MARINE HABITAT AND FUNCTION AS LIVING BREAKWATERS, ALIGNING RESILIENCE WITH BIODIVERSITY GAINS. TOGETHER, THESE SYSTEMS MAKE A COMPACT WORKPLACE THAT IS QUIET, COOL, LOW-ENERGY—AND RESILIENT TO THE COAST'S CHANGING EXTREMES.

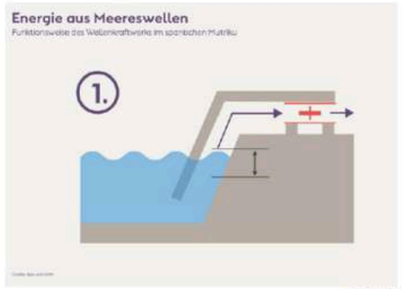


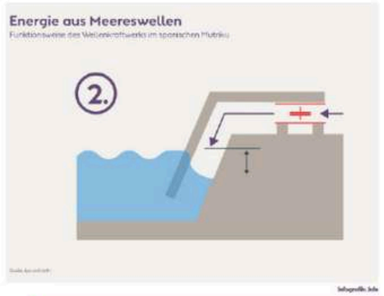




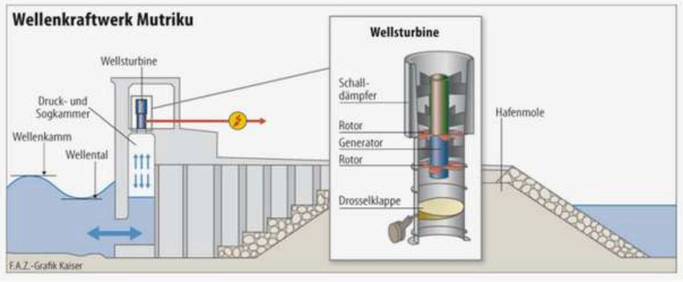
Energy Concept

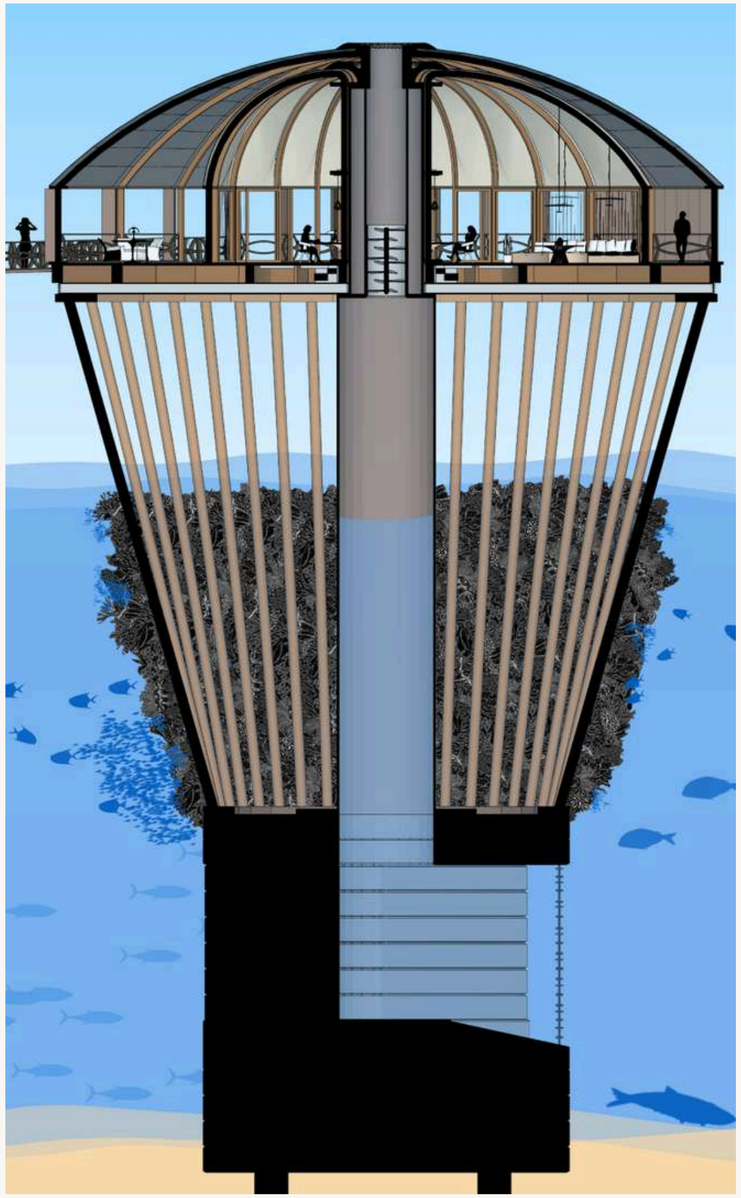
Fig. 41: Breakwater

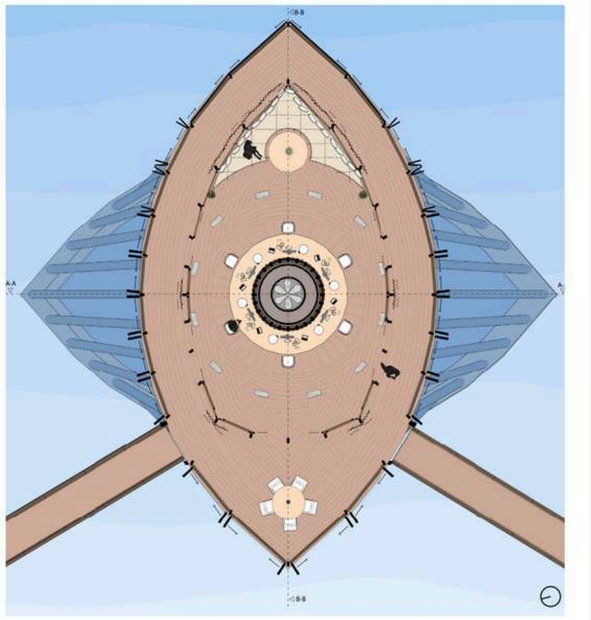




16 Turbines 300 kWh per day → 1 Turbine 18,75 kWh per day

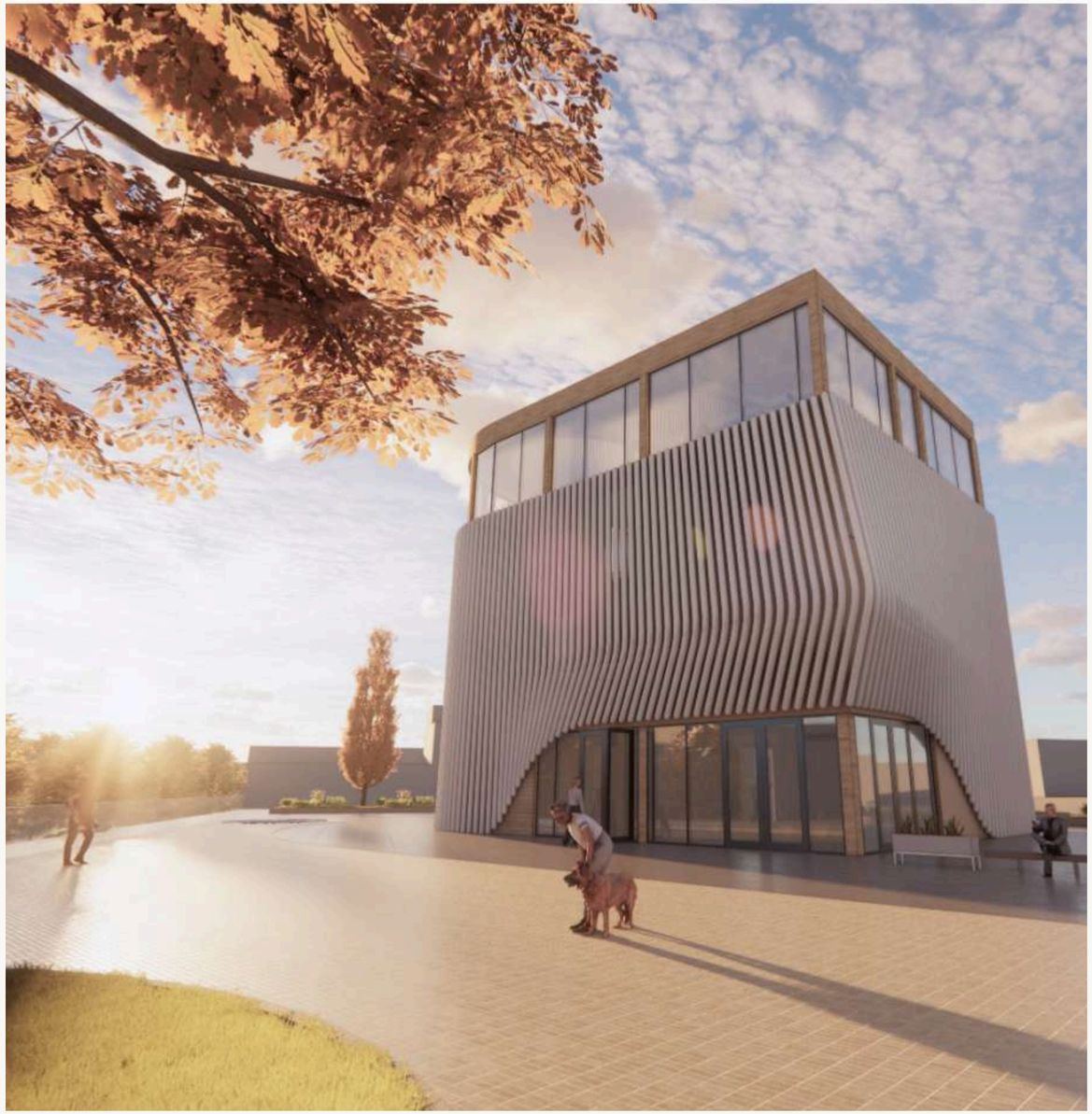






BIM PROJECT: INSIGHT PAVILION

THIS PROJECT PROPOSES A SCIENCE VISITOR CENTER FOR TUM'S GARCHING CAMPUS THAT ACTS AS A PUBLIC GATEWAY TO RESEARCH: AN ACCESSIBLE PLACE WHERE COMPLEX IDEAS ARE EXPERIENCED, NOT JUST EXPLAINED. SITED ON THE FORMER ALTE MENSA TERRACE AT THE CAMPUS' PRIMARY ARRIVAL AXIS, THE BUILDING COUPLES A ROBUST GROUND FLOOR—CAFÉ, AUDITORIUM, FOYER, AND SERVICE CORE—WITH LUMINOUS UPPER LEVELS DEDICATED TO EXHIBITIONS, HANDS-ON LABS, AND A PANORAMIC LIBRARY. A CURVED, WELCOMING FORM COUNTERS THE CAMPUS' HARD EDGES; A PROGRAMMABLE LED FAÇADE PROJECTS LIVE "SCIENCE SIGNALS" OUTWARD WHILE THE INTERIOR CURATES THEM AS CONTENT. VISITORS MOVE FROM A RING OF "HISTORY AND CONTEXT" TOWARD A CENTRAL DATA NUCLEUS, THEN ASCEND THROUGH A DAYLIGHTED STAIR TO CONTEMPORARY SHOWCASES AND WORKSPACES. THE BUILDING IS CONCEIVED AS A BRIDGE BETWEEN RESEARCHERS AND CITIZENS, COMBINING CLARITY OF WAYFINDING WITH MOMENTS FOR DEBATE, PLAY, AND WONDE



THE ARRIVAL SEQUENCE USES A GENEROUS SOUTH ENTRANCE TO SPLIT FLOWS: LEFT TO A FLEXIBLE CONGRESS HALL, RIGHT TO THE CAFÉ AND PUBLIC FOYER. A CONCRETE CORE CONSOLIDATES LIFT AND PROTECTED EGRESS, FREEING THE PERIMETER FOR EXHIBITION AND VIEWS. THE SPATIAL NARRATIVE IS CINEMATIC: A DARKER, IMMERSIVE RING FRAMES THE GLOWING INNER “DATA INTERACT” CHAMBER; ABOVE, TWO EXHIBITION FLOORS WIDEN AND COMPRESS AROUND A CIRCULAR STAIR, OFFERING CROSS-VIEWS INTO THE ATRIUM AND THE TWO-STORY FOYER. THE TOP FLOOR BECOMES A CAMPUS “LANTERN”—A 360° GLAZED LIBRARY THAT IS BRIGHT BY DAY AND SOFTLY RADIANT AT NIGHT, WITH EXTERNAL SHADING AND INTERIOR BLINDS TEMPERING SUMMER SUN. ROUNDED GEOMETRY, CONTINUOUS BENCHES, AND ROOF SEATING STEPS INVITE LINGERING, TURNING THE ROUTE BETWEEN U-BAHN AND CANTEEN INTO A PUBLIC PROMENADE. MATERIALS ARE PURPOSEFUL: DURABLE CONCRETE FOR MASS AND FIRE SAFETY; WARM TIMBER TOUCHPOINTS; AND A MEDIA FAÇADE THAT CAN HOST SCIENTIFIC TIMELINES, CAMPUS EVENTS, OR LIVE DATASETS.

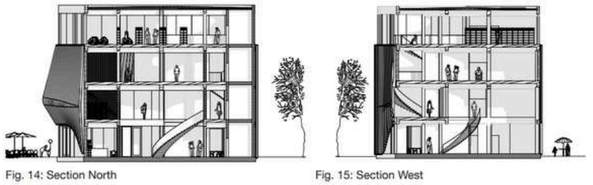


Fig. 14: Section North

Fig. 15: Section West

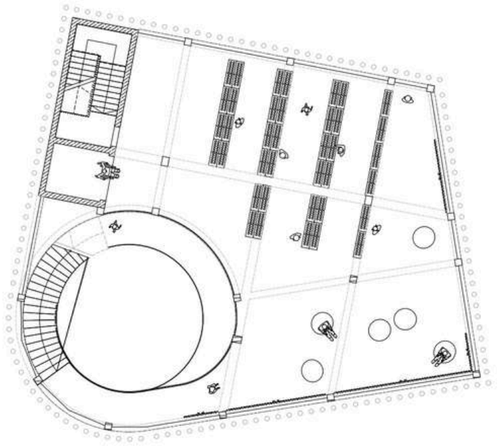


Fig. 16: Third Floor

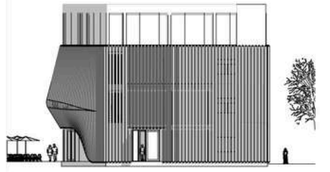


Fig. 11: Elevation North

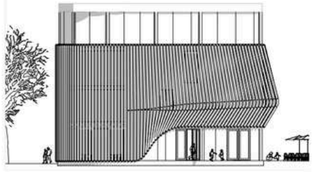


Fig. 12: Elevation South

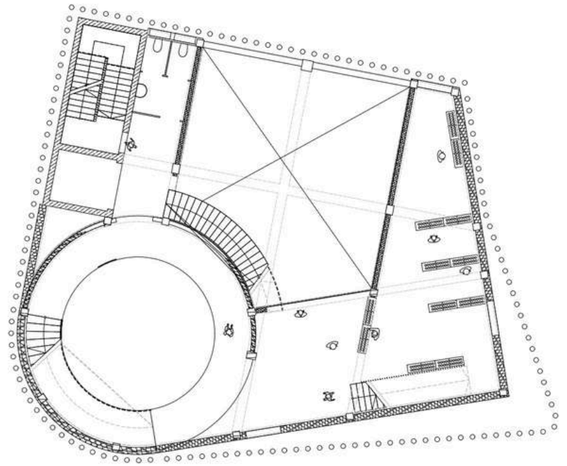
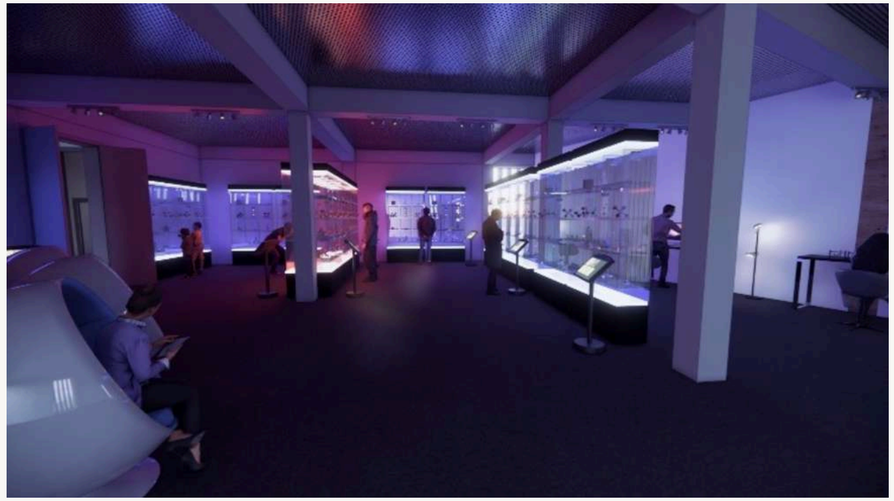
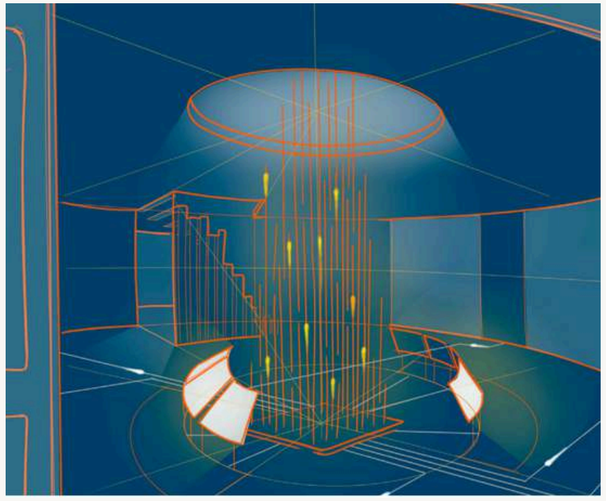


Fig. 13: First Floor





STRUCTURE

STRUCTURE AND ARCHITECTURE WERE CO-DEVELOPED IN BIM TO BALANCE PERFORMANCE, COST, AND CONSTRUCTABILITY. MEDIUM SPANS AND A TORSIONALLY STABLE PLAN FAVORED A HYBRID SYSTEM: CONCRETE SLABS AND SHEAR WALLS FOR STIFFNESS AND FIRE; TIMBER COLUMNS AND BEAMS WHERE TACTILITY AND EMBODIED-CARBON REDUCTIONS MATTER; AND A LEAN STEEL SUB-FRAME TO CARRY THE GLASS ROOF. LOAD CASES (SELF-WEIGHT, SUPERIMPOSED DEAD, LIVE, WIND, SNOW) WERE MODELED AND SUPERPOSED TO EUROCODE ULS/SLS; DEFLECTIONS, REINFORCEMENT DEMANDS, AND SHEAR WALL ACTIONS REMAINED WITHIN SERVICEABILITY LIMITS WITH COMFORTABLE RESERVES. CURVED MEMBERS WERE RATIONALIZED INTO SEGMENTED ANALYTICS FOR RELIABLE MESHING AND SIZING.

THE WORKFLOW EMBRACED OPEN STANDARDS: REVIT MODELS EXCHANGED VIA IFC TO ARCHICAD FOR DETAILING; SOFISTIK/INSIGHT FOR ANALYSIS AND ENERGY; SOLIBRI AND NAVISWORKS FOR RULE-BASED CHECKING AND CLASH DETECTION; BIM 360 FOR ISSUE TRACKING WITH BCF LOOPS. EARLY MODEL FEDERATION REVEALED ~100 CONFLICTS (NOTABLY WALL–COLUMN INTERSECTIONS) WHICH WERE ITERATIVELY RESOLVED, WHILE QUANTITY TAKE-OFFS (SOLIBRI → NOVA AVA) PRODUCED A CONSISTENT BILL OF QUANTITIES ALIGNED TO DIN276. THE RESULT IS A COORDINATED, FABRICATION-READY DIGITAL TWIN THAT UNDERPINNED FAST ITERATIONS AND CLEAR TEAM ACCOUNTABILITY.

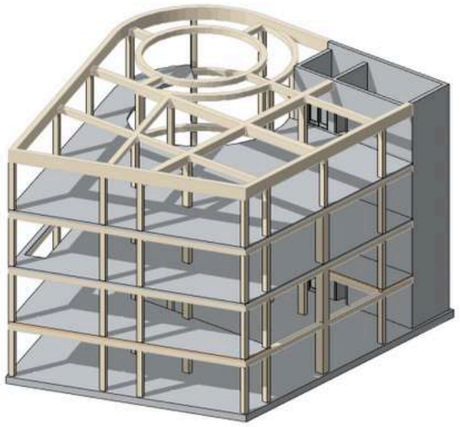


Fig. 26: Final Materials

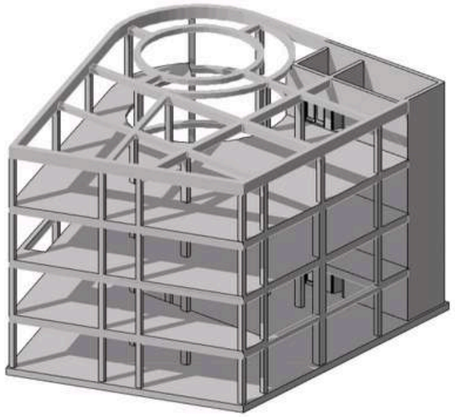


Fig. 25: Initial Materials

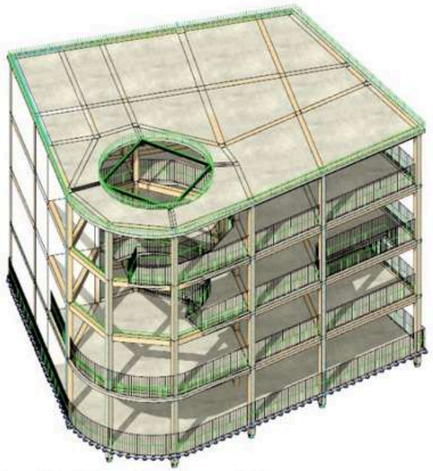


Fig. 29: Structural model

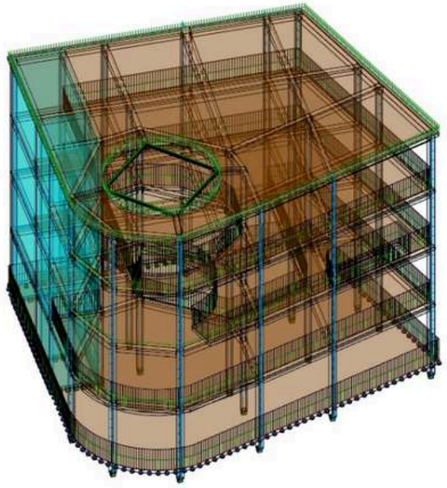
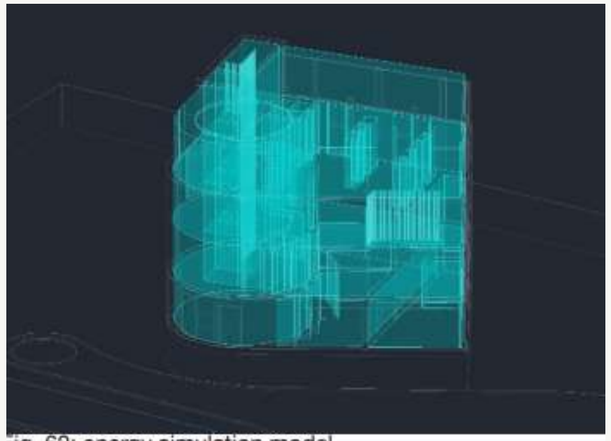
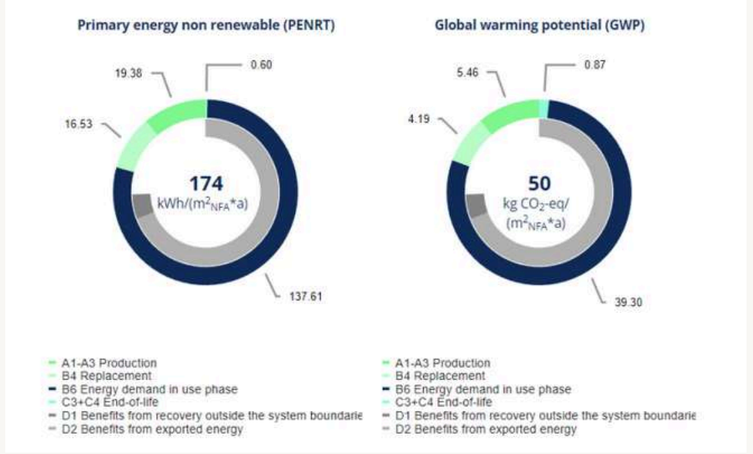


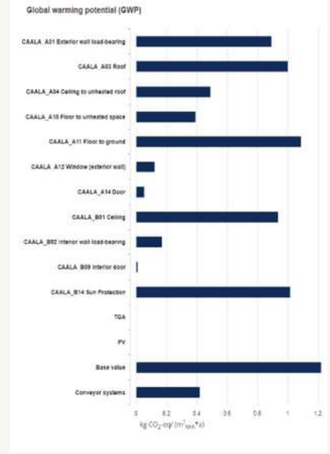
Fig. 30: Generated analytical model

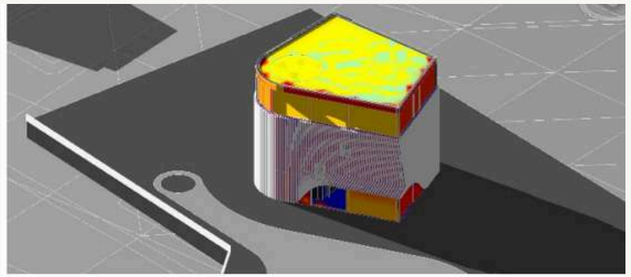
SUSTAINABILITY IS ADDRESSED ACROSS FABRIC, SYSTEMS, AND OPERATION. PRESERVING THE EXISTING TERRACE REDUCES GROUND WORKS; A COMPACT FORM AND TARGETED GLAZING CONTROL LOADS WHILE MAINTAINING DAYLIGHT AUTONOMY IN PUBLIC AREAS. TRIPLE-GLAZED LOW-E UNITS, PRECAST INSULATED WALL ELEMENTS, AND TIMBER PRIMARY INTERIORS IMPROVE THERMAL COMFORT AND EMBODIED METRICS. A SKYLIT STAIR SUPPORTS BUOYANCY-DRIVEN VENTILATION; MECHANICAL SYSTEMS ARE SIZED TO NEED, SUPPLEMENTED BY DISTRICT HEATING FOR RESILIENCE. SOLAR STRATEGY IS TWOFOLD: THE ROOF HOSTS ~239 M² OF PV (≈42.7 MWH/YEAR POTENTIAL), AND THE MEDIA FAÇADE DOUBLES AS AN EXTERIOR SHADING LAYER TO MODERATE THE >1,000 KWH/M² SOUTH-FACING RADIATION HOTSPOTS. INSIGHT-BASED SCENARIOS DROVE THE EUI FROM ~240 TO ~57.4 KWH/M²·A (≈76% REDUCTION) THROUGH ENVELOPE UPGRADES, WWR TUNING, EFFICIENT HVAC, AND PV INTEGRATION—DELIVERING MEANINGFUL OPEX SAVINGS. LCA VIA CAALA INDICATES LOW OPERATIONAL DEMAND AND COMPETITIVE EMBODIED IMPACTS; TIMBER'S NEGATIVE BIOGENIC GWP HELPS OFFSET HOTSPOT MATERIALS (METALS/ALUMINUM) IDENTIFIED FOR FUTURE OPTIMIZATION. LIGHTING STRATEGY IS INTENTIONAL: A DIM, LED-ACCENTED EXHIBITION RING FOR CONTRAST AND STORYTELLING; DAYLIT FOYER, CAFÉ, AND LIBRARY MANAGED WITH EXTERNAL SHADES. TOGETHER, THESE MOVES CREATE A BUILDING THAT COMMUNICATES SCIENCE WHILE QUIETLY PERFORMING IT—EFFICIENT, LEGIBLE, AND ADAPTABLE FOR THE CAMPUS AND ITS COMMUNITY.

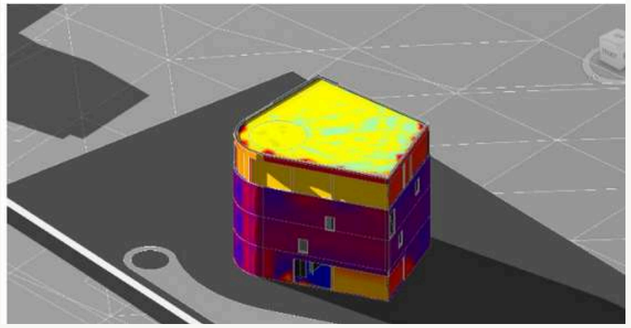


-ig. 62: energy simulation model









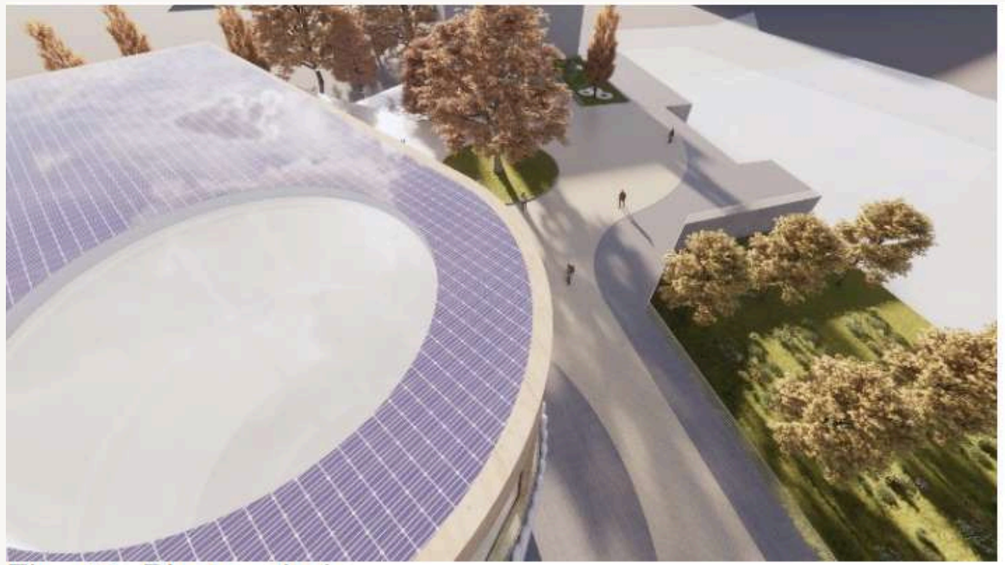


Fig. 43: Photovoltaic

BACHELOR OF ARTS

ARCHITECURE AND URBAN PLANING
TECHNICAL UNIVERSITY OF MUNICH

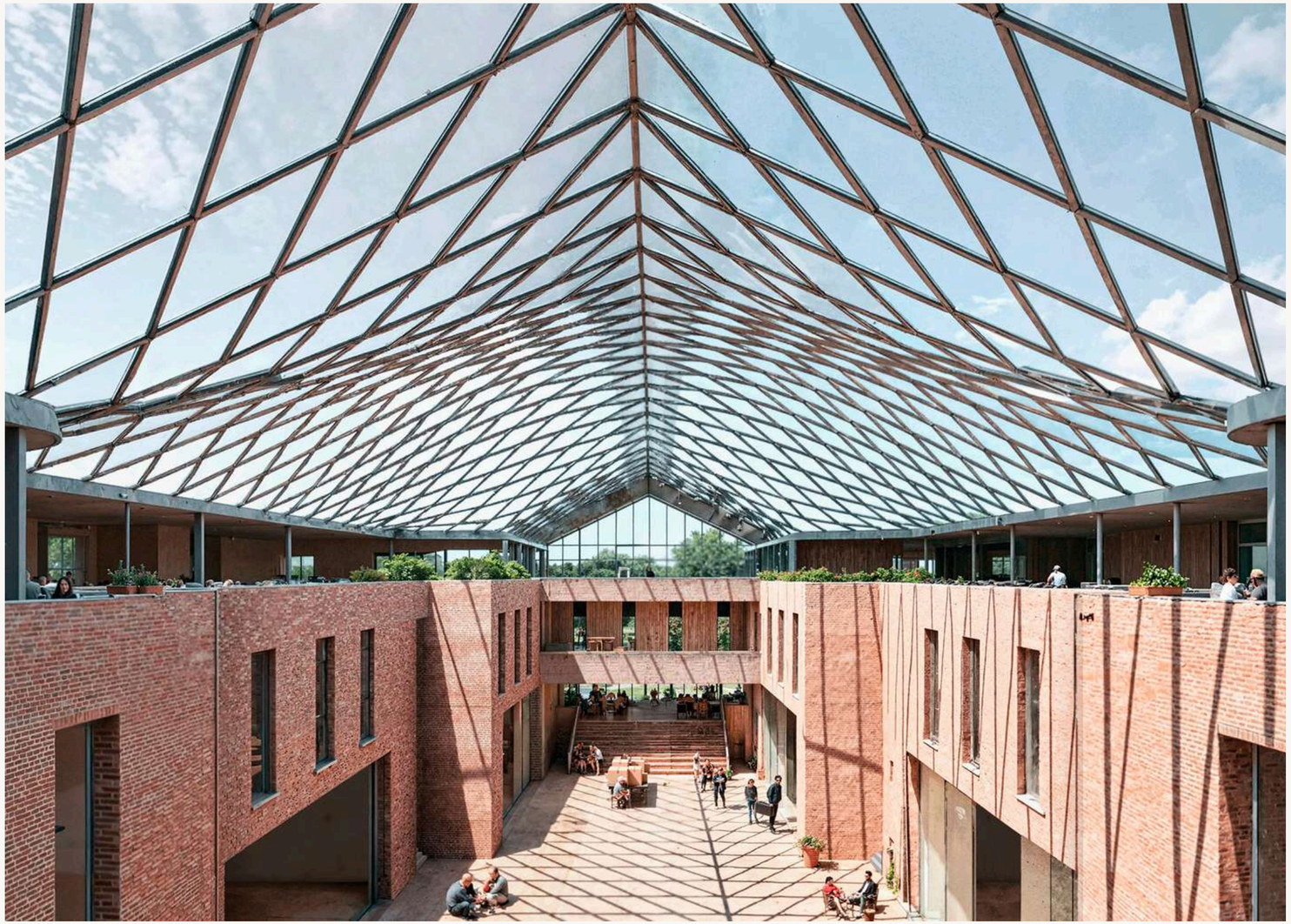
COLLECTION OF WORKS

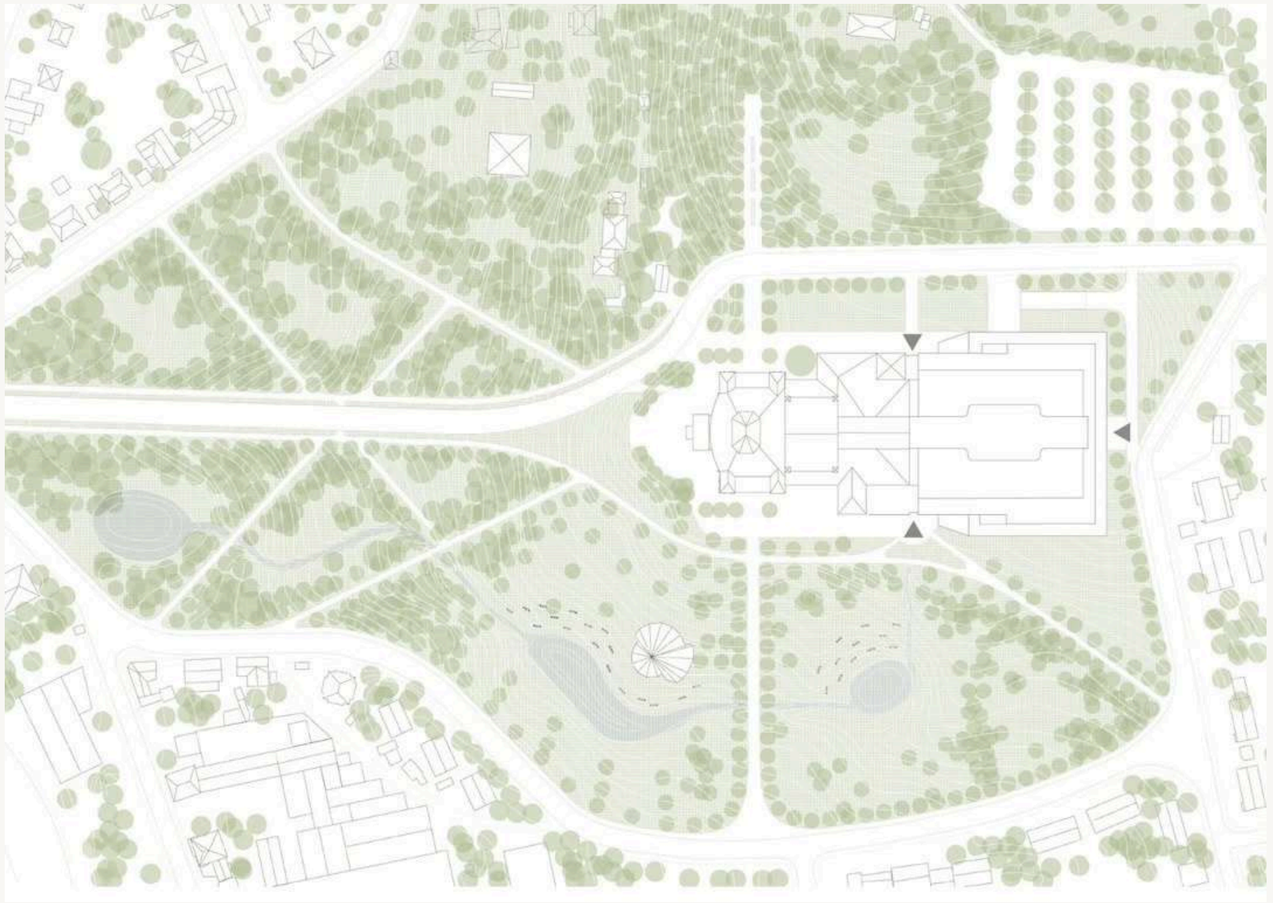
SEAMLESS CONNECTION: REHABILITATION OF THE BAYREUTH FESTSPIELHAUS

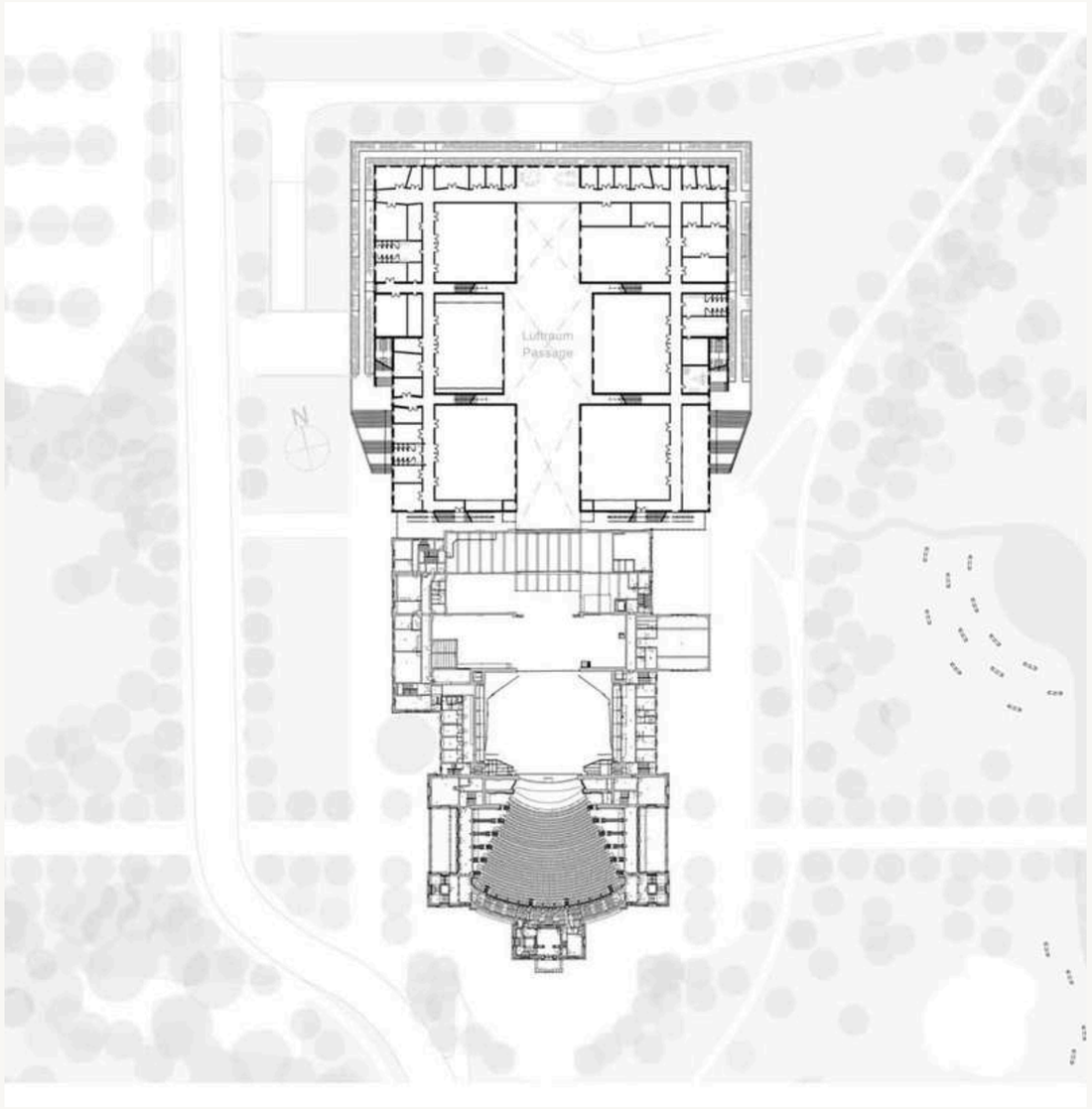
THE BAYREUTH FESTSPIELHAUS, LOCATED ON A HILL NORTH OF THE CITY CENTER, IS ONE OF GERMANY'S MOST RENOWNED CULTURAL LANDMARKS. OVER MORE THAN A CENTURY, THE COMPLEX SURROUNDING THE HISTORIC THEATER EVOLVED INTO A FRAGMENTED COLLECTION OF ANCILLARY BUILDINGS, DISRUPTING BOTH THE VISUAL COHERENCE OF THE SITE AND THE NATURAL LANDSCAPE OF THE HILL.

MY THESIS PROPOSED A COMPREHENSIVE ARCHITECTURAL INTERVENTION TO RESOLVE THIS FRAGMENTATION. THE DESIGN CONSOLIDATED SCATTERED FUNCTIONS INTO A SINGLE, RATIONALLY ORGANIZED EXTENSION, FREEING UP SIGNIFICANT PORTIONS OF THE HILL TO BE RETURNED AS GREEN PUBLIC SPACE. AT THE HEART OF THE CONCEPT WAS THE IDEA OF A SEAMLESS CONNECTION BETWEEN NEW AND OLD. MATERIAL CHOICES AND COLOR TONES WERE CAREFULLY DERIVED FROM THE ORIGINAL THEATER, WHILE CIRCULATION WAS RESTRUCTURED AROUND A CENTRAL PASSAGE THAT DIRECTLY LINKS THE HISTORIC STAGE TO THE NEW ADDITION. THIS PASSAGE NOT ONLY ACTS AS A FUNCTIONAL CONNECTOR BUT ALSO SERVES AS A SOCIAL SPACE FOR ACTORS, STAFF, AND VISITORS.

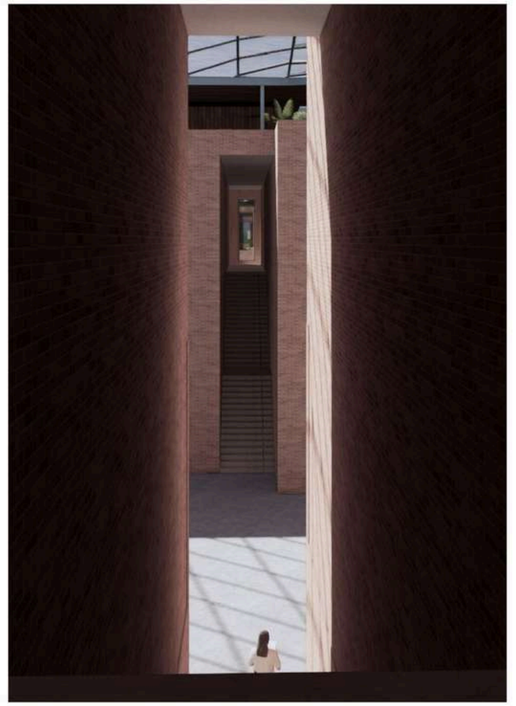
THROUGH BALANCED PROPORTIONS, CONTEXTUAL MATERIALS, AND PROGRAMMATIC CLARITY, THE PROJECT CREATED A DIALOGUE BETWEEN THE HISTORIC FESTSPIELHAUS AND ITS CONTEMPORARY EXTENSION. THE RESULT WAS A VISION FOR A COHERENT, RESPECTFUL, AND SUSTAINABLE REHABILITATION OF ONE OF BAYREUTH'S MOST ICONIC SITES.



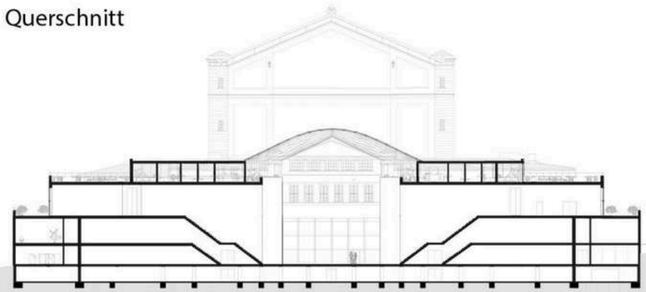


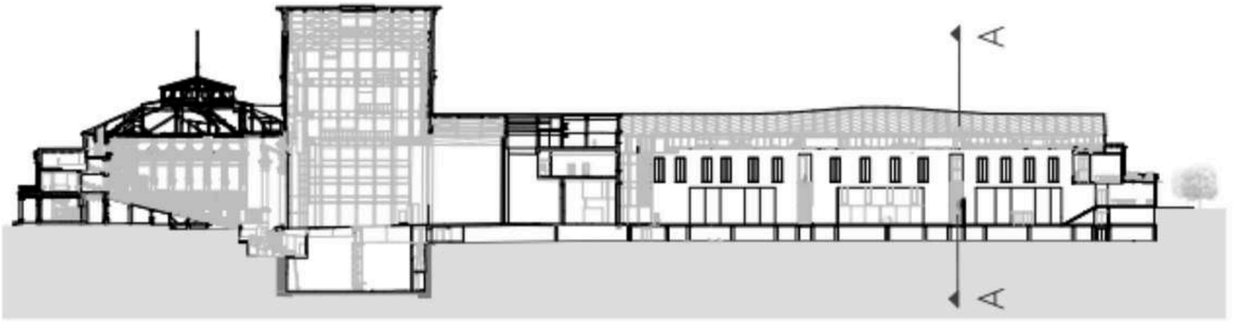


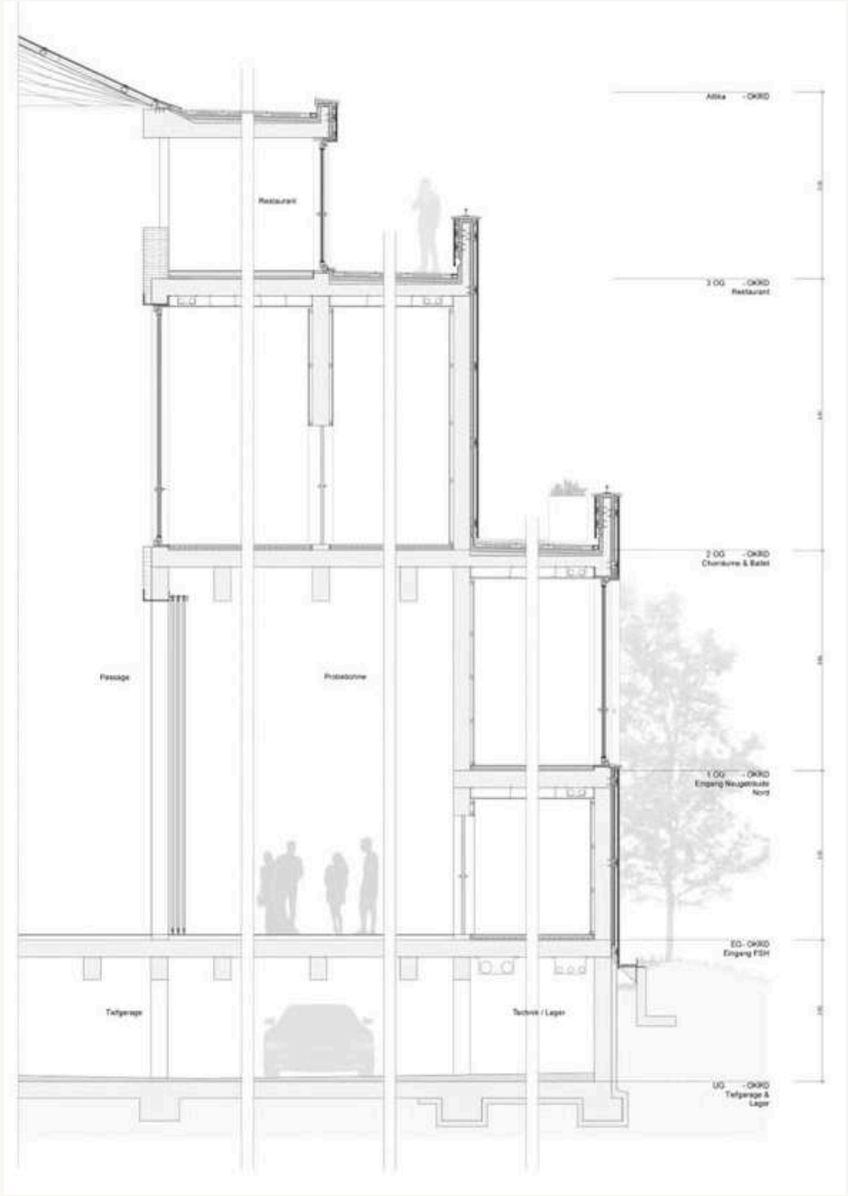
Ansicht Nord



Querschnitt



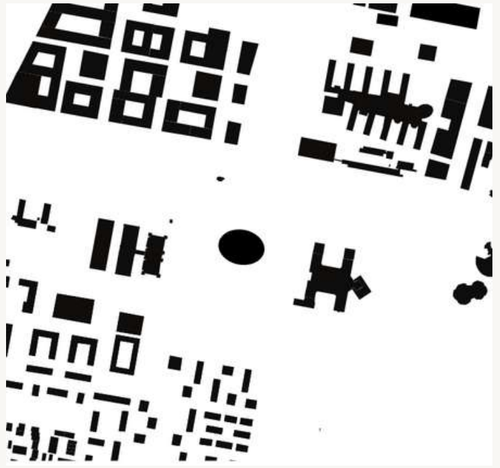


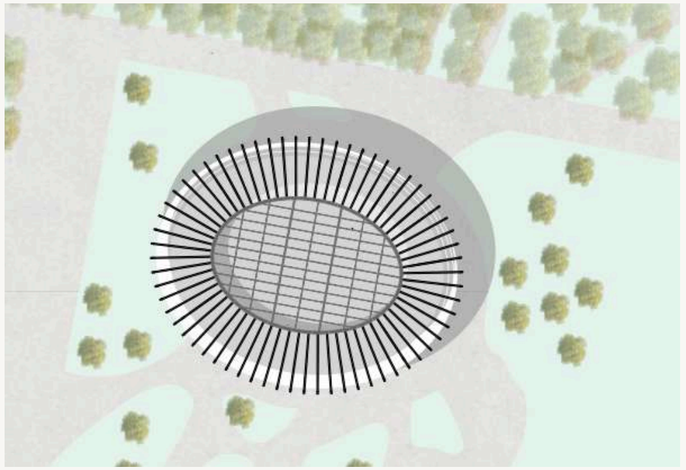

Attika - OKRD
Restaurant
3 OG - OKRD
Restaurant
2 OG - OKRD
Chorräume & Ballet
Passage
Probebühne
1 OG - OKRD
Eingang Neugemeinde
Nord
EG - OKRD
Eingang FSH
Tiefgarage
Technik / Lager
UG - OKRD
Tiefgarage &
Lager

LUDIS — A PLACE TO PLAY, STUDY, LIVE, AND CONNECT
(A SPORTS AND COMMUNITY HUB FOR GARCHING)

"LUDIS" WAS CONCEIVED AS A UNIFYING SPORTS AND COMMUNITY COMPLEX FOR THE UNIVERSITY CITY OF GARCHING — A SPACE WHERE STUDENTS, SCHOOLCHILDREN, PROFESSIONALS, AND SENIORS COME TOGETHER THROUGH MOVEMENT AND EXCHANGE. SITUATED NEAR THE TUM GARCHING CAMPUS, THE PROJECT RESPONDS TO THE GROWING DEMAND FOR ACCESSIBLE, HIGH-QUALITY SPORTS INFRASTRUCTURE FOR NEARLY 19,000 STUDENTS AS WELL AS THE WIDER COMMUNITY.

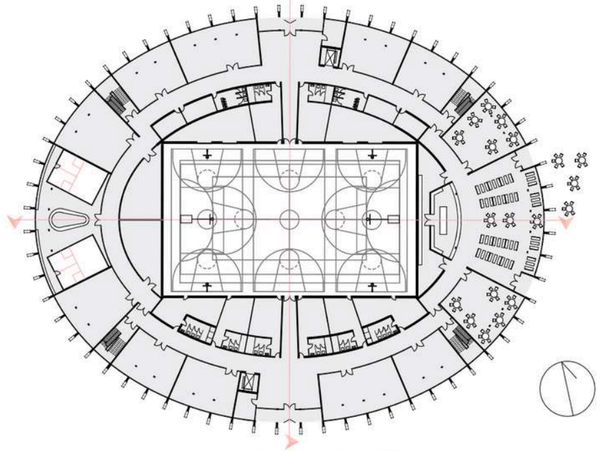
THE ARCHITECTURAL VISION EMPHASIZES ENCOUNTER AND COMMUNICATION. BEYOND PHYSICAL ACTIVITY, THE BUILDING ENCOURAGES INTERACTION, INFORMAL LEARNING, AND A SENSE OF BELONGING. WITH ITS OPEN SPATIAL ORGANIZATION AND INVITING CIRCULATION ZONES, THE COMPLEX BECOMES A SOCIAL CONDENSER — A LIVING SYMBOL OF TEAMWORK, INCLUSION, AND THE JOY OF COLLECTIVE EXPERIENCE.



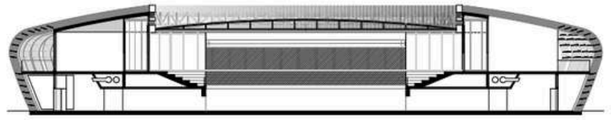


THE DESIGN UNFOLDS ACROSS 9,800 M² OF GROUND AREA, INTEGRATING A TRIPLE SPORTS HALL, A GYM AND FITNESS AREA, AND A SEQUENCE OF FLEXIBLE ROOMS FOR CLASSES, WELLNESS, AND RECREATION. THE LAYOUT PRIORITIZES VISUAL TRANSPARENCY AND ORIENTATION: FROM THE ENTRANCE, VISITORS PERCEIVE THE HALL'S GENEROUS SCALE AND THE LAYERED ACTIVITIES BEYOND.

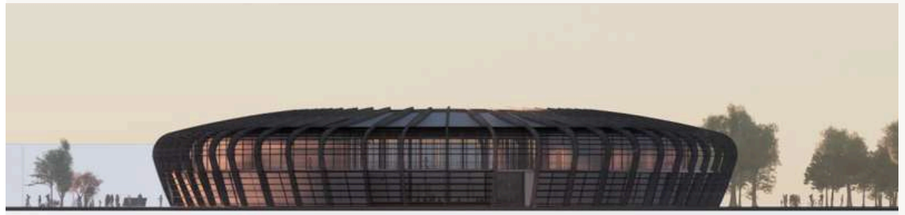
GENEROUS GLAZING AND CAREFULLY MODULATED DAYLIGHT LINK THE INDOOR SPACES TO THE SURROUNDING LANDSCAPE, FOSTERING AN ATMOSPHERE OF OPENNESS AND VITALITY. CIRCULATION ROUTES ARE DESIGNED NOT ONLY FOR EFFICIENCY BUT ALSO AS MEETING POINTS — TERRACES, STAIRCASES, AND VIEWING BALCONIES THAT ENCOURAGE SPECTATORSHIP AND CASUAL CONVERSATION. THE ARCHITECTURE BALANCES ROBUSTNESS WITH LIGHTNESS: RATIONAL STRUCTURAL LOGIC COMBINED WITH AIRY, DAYLIGHT-FILLED VOLUMES THAT REFLECT THE PROJECT'S GUIDING IDEA — A HOMAGE TO MOVEMENT AND COMMUNITY.



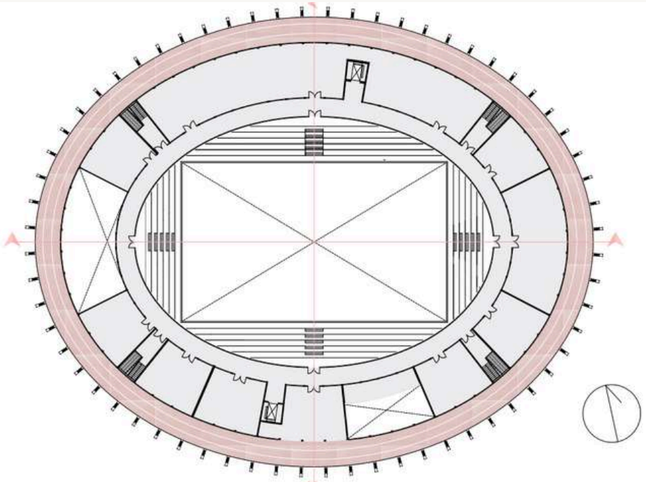
Grundriss Erdgeschoss M 1:200



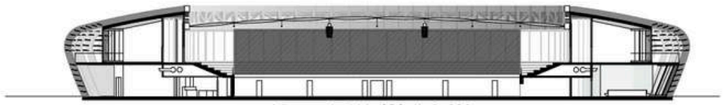
Querschnitt (A) M 1:200



Ostansicht M 1:200



Grundriss Obergeschoss M 1:200

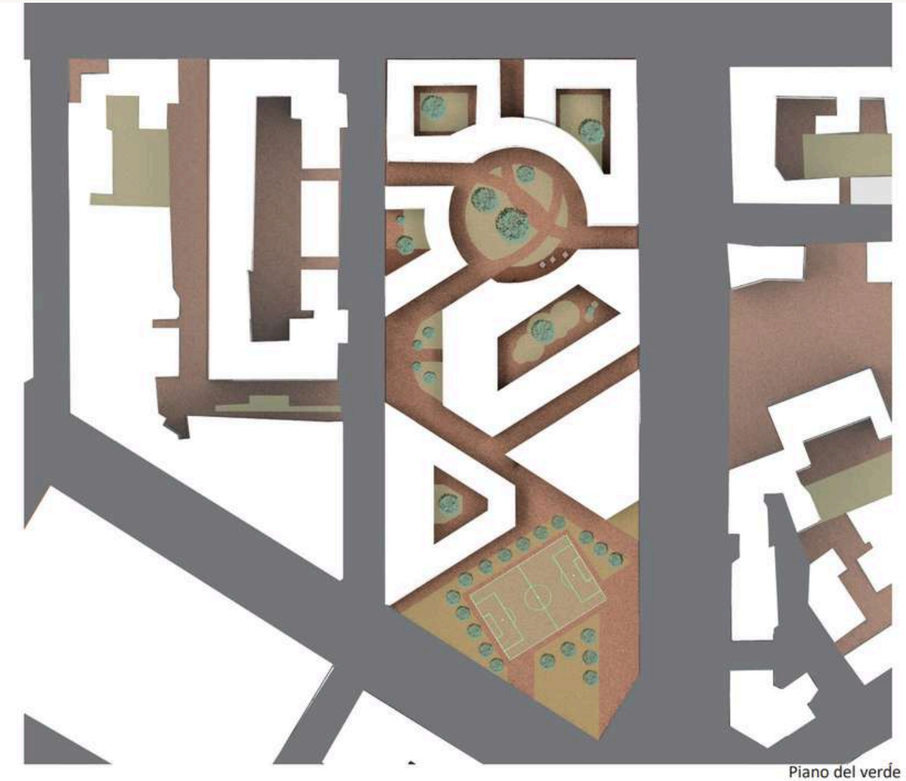


Längsschnitt (B) M 1:200

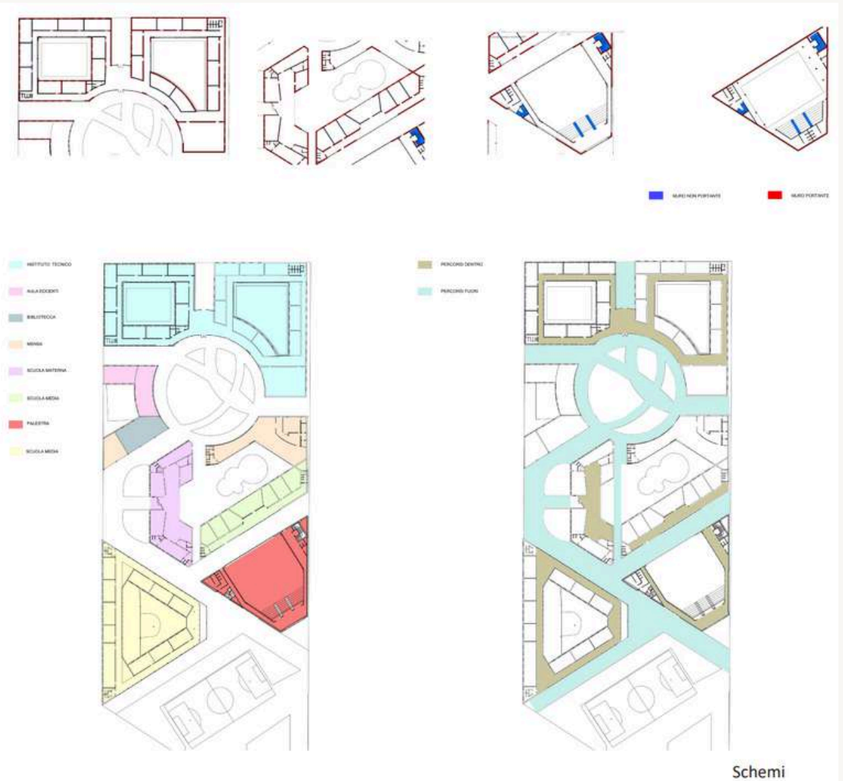
Südansicht M 1:200

EXCHANGE YEAR PROJECT — SCUOLA URBANA, ROMA

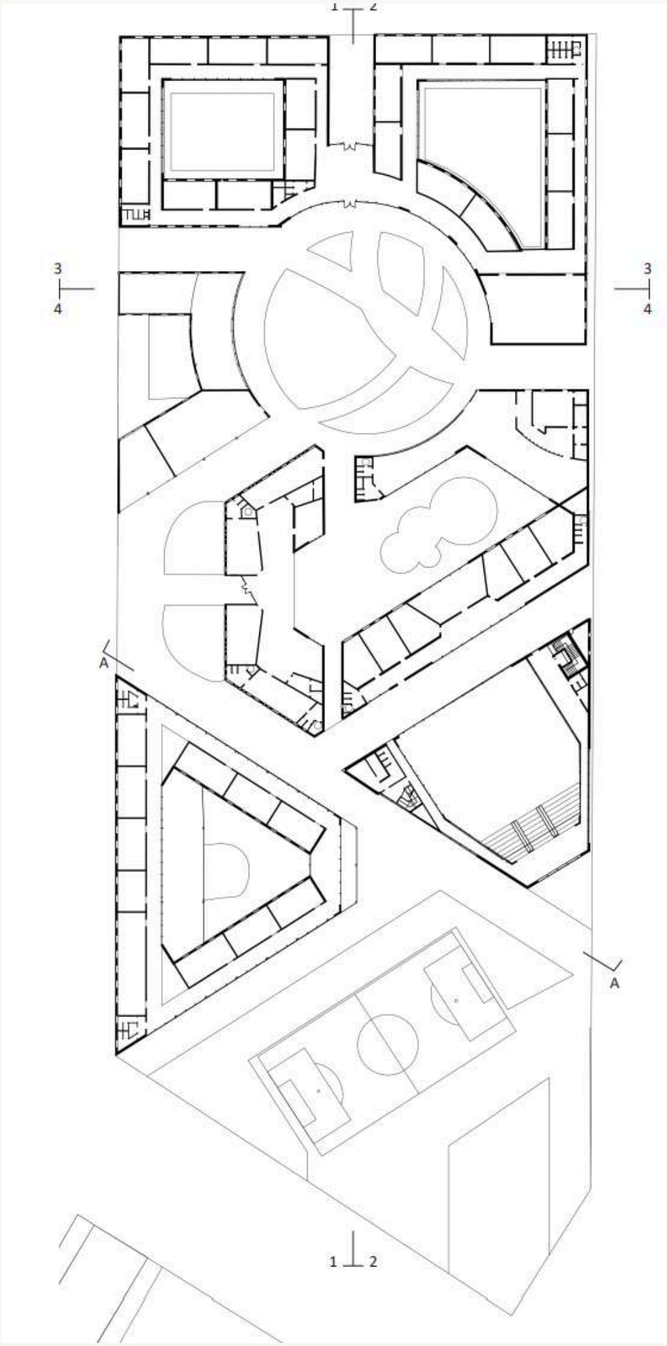
DURING MY EXCHANGE YEAR AT SAPIENZA UNIVERSITÀ DI ROMA, I DEVELOPED THE DESIGN FOR A CONTEMPORARY URBAN SCHOOL THAT UNITES ALL EDUCATIONAL STAGES—FROM EARLY LEARNING TO SENIOR HIGH—WITHIN A SINGLE, COMPACT SITE IN THE HISTORIC CENTER OF ROME. THE CHALLENGE LAY IN CREATING AN OPEN, LIGHT-FILLED ENVIRONMENT IN A DENSE URBAN PARCEL, BALANCING FUNCTIONALITY WITH THE CULTURAL AND SPATIAL RICHNESS OF THE CITY. THE PROJECT PROPOSED VERTICAL LAYERING OF PROGRAMS, INTERCONNECTED COURTYARDS, AND OUTDOOR LEARNING TERRACES TO BRING DAYLIGHT, GREENERY, AND PLAY INTO A TIGHT URBAN FOOTPRINT.



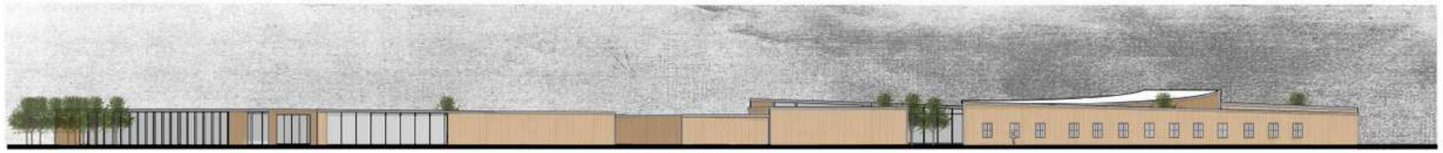
Piano del verde



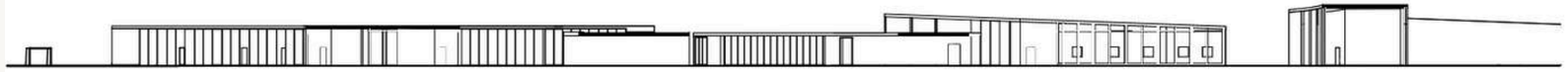
Schemi



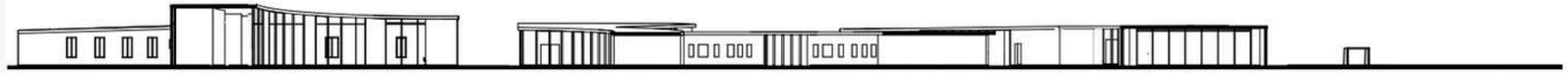
Facciata Ovest
1:500



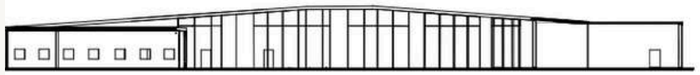
Facciata Est
1:500



Sezione 1-1
1:500

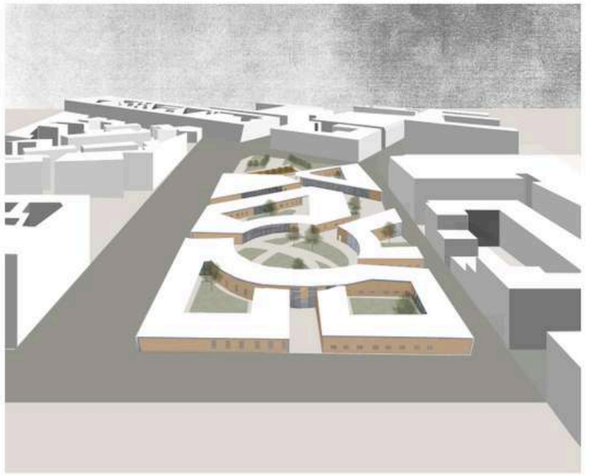


Sezione 2-2
1:500

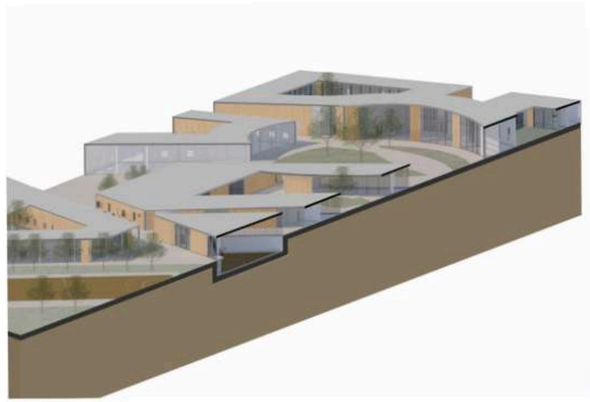


Sezione 3-3
1:500

Sezione 4-4
1:500



Vista prospettica
dal Nord



Assonometria
spaccata
1:500

WORKING IN A FOREIGN LANGUAGE, ACADEMIC CULTURE, AND DESIGN CONTEXT WAS A DEFINING EXPERIENCE. IT TAUGHT ME HOW ARCHITECTURE RESPONDS TO LOCAL IDENTITY, CLIMATE, AND SOCIAL HABITS, WHILE REINFORCING MY ABILITY TO COMMUNICATE, ADAPT, AND COLLABORATE ACROSS CULTURES.

THIS PROJECT EXPANDED MY UNDERSTANDING OF EDUCATION AS BOTH A SPATIAL AND CULTURAL PROCESS—WHERE LEARNING HAPPENS NOT ONLY IN CLASSROOMS, BUT ALSO THROUGH THE ARCHITECTURE ITSELF.