



DIMENSIONS v.11

design = f (analysis , transformation)

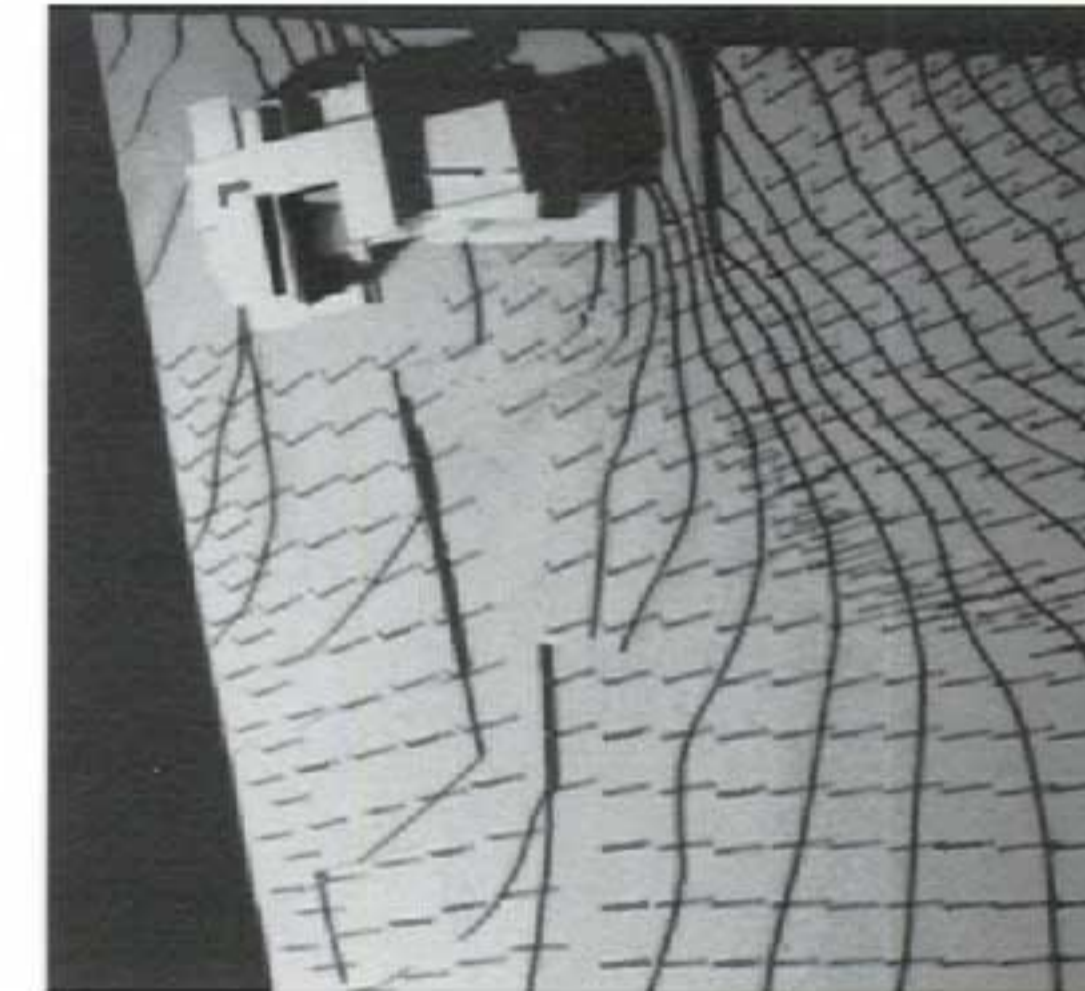
Tarek N Qaddumi

This article describes and illustrates the process that was adopted for the design of a summer house in Jordan. The rich history of Jordanian residential architecture, combined with a prevailing dissatisfaction with current practice, prompted the investigation of a design methodology which seems to address both of these concerns.

As he describes the current situation Ragette, "Noble restraint has been replaced by obtrusive extravagance, intricate gimmicks have supplanted the simple honesty of the stonemason's work, misunderstood modernity competes with artificial reinterpretations of traditional forms."¹ This being the case, the most fundamental issue became finding a contemporary solution which is both understandable and meaningful to Jordanians. The adopted process is part of a tradition that attempts to learn from the past and apply its lessons in the present. It does not wish to encourage the repetition of style or revival of historic elements. The goal is to abstract and analyze a notable precedent; to extract formal attributes of its overall composition and the relations between its individual geometric and spatial elements; and finally, to apply the results of the analysis in activities of form-making. Using the analogy to language, Alexander states that "When learning a language we listen to statements by others, unconsciously invent the rules which we think must govern those statements, attempt statements based on our invented rules, then adjust the rules as we are corrected by other competent speakers of the language. Once the rules have been 'internalized' in this fashion, one can create an endless number of creative yet understandable statements."²

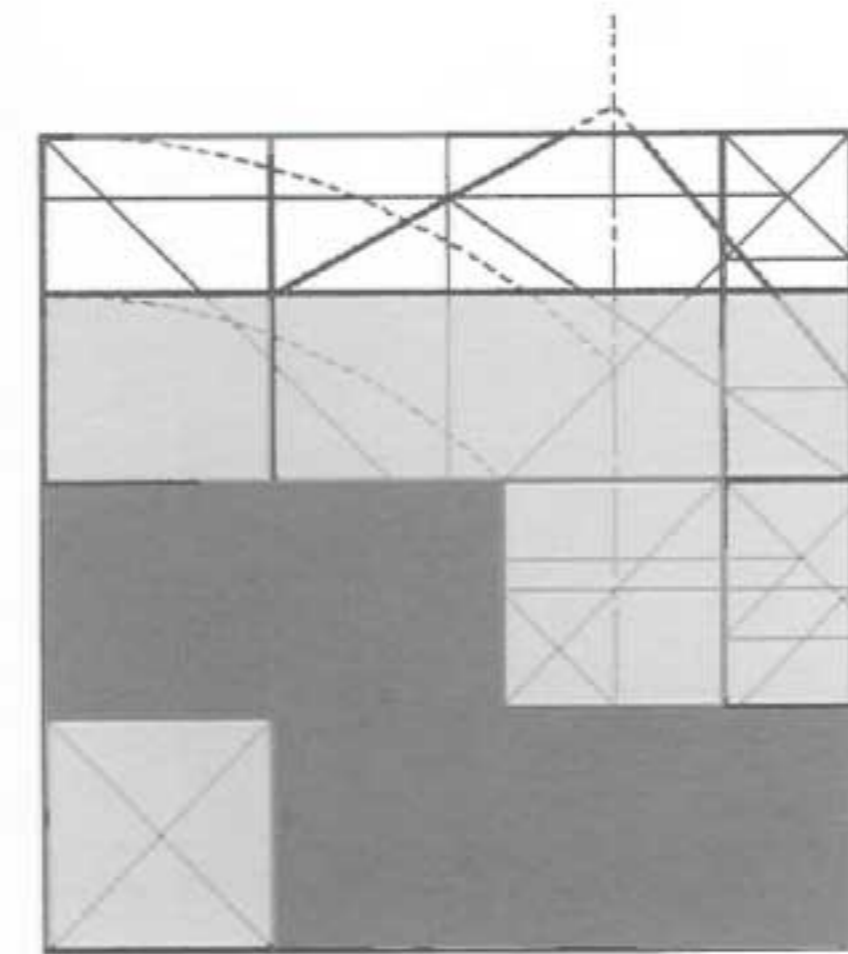
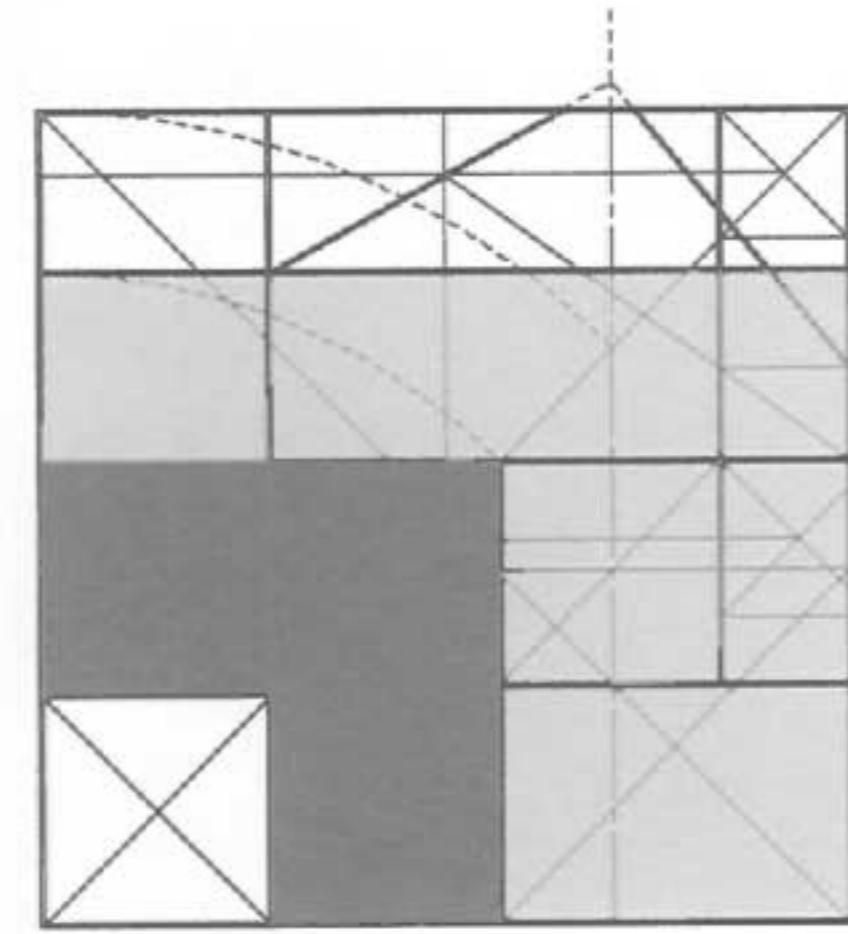
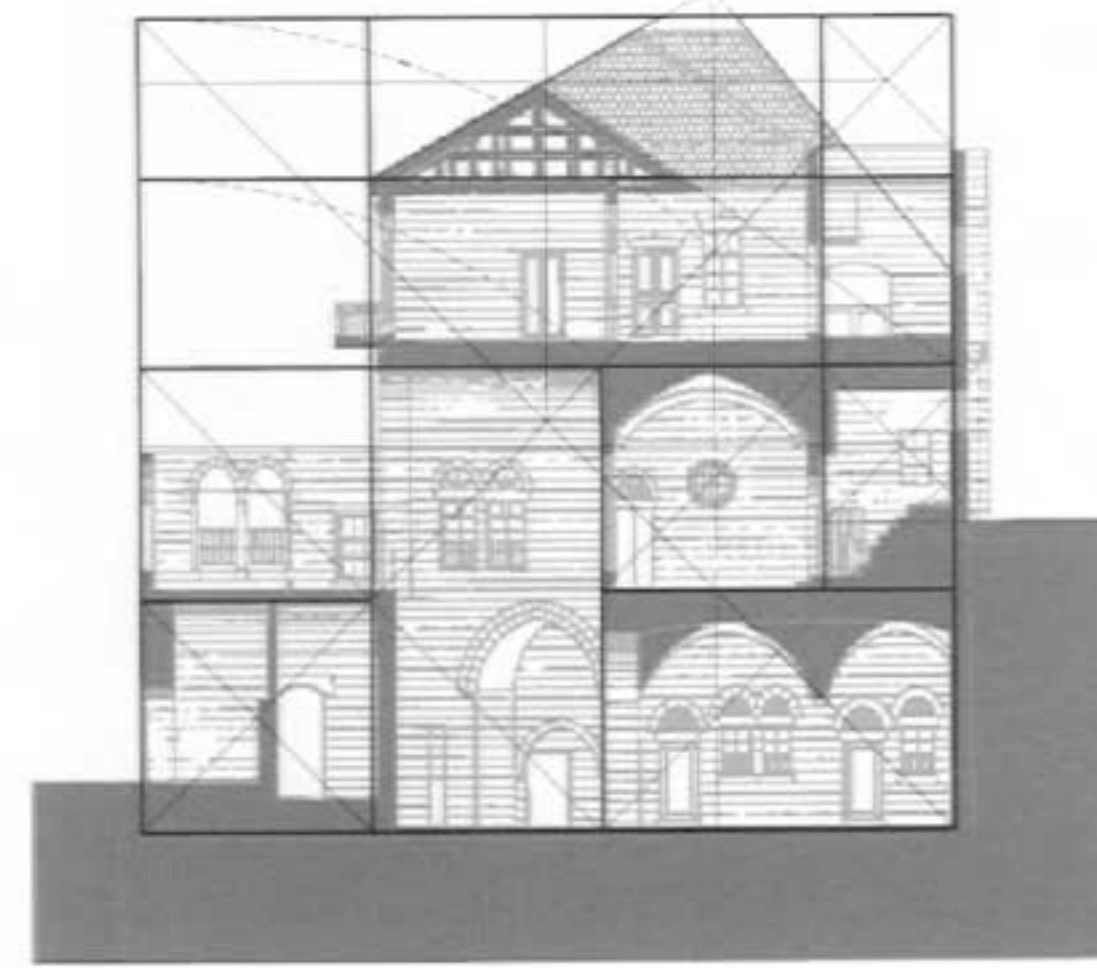
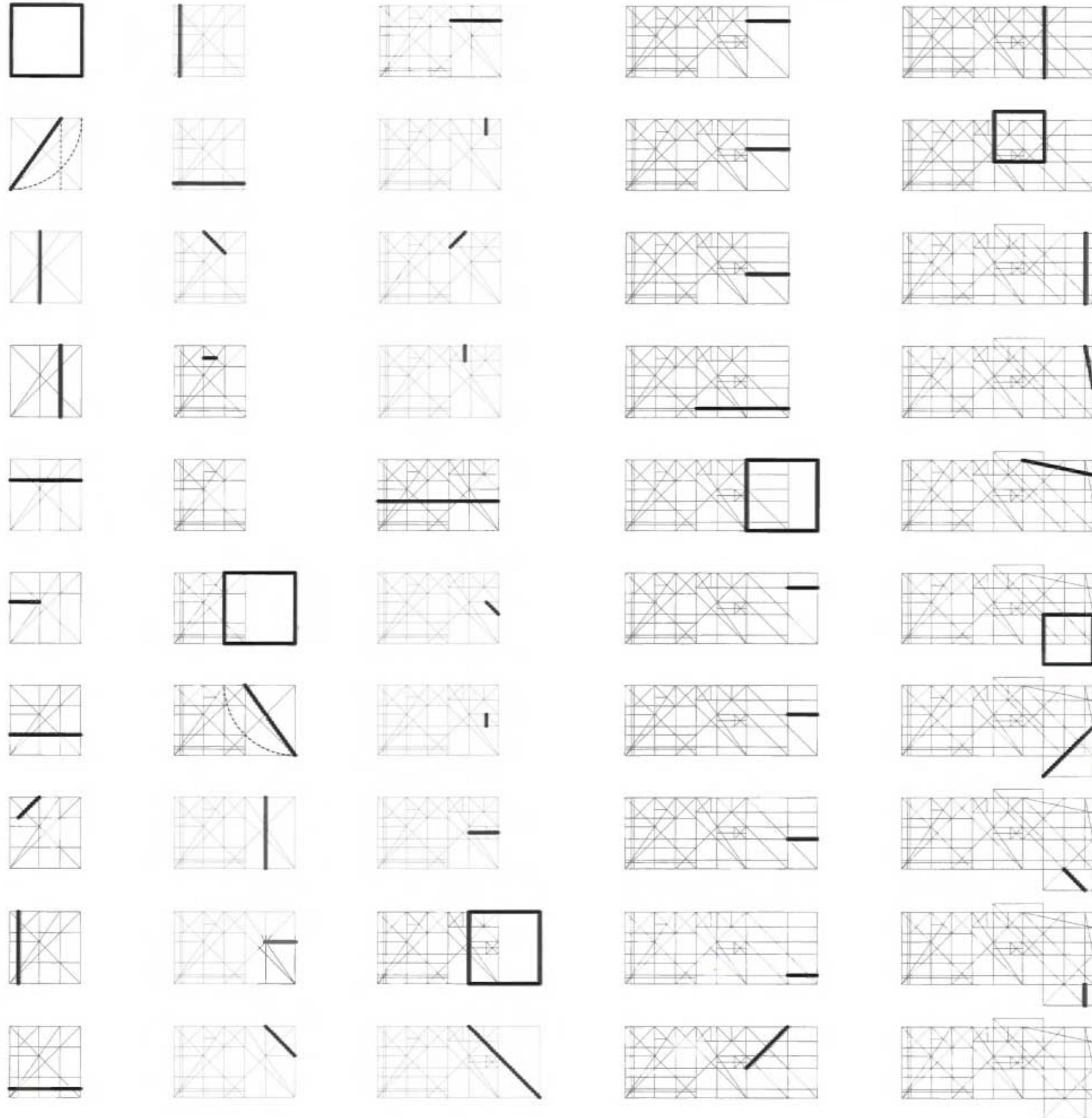
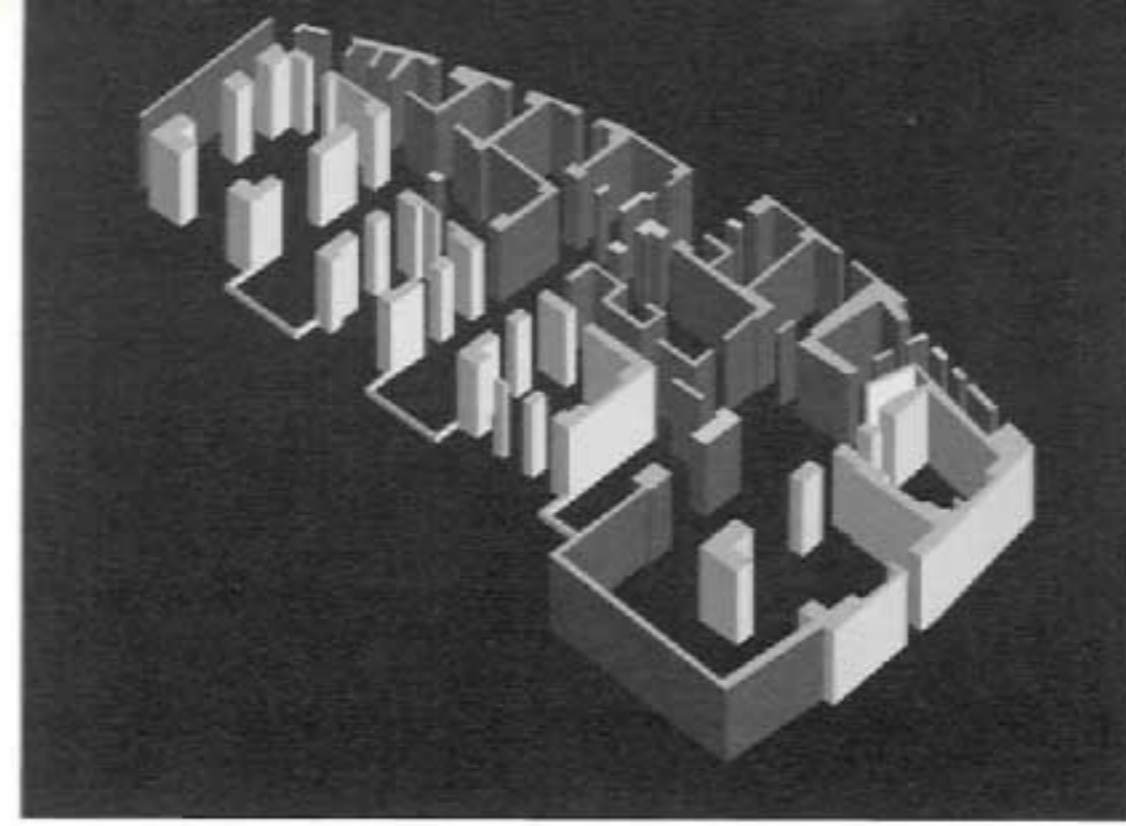
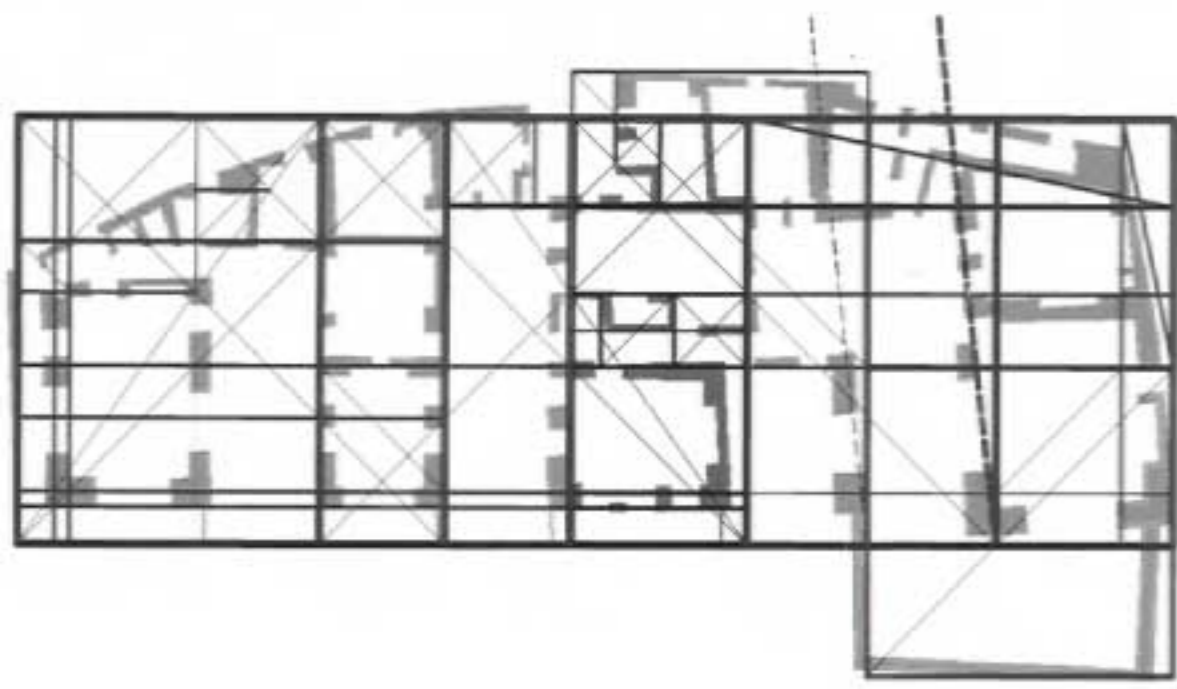
Tarek Qaddumi received his B.S.Arch., 1995, and his M.Arch., 1997, from The University of Michigan. The advisory committee for this project is comprised of Emmanuel-George Vakalo, PhD, Ali Malkawi, PhD, and Abdul-Aziz Fahmy, PhD Cand.

Morphological Analysis and Transformation of Jordanian Precedent as a Basis for the Derivation of an Architectural Solution for a Contemporary House Problem in Jordan.



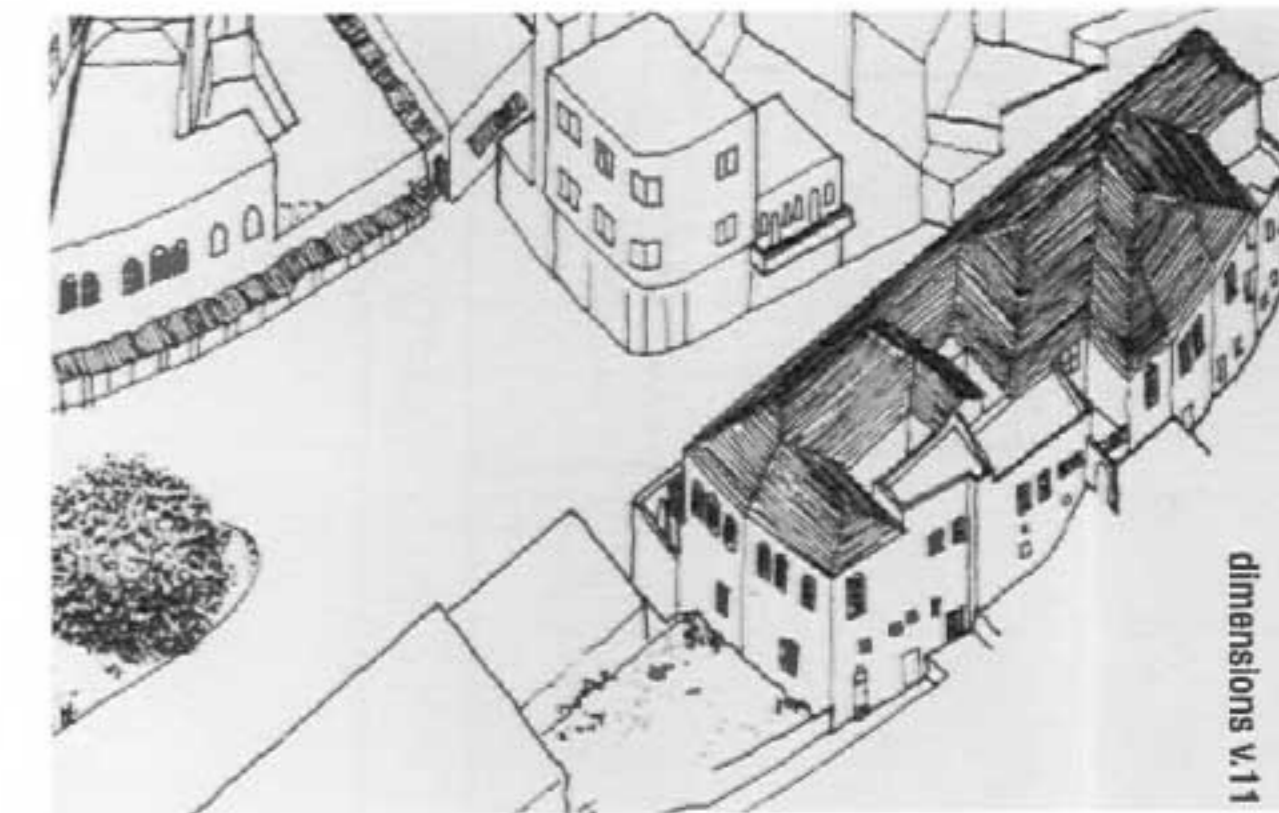
Fredrich Ragette, *Architecture in Lebanon*, (Beirut, 1974).

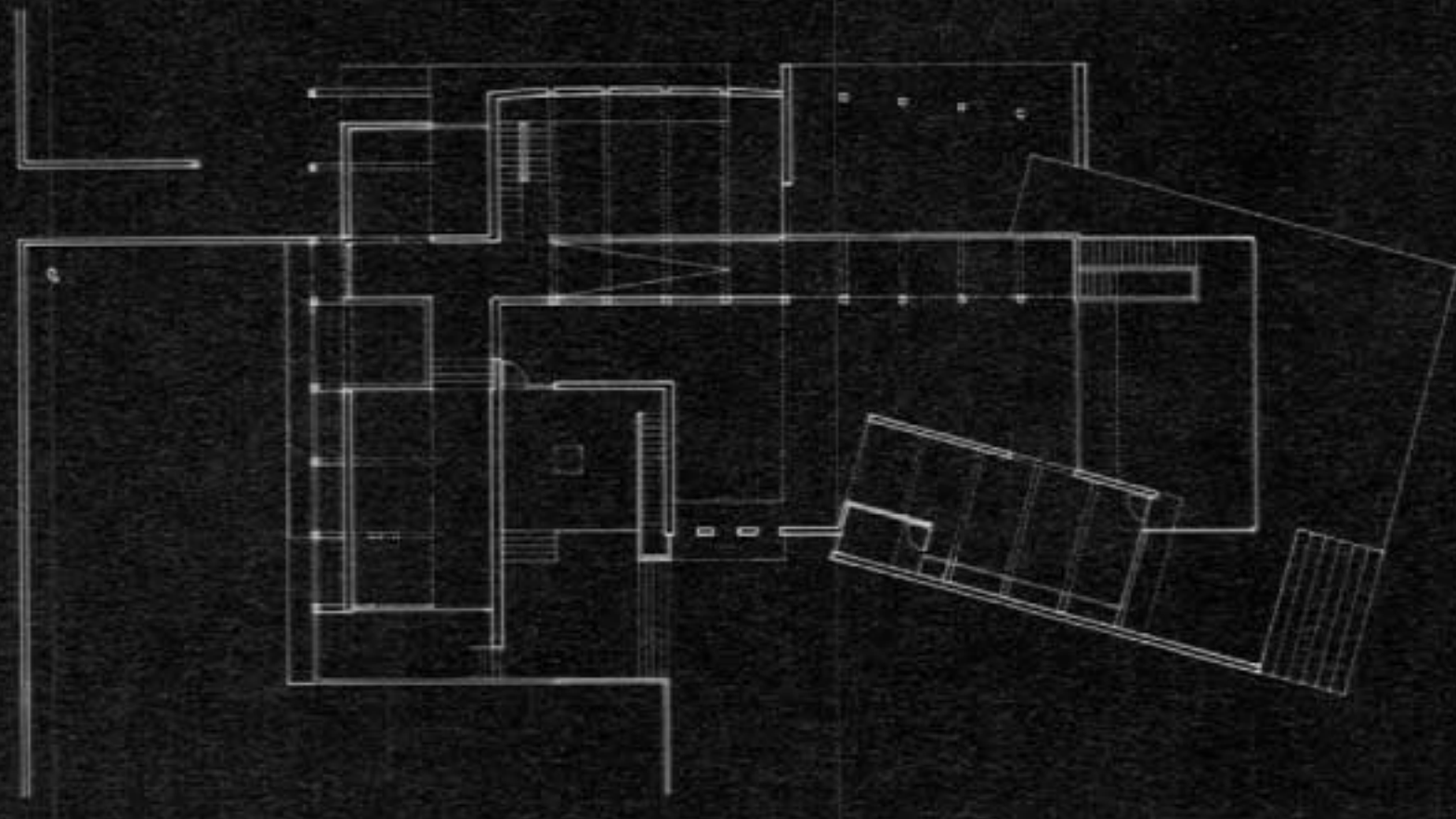
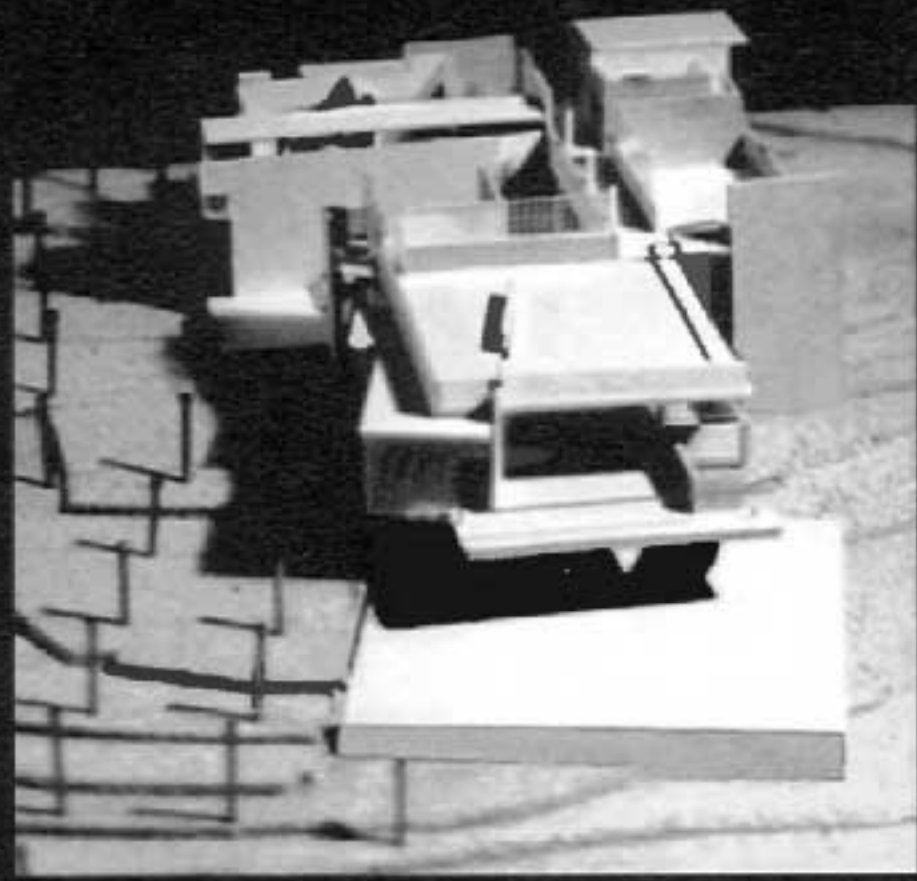
Christopher Alexander, *The Timeless Way of Building*, (New York, 1979).



The building chosen for analysis is the turn of the century residence of Abu Jaber in the city of Salt. The design of Abu Jaber exhibits a degree of complexity which is evident in its plans and sections. The second level is comprised of three, partially overlapped, Central Hall configurations. The derivation of the geometric structure of the plan reveals an overall L-shape composition comprised of the sum of four congruent squares arranged in a linear fashion. The transformation of the rectangular bar into an L-shape is a result of the addition of one of two smaller squares constructed in the fifth column of the derivation. At the spatial level, the extruded plan indicates a band of densely packed enclosed cells. This band stems from a wall on the West side and forms another L-shape as it turns into two larger cells on the East side. From a compositional point of view, this indicates a parti of two overlapped L-shapes of similar orientation and different size. Furthermore, the overall footprint of the plan is determined by the previously described geometry except for an irregular portion which is subtracted to accommodate the irregular edge of the site on the North side. The overall geometry of the transverse section of Abu Jaber is a square. Two smaller squares which share the lower left-hand vertex of the larger one determine the location of the walls and floors. The result is an interesting flow of space. The composition of this section as described is inductive to passive cooling and literal vertical transparency.

The site for the new house in Beit Ziraa is an orchard of apples and nectarines. It is surrounded by similar orchards and fields. Predominant summer breeze is primarily from the Northwest. There are open views towards an open landscape of gently rolling hills in all directions except for the Western side. That side is bound by the thick foliage of the trees along the edge of the neighbors site. The two sites are separated by a side street. The main access road is due South.





The form of the new building derives its geometry and spatial structure from those principles extracted from the plan and section of Abu Jaber. The overall L-shape was oriented so as to create an enclosure facing the rest of the site. The smaller embedded L-shape creates a buffer between the building and the street to the West, and between the building and the neighbor to the North. The spatial composition is based on a system of interlocking L-shapes organized around three overlapping squares. Also a product of geometric and spatial transformation, the transverse section of Abu Jaber has been adjusted to fit the new site and program. It is oriented in relation to the prevailing summer wind to make use of its inherent passive cooling capabilities. The non-orthogonal site lines to the North and West have been negotiated through the rotation of the Eastern, most pronounced, square of the terrace on the ground level. This transformation corresponds with the shift in the square grid of the trees.

