

The explanation of leading to the circle geometrical system in the zone of transition of Iranian dome chambers

Abstract

Changing of square into the circle in structure of dome chambers had been being as a main problem in Iranian architecture. The solution of this problem has been leading to forming and creating of capable methods and techniques in structure of a part of dome chambers changes square chamber below into the round dome above it. This phenomenon has been considered as "the zone of transition" (transitional zone) in many cases of Iranian architectural history of studies but it has been studied less serious in a strict sense as an important independent part. On the other hand, the manner of corbelling of square chamber corners which supports the unstable dome above corners has been made different forms of structure that is called "squinch". These four squinches together with the middle parts between them organize the mentioned zone (zone of transition).

In some studies the zone of transition has described considering the load bearing ingredients of corbelled form of squinches. Some experts have indicated different form of squinches and some others have noticed it considering materials, ornaments and constructional styles. Although these considerations present some aspects of transitional zone such as historic, structural and formal, it rarely has been considered from view point of geometry. In other words employing of non geometrical approaches in front of geometrical essence of transitional zone (changing of square into the circle) rarely has explained it as a clear classification during an evolution. According to this approach the manner of square change into the circle is the main problem of the research which forms different patterns.

The goal of research is the achievement of a clear classification of mentioned patterns as an evolution considering the zone of transition as a "leading to the circle geometrical system. The goal is followed by this main question; how is the geometrical system of transitional zone's pattern and how many patterns can be found in this evolution? It is not any theory in the research should be proved or refused, rather finding of the question's answer makes it as a "qualitative research" follows an inductive process to discovery of transitional zone's patterns. According to this methodology there are a large number of samples will be analyzed in the process of a targeted gathering. Finally the conclusion is achieved as the presentation of nineteen patterns of geo metrical system can be employed in front of restoration of collapsed transitional zones.

Key words:

Zone of transition, squinch, geometrical system, inscribed circle, circumscribed polygon.