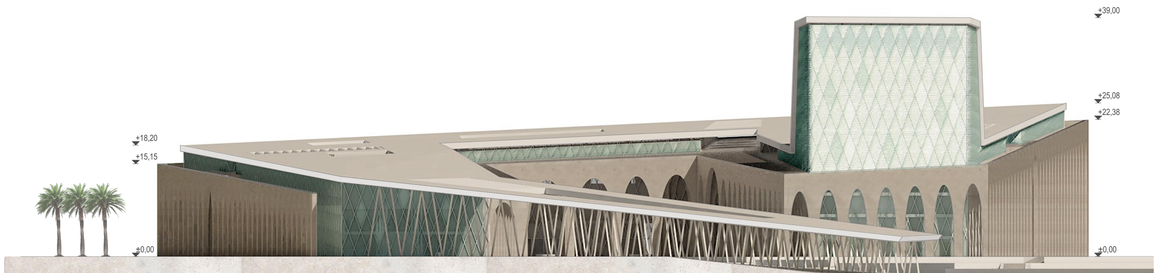
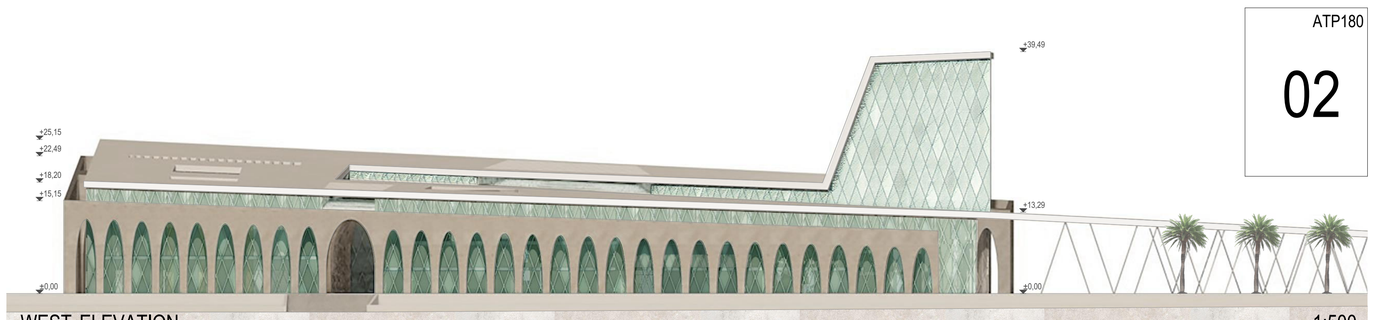
ATP180

02



SOUTH ELEVATION 1:500

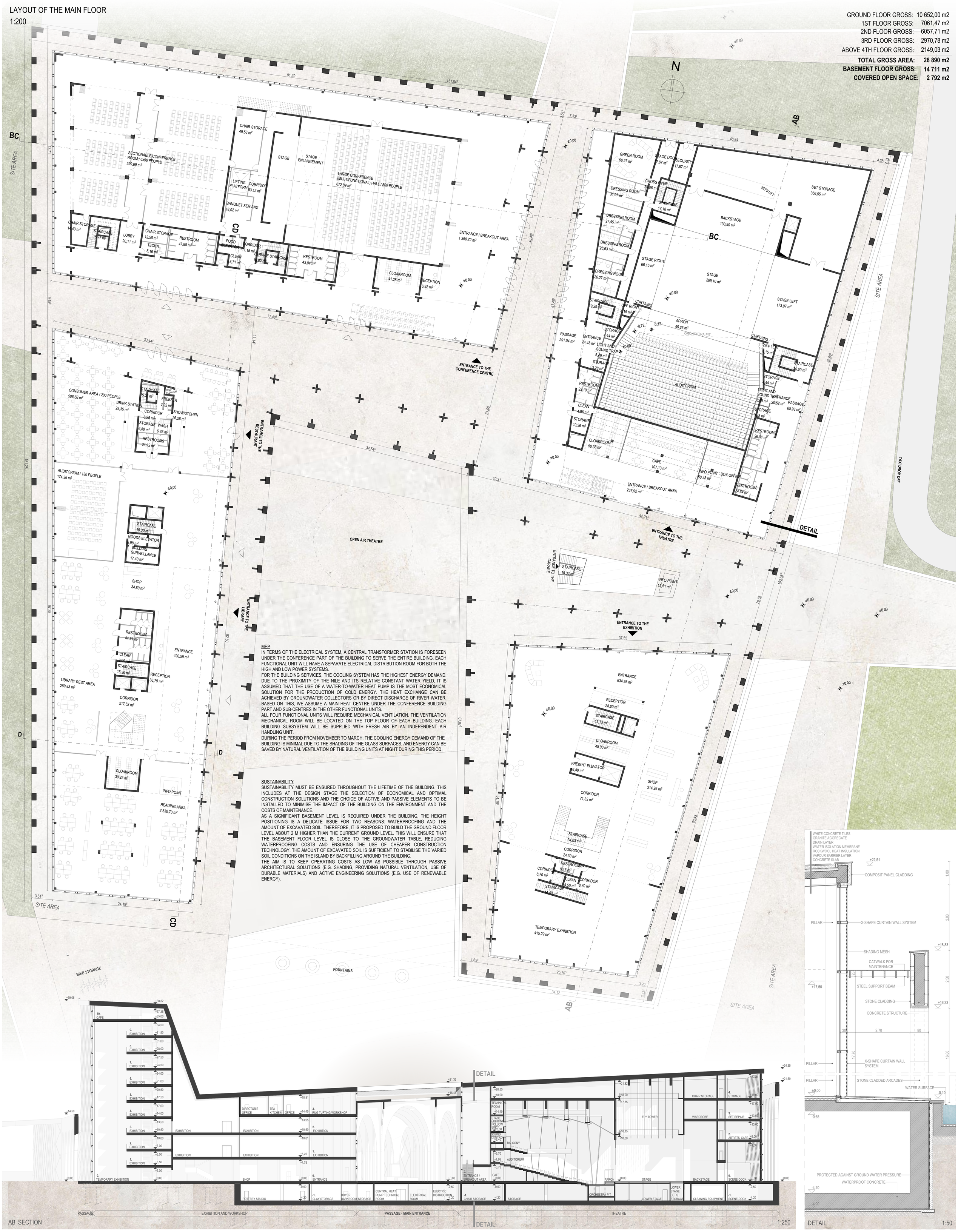


WEST ELEVATION 1:500

LAYOUT OF THE MAIN FLOOR

1:200

GROUND FLOOR GROSS:	10 652,00 m2
1ST FLOOR GROSS:	7061,47 m2
2ND FLOOR GROSS:	6057,71 m2
3RD FLOOR GROSS:	2970,78 m2
ABOVE 4TH FLOOR GROSS:	2149,03 m2
TOTAL GROSS AREA:	**28 890 m2**
BASEMENT FLOOR GROSS:	**14 711 m2**
COVERED OPEN SPACE:	**2 792 m2**



MEP

IN TERMS OF THE ELECTRICAL SYSTEM, A CENTRAL TRANSFORMER STATION IS FORESEEN UNDER THE CONFERENCE PART OF THE BUILDING TO SERVE THE ENTIRE BUILDING. EACH FUNCTIONAL UNIT WILL HAVE A SEPARATE ELECTRICAL DISTRIBUTION ROOM FOR BOTH THE HIGH AND LOW POWER SYSTEMS.

FOR THE BUILDING SERVICES, THE COOLING SYSTEM HAS THE HIGHEST ENERGY DEMAND. DUE TO THE PROXIMITY OF THE NILE AND ITS RELATIVE CONSTANT WATER YIELD, IT IS ASSUMED THAT THE USE OF A WATER-TO-WATER HEAT PUMP IS THE MOST ECONOMICAL SOLUTION FOR THE PRODUCTION OF COLD ENERGY. THE HEAT EXCHANGE CAN BE ACHIEVED BY GROUNDWATER COLLECTORS OR BY DIRECT DISCHARGE OF RIVER WATER. BASED ON THIS, WE ASSUME A MAIN HEAT CENTRE UNDER THE CONFERENCE BUILDING PART AND SUB-CENTRES IN THE OTHER FUNCTIONAL UNITS.

ALL FOUR FUNCTIONAL UNITS WILL REQUIRE MECHANICAL VENTILATION. THE VENTILATION MECHANICAL ROOM WILL BE LOCATED ON THE TOP FLOOR OF EACH BUILDING. EACH BUILDING SUBSYSTEM WILL BE SUPPLIED WITH FRESH AIR BY AN INDEPENDENT AIR HANDLING UNIT.

DURING THE PERIOD FROM NOVEMBER TO MARCH, THE COOLING ENERGY DEMAND OF THE BUILDING IS MINIMAL DUE TO THE SHADING OF THE GLASS SURFACES, AND ENERGY CAN BE SAVED BY NATURAL VENTILATION OF THE BUILDING UNITS AT NIGHT DURING THIS PERIOD.

SUSTAINABILITY

SUSTAINABILITY MUST BE ENSURED THROUGHOUT THE LIFETIME OF THE BUILDING. THIS INCLUDES AT THE DESIGN STAGE THE SELECTION OF ECONOMICAL AND OPTIMAL CONSTRUCTION SOLUTIONS AND THE CHOICE OF ACTIVE AND PASSIVE ELEMENTS TO BE INSTALLED TO MINIMISE THE IMPACT OF THE BUILDING ON THE ENVIRONMENT AND THE COSTS OF MAINTENANCE.

AS A SIGNIFICANT BASEMENT LEVEL IS REQUIRED UNDER THE BUILDING, THE HEIGHT POSITIONING IS A DELICATE ISSUE FOR TWO REASONS: WATERPROOFING AND THE AMOUNT OF EXCAVATED SOIL. THEREFORE, IT IS PROPOSED TO BUILD THE GROUND FLOOR LEVEL ABOUT 2 M HIGHER THAN THE CURRENT GROUND LEVEL. THIS WILL ENSURE THAT THE BASEMENT FLOOR LEVEL IS CLOSE TO THE GROUNDWATER TABLE, REDUCING WATERPROOFING COSTS AND ENSURING THE USE OF CHEAPER CONSTRUCTION TECHNOLOGY. THE AMOUNT OF EXCAVATED SOIL IS SUFFICIENT TO STABILISE THE VARIED SOIL CONDITIONS ON THE ISLAND BY BACKFILLING AROUND THE BUILDING.

THE AIM IS TO KEEP OPERATING COSTS AS LOW AS POSSIBLE THROUGH PASSIVE ARCHITECTURAL SOLUTIONS (E.G. SHADING, PROVIDING NATURAL VENTILATION, USE OF DURABLE MATERIALS) AND ACTIVE ENGINEERING SOLUTIONS (E.G. USE OF RENEWABLE ENERGY).

AB SECTION 1:250

DETAIL 1:50