

Abstract

Provided is a large curvature free-form surface double-layer aluminum alloy and stainless steel combined structure system, belonging to the technical field of steel-aluminum combined structures. The structure system includes a lower support system, a lower chord large curvature aluminum reticulated shell, stainless steel supports, and an upper chord aluminum reticulated shell; the lower support system includes frame beams located on four sides of the structure system; the lower chord large curvature aluminum reticulated shell is of a free-form surface structure and is spliced from a plurality of lower chord aluminum alloy units, and the edge lower chord aluminum alloy units are connected to the frame beams; the upper chord aluminum reticulated shell is of a plane structure and is spliced from a plurality of upper chord aluminum alloy units, and the edge upper chord aluminum alloy units are fixedly connected to the frame beams through stainless steel L-shaped adapters; and the upper chord aluminum reticulated shell is supported above the lower chord large curvature aluminum reticulated shell through the stainless steel supports. The combined structure system can achieve rich surface modeling consistent with an architectural concept and has good corrosion resistance.

FIG. 1