

Location: Leoben, Austria
Plot size: 1 134 m²
Greening rate: 41%
Plot rate: 0.30
Building density (FAR): 57%
Building area: 338 m²
Total floor area (gross): 650 m²
Total floor area (net): 600 m²
Stories: 3

基地位置: 奧地利, 萊oben
基地面積: 1 134平方米
綠化率: 41%
容積率: 0.30
建築密度: 57%
建築面積: 338平方米
總用地面積(毛): 650平方米
總用地面積(淨): 600平方米
層數: 3層

Laboratory Hall, Institute of Geomechanics, Tunneling and Mountain Engineering of the University Leoben.

利奧本大學地質、隧道和山脈工程學院實驗樓

Design company: Bernhard Hafner Architekt

設計單位: Bernhard Hafner Architekt

Addition of a one story laboratory hall to a three story plus basement classroom building with punched-holes facades of the fifties. Included are two show-tunnels, in which the old method and the new Austrian tunneling methods, respectively, are presented. For organizational reasons and reasons of story height, the hall's floor is at the basement level and rises up into ground floor, which is about 1 meter above grade. In the rear façade of the classroom building every other window was originally replaced by parts of the brick-wall construction of the building. These windows were re-opened and a new such façade was erected at a distance varying between about two to three meters in front. Thus, a layer of three like facades is established with the new one being part of the addition and serving as a compression member of the hall's suspension structure that creates a sixteen by sixteen meter space without any vertical supports inside and out. The roof is supported by tension-and-compression steel beams, which cantilever from the front suspension point.

In Donawitz, the sibling-city of Leoben, steel is produced. Even today's filters do not completely clean the air of production discharge and white becomes grey in the course of a day. Therefore, a white building was out of the question. Residue of historically varying methods of steel production was deposited for centuries in dumps at nearby mountains where it oxidized in various colors ranging from a whitish yellow to dark violet, with shades of brown predominant. Such residue sands were sprayed wet-on-wet onto the wall-construction of the building, i.e. the new facade and the tunnels, by a spray gun. The members of the steel construction are also painted in a brownish-red color, which contrasts with plate-glass and silver-colored corrugated steel panels. These materials alternate in the façade according to lighting needs, which are satisfied by a large skylight at the center of the hall and exterior glazing, respectively.

The building ages well. The response to the existing building as well as to the environmental conditions of the place succeeds in giving the project high contextual quality.

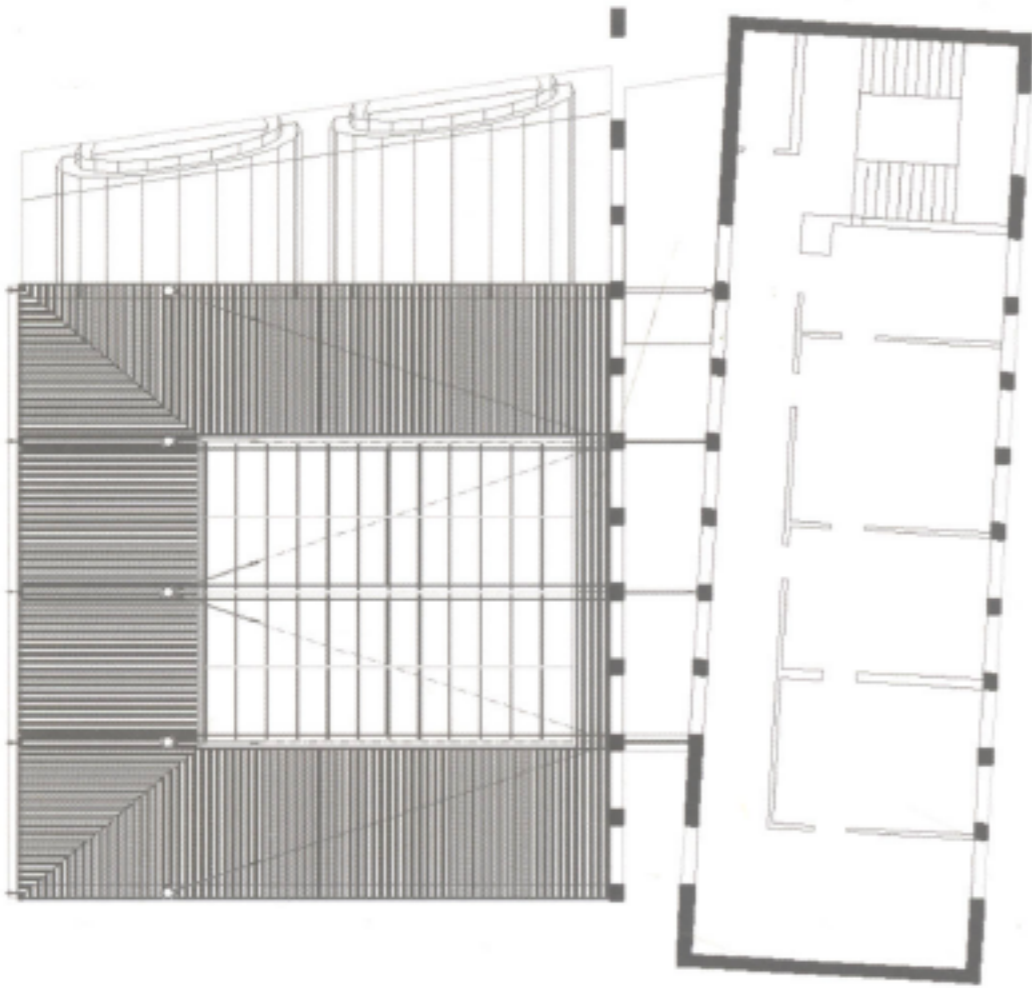
與一層實驗廳在一起的是一個三層50孔洞立面的地下室教室建築物。包括2個展示隧道，分別體現舊的隧道理論和新的奧地利隧道理論。因為組織和層高的原因，實驗廳的地板在地下室水平並且上升進入一樓地板層，大約在地坪上面1米左右。在教室樓的後立面中，每隔一扇窗戶，會被建築物的磚牆壁部分代替。這些窗戶被再次敞開和新的這樣的立面被豎立在前面大約二到三尺之外的距離。因此，三個相似的立面層與一個新的一起建立，作為附加結構的一部分，成為實驗廳懸吊結構的壓縮部分，創造了一個16×16米沒有任何垂直內外支持的空間。屋頂是由壓縮緊繃鋼梁支撐的，從前面的懸吊點構成懸臂式。

Leoben的兄弟城市Donawitz生產鋼材。即使是今天，過濾器也不能完全清理生產造成的廢氣，使空氣中物體一天之間由白變灰。因此，不會考慮建造一座白色建築物。歷史上各種方法製造的鋼的殘渣被堆積到附近山上，長達數世紀之久。在那裏它們氧化成從發白的黃色到黑暗的紫羅蘭各種不同的顏色，但都帶着棕褐色的陰影。這樣的殘渣沙子被對濕噴到建築物牆壁之上，比如新的立面和隧道，就被一只噴槍噴上這些材料。鋼建築的組成部分也被噴成一種褐紅色，與面板玻璃和銀色波紋鋼面板形成對比。這些材料根據光照情況在立面中改變，而廳部中心一扇大的天窗透進的光和外部玻璃窗射進的光就是光源。

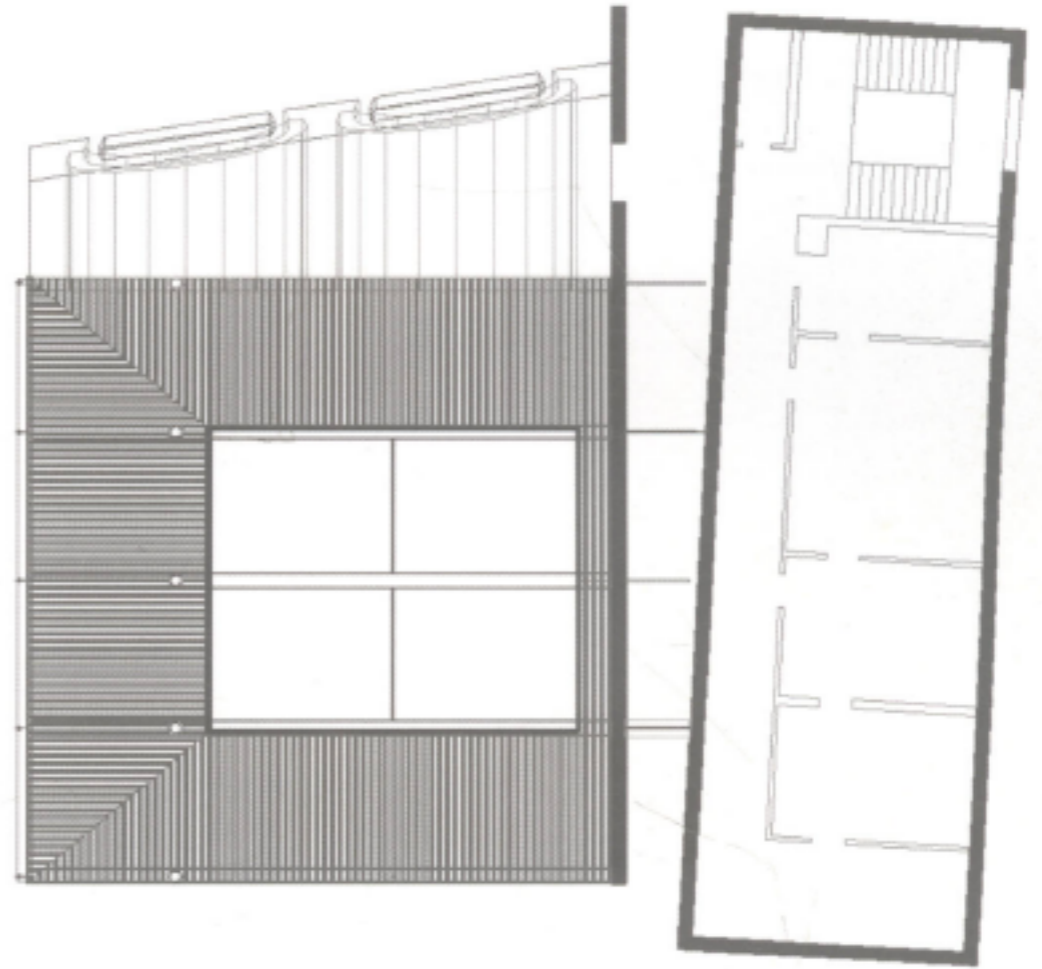
建築物會老的，已有建築物和地方環境條件的相互呼應會體現建築項目優良的傳承力量。



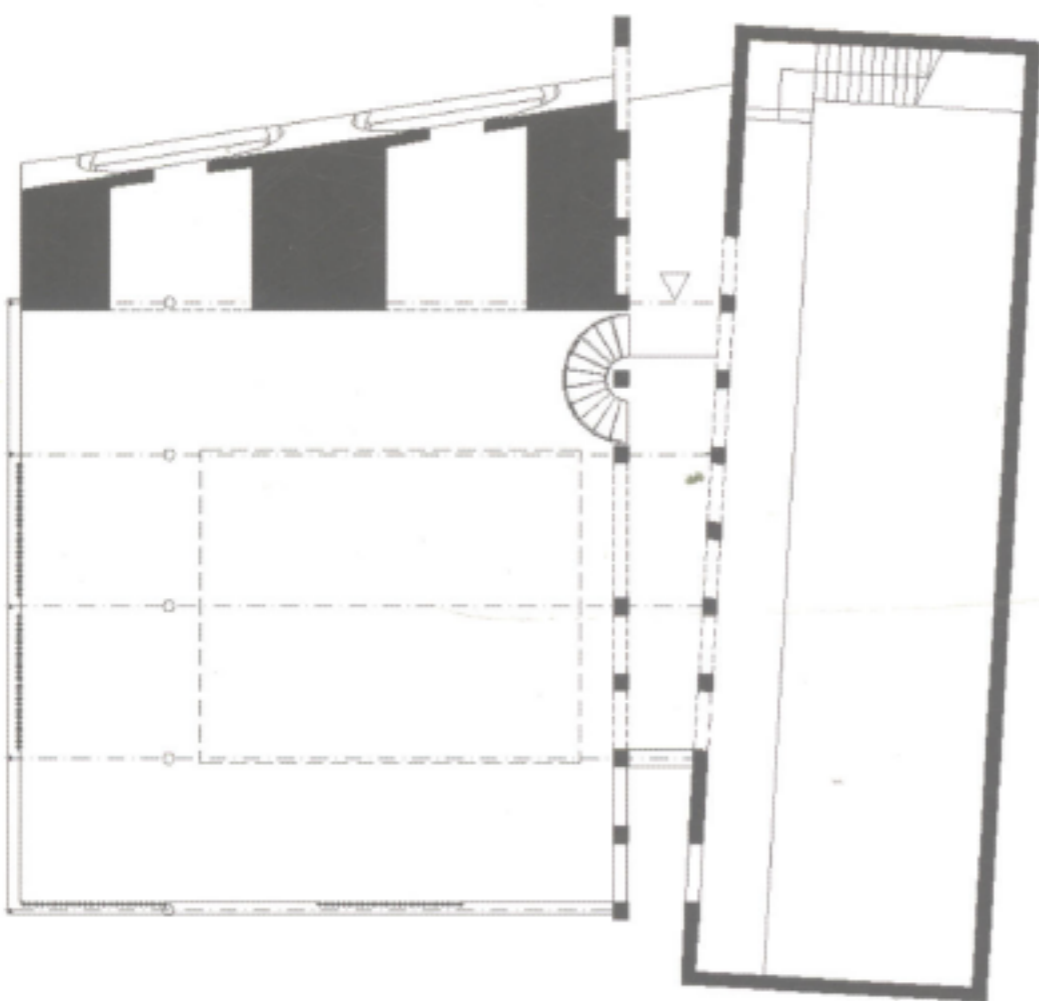




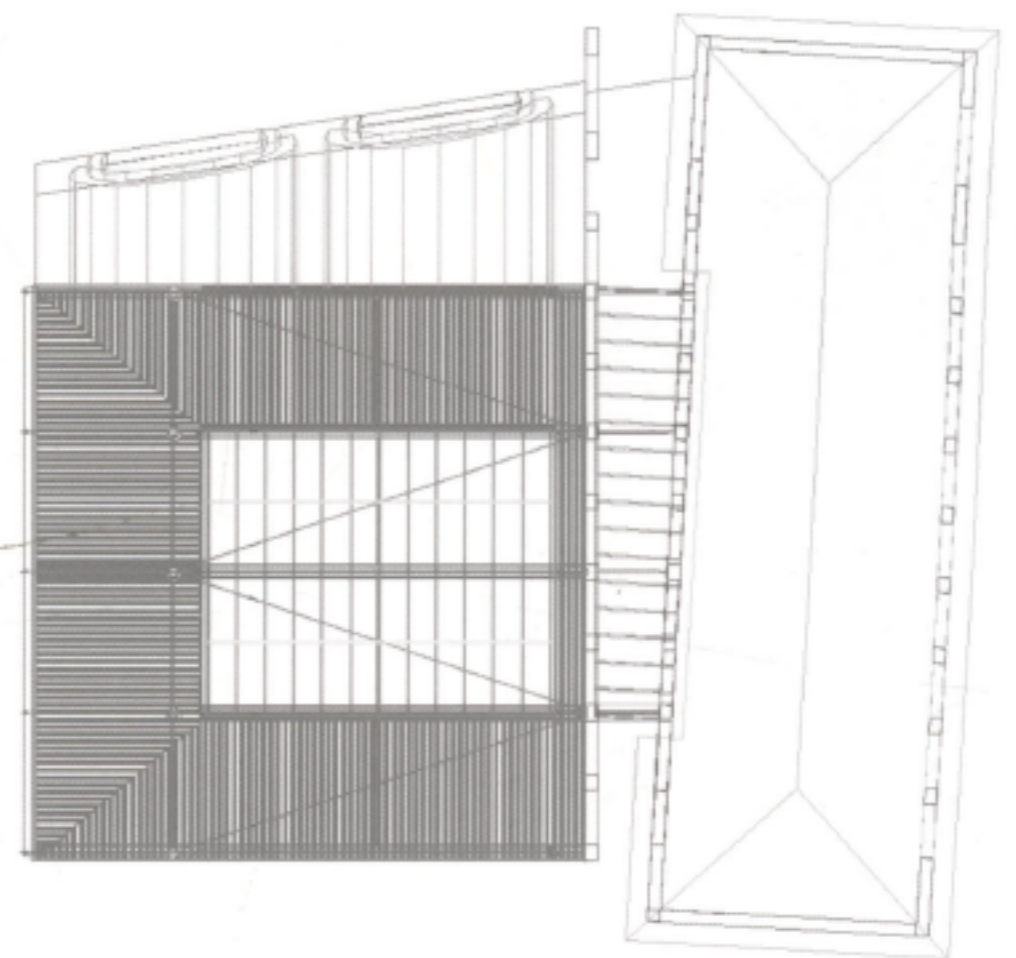
Plan 2
平面图2



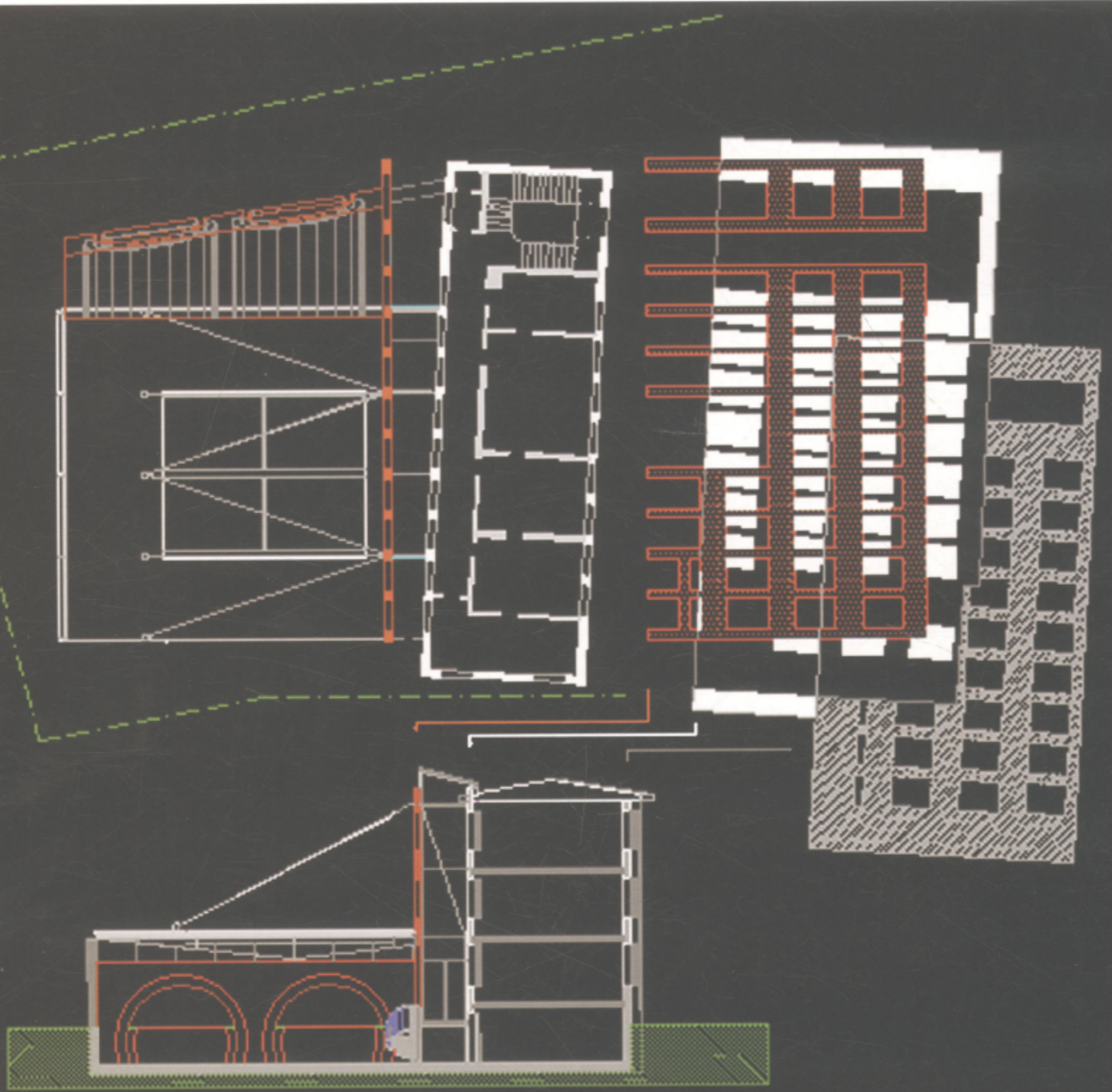
Plan 3
平面图3



Plan 4
平面图4



Plan 5
平面图5



LABORATORY HALL LOEBEN: ON-SITE DESIGN CONCEPT

Plan 1
平面圖1

