

COMPLEX OF DOME - RIBBED BUILDINGS

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The authors of the paper consider the task of creating a complex of accessible, light, environmentally-friendly buildings. To realize the task a design of the complex of public buildings with the use of timber structures has been worked out. The main idea of the design is frame formation on the base of bent-glued timber elements use of two types with different bending radiuses. On the whole all complex structures with various size and configuration are formed by combinations of dome and rib structures.

The first type of structures is a ribbed one. Ribs represent a set of lancet arches forming construction related areas. Suggested frames are designed for building cafes, dance floors, multi-purpose pavilions and the like.

The second type is a dome example, where the frame is lens-shaped formed by two ribbed domes with positive and negative radiuses. Such a frame is designed for building greenhouses, cafes, or buildings provided with a mechanism of rotation relative to the symmetry vertical axis. It should be noted that the buildings of this kind are quite rational for areas with high wind loads.

The third type of structures is combined, being formed by a ribbed dome that has been installed on columns placed at the apexes of a rectilinear. The side rooms

are formed by the ribs radially going outwards from the dome. This framework is appropriate for sports centers, bus stations, motel or visitor's centers.

All facilities of the complex are made in one style and possess a bright architectural expression, combined with functionality. Environmentally-friendly materials are predominantly used for interiors and exteriors.

Taking into consideration the complexity of the building forms there were some difficulties with wind load determination. That is why the authors have developed a special method of wind loads for the complex. The examples of technical solutions are dealt with in the paper.

Keywords: ribbed domes, bent-glued timber elements, low-rise building.