

POLITECNICO DI MILANO
SCHOOL OF AUIC



POLITECNICO
MILANO 1863

MASTER OF SCIENCE IN BUILDING AND ARCHITECTURAL ENGINEERING

MASTER'S THESIS

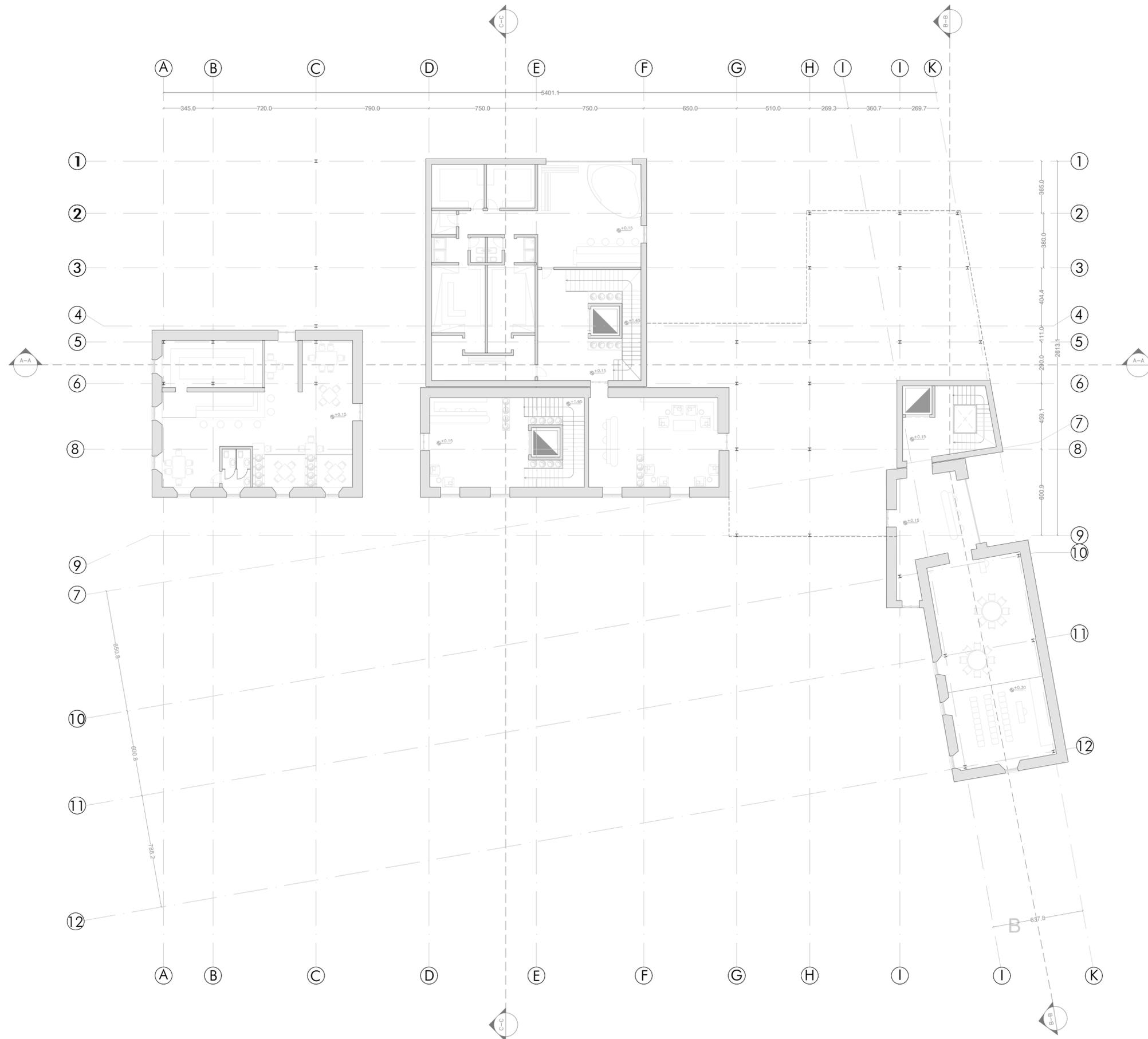
CONVERSION OF A RENOVATED BUILDING INTO NEARLY ZERO ENERGY BUILDING

MASTER THESIS OF
TOKKA ELKHOLY

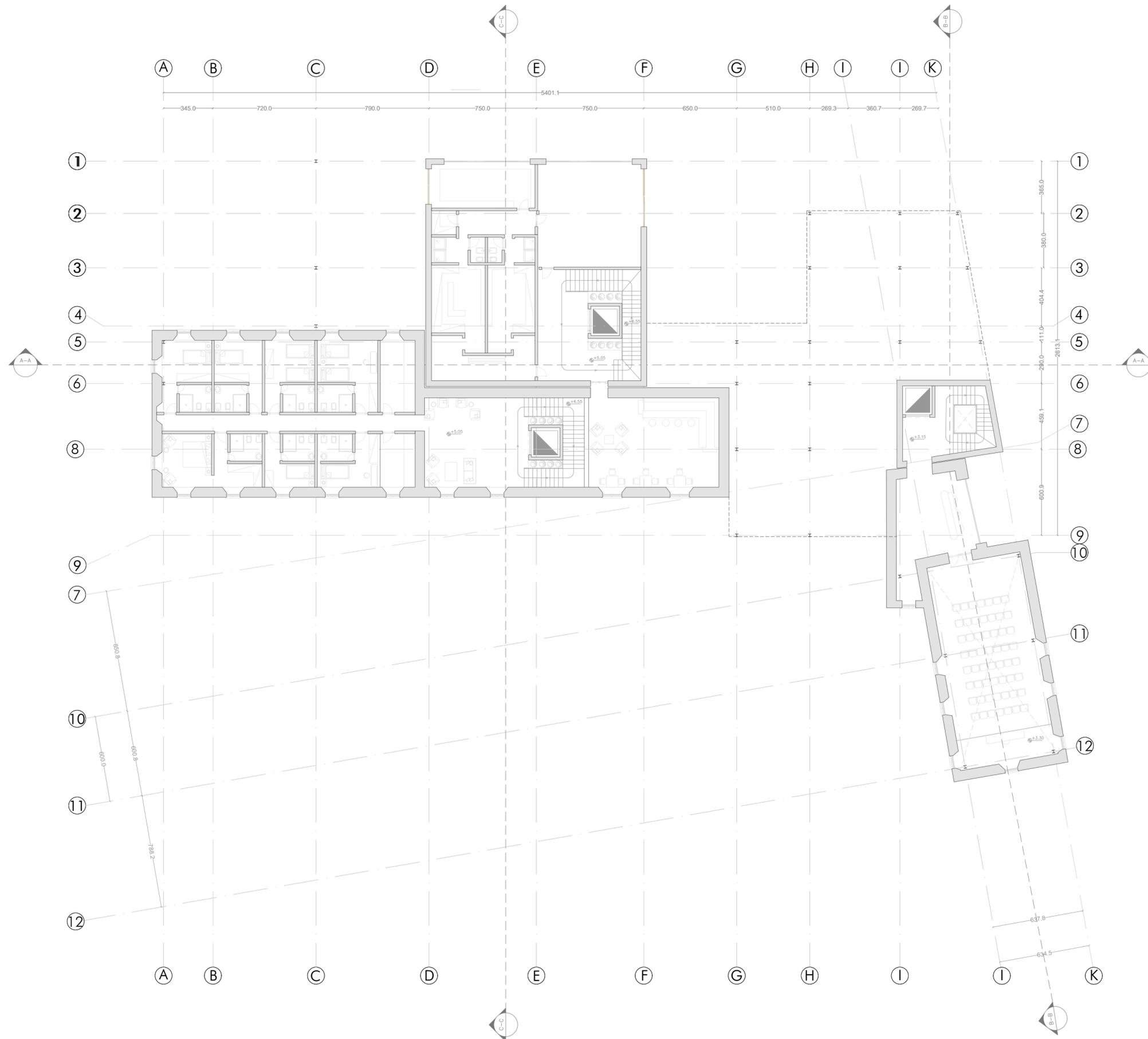
RELATORE
PROF. GABRIELE MASERA

DECEMBER 2021

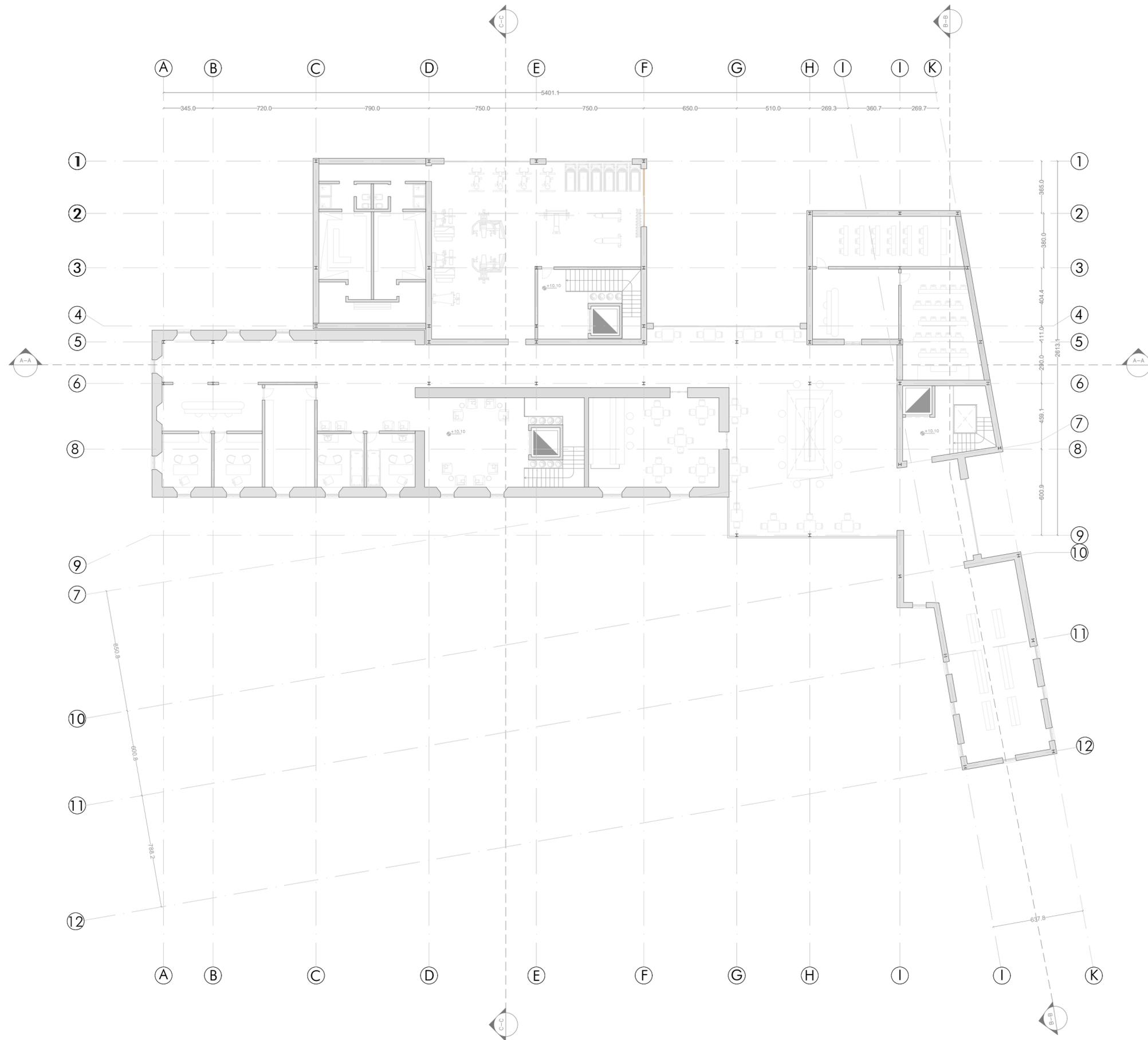
Ground Floor Plan 1:200



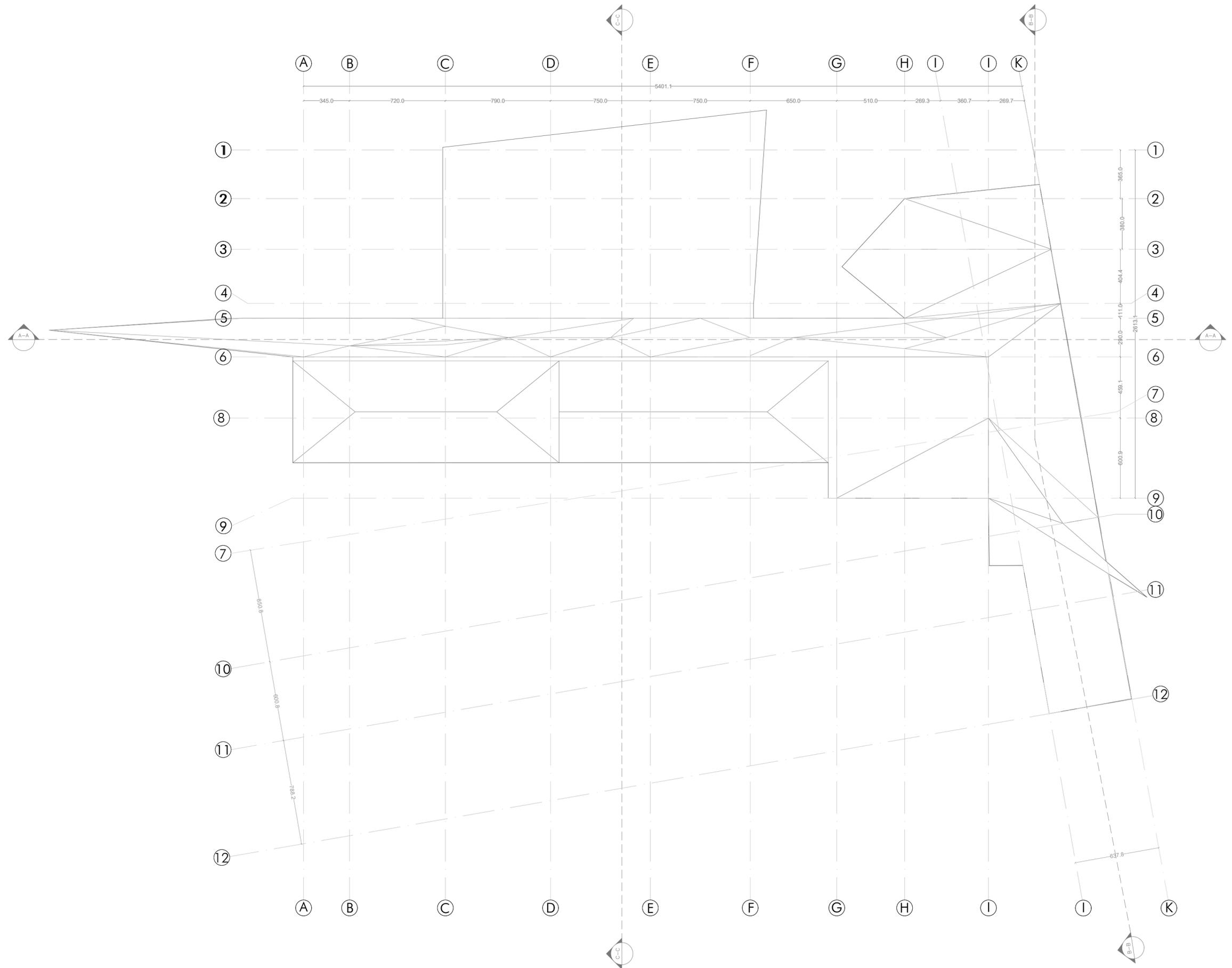
First Floor Plan 1:200



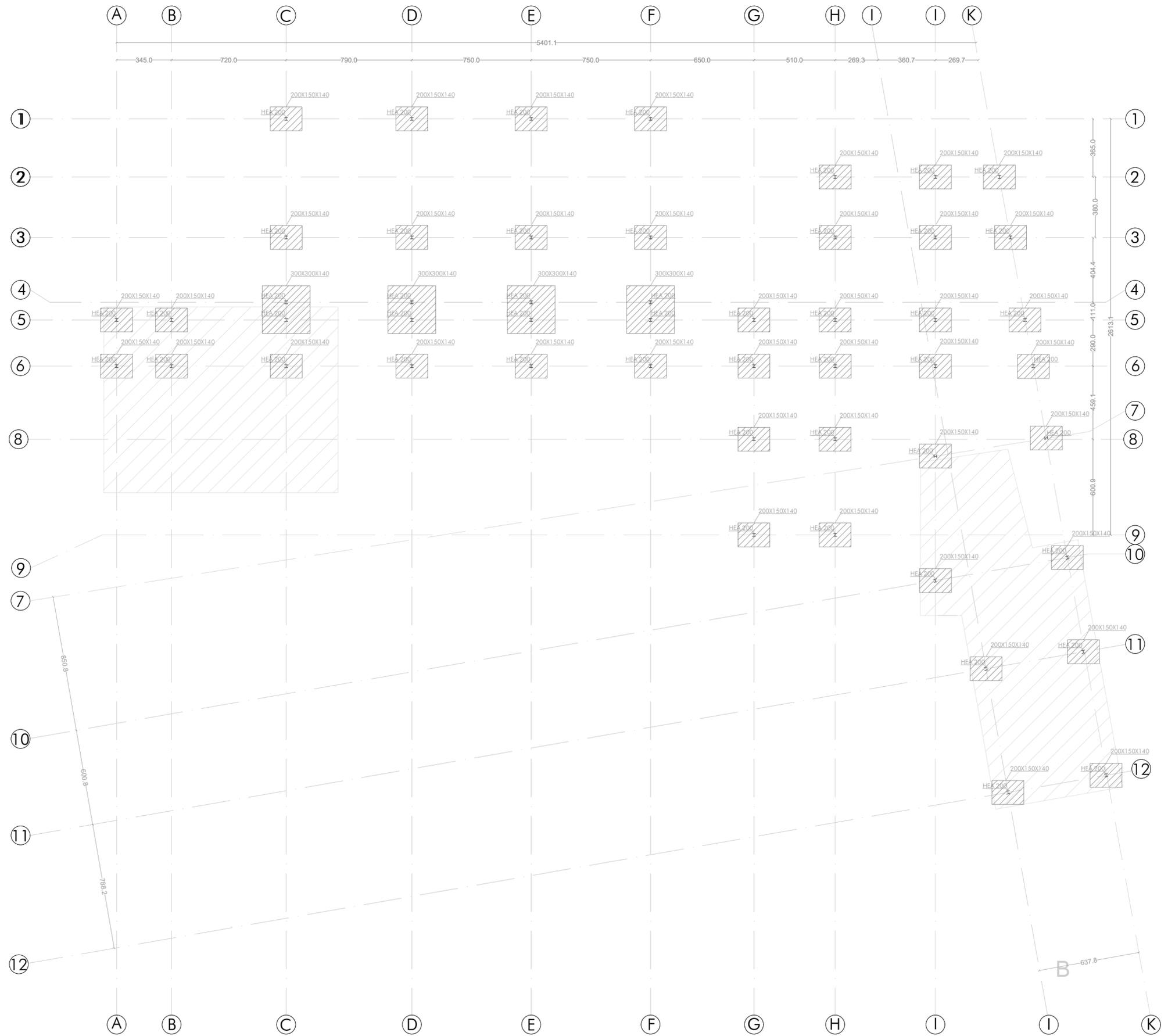
Second Floor Plan 1:200



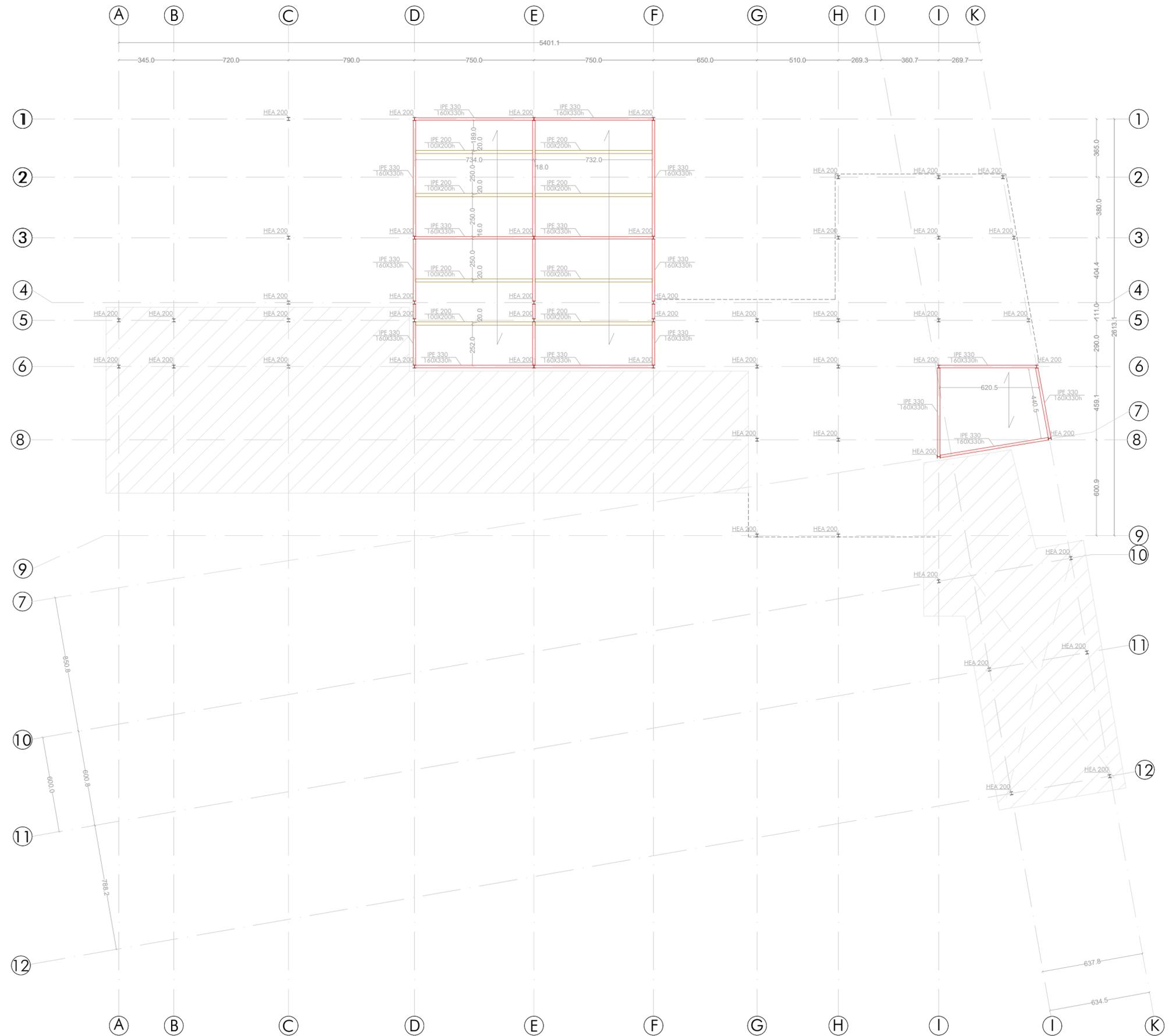
Roof Plan 1:200



Foundation Plan 1:200

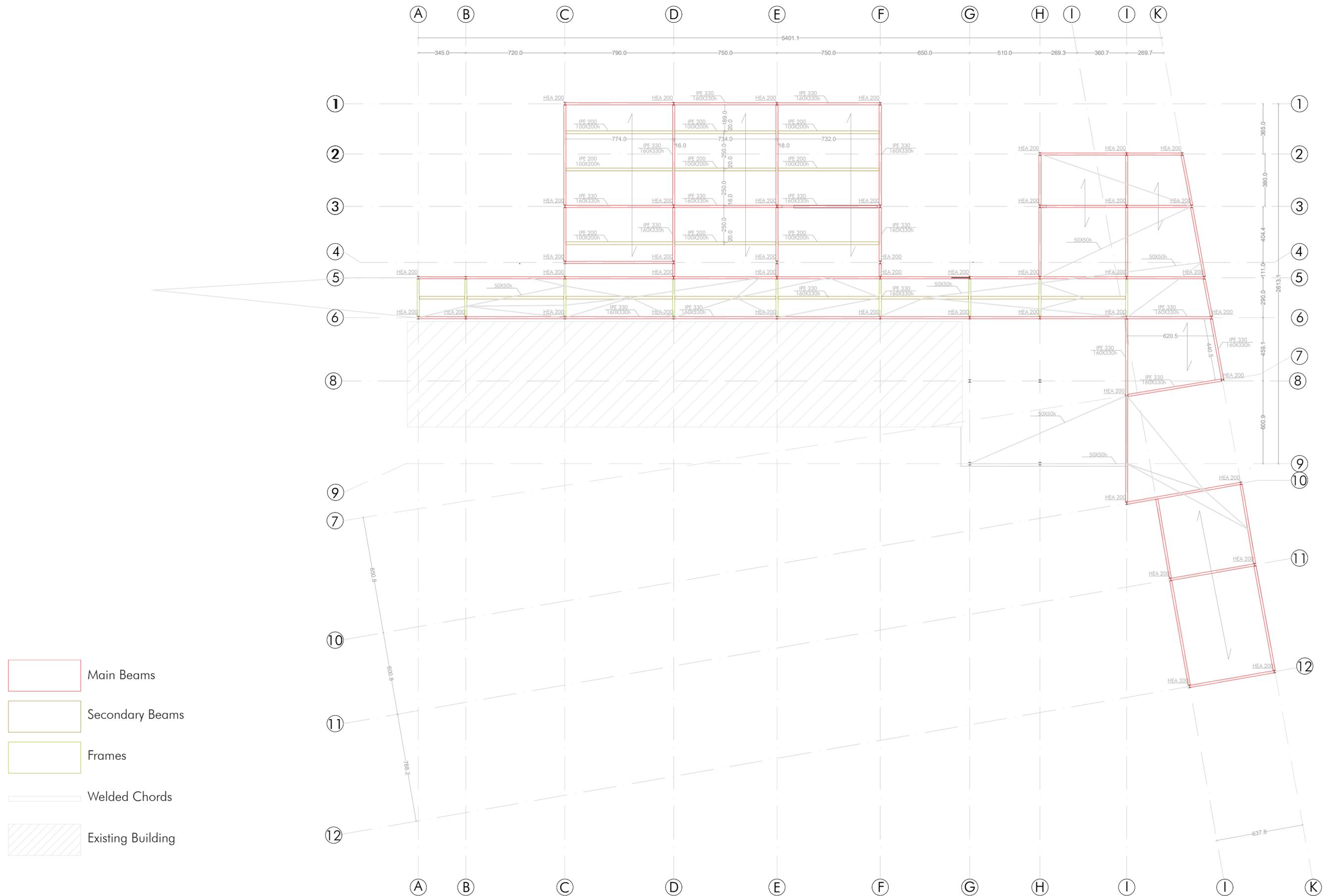


Structural plan for First Floor 1:200

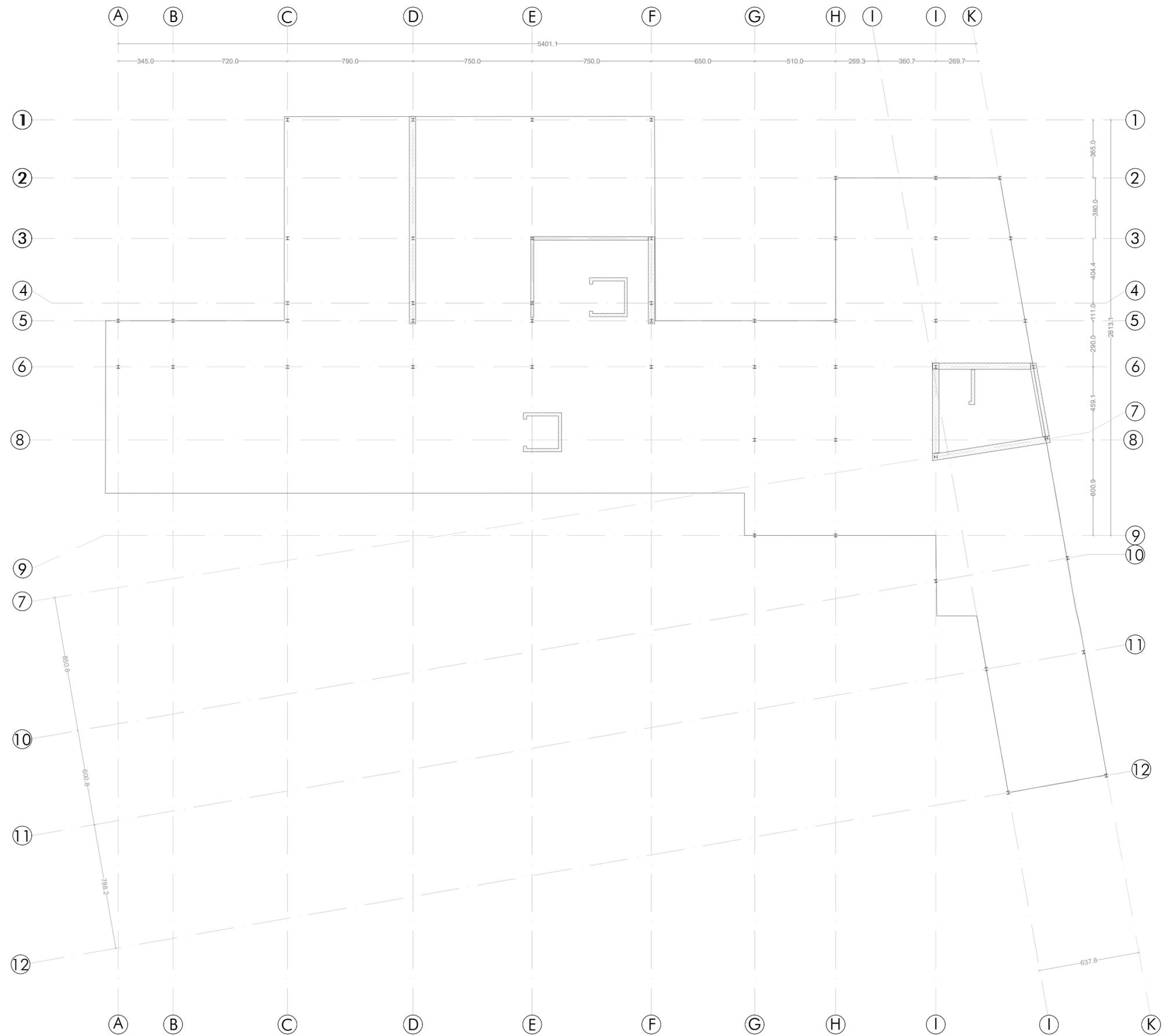


-  Main Beams
-  Secondary Beams
-  Frames
-  Welded Chords
-  Existing Building

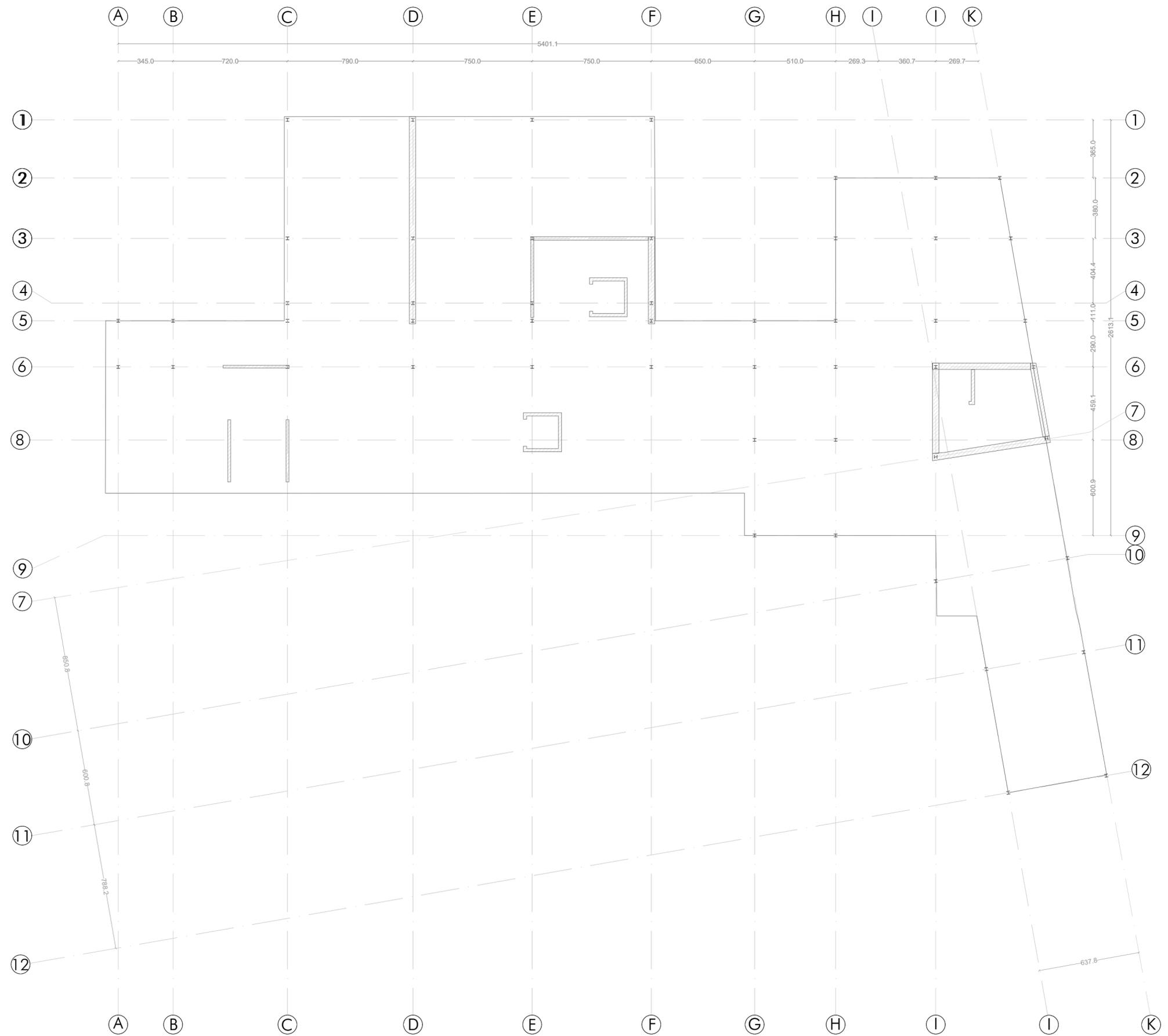
Structural plan for Second Floor 1:200



Load bearing Walls for Ground Floor 1:200



Load bearing Walls for First Floor 1:200



Load bearing Walls for Second Floor 1:200

