

Steel Structure Building Installation Guide / 钢结构建筑安装指南

Phase 1: Foundation & Anchor Bolt Setting / 第一阶段：基础与地脚螺栓定位

- Survey & Layout: Verify the centerlines and elevation of the concrete foundations.
 - 基础校验：核实混凝土基础的中心线轴线及标高。
- Anchor Bolt Installation: Use a steel template to fix the bolts before pouring concrete. Ensure the position deviation is within $\pm 2\text{mm}$.
 - 地脚螺栓预埋：浇筑前使用定位模版固定螺栓，确保位置偏差在 $\pm 2\text{mm}$ 以内。
- Levelling: Install adjusting shims on the bolt base to ensure all column baseplates are on the same horizontal plane.
 - 水平找平：在螺栓底部安装调整垫铁，确保所有柱底板处于同一水平面。

Phase 2: Primary Frame Erection / 第二阶段：主结构吊装

- Column Installation: Erect the columns and temporarily tighten the anchor bolts. Verify the verticality using a total station or theodolite.
 - 钢柱安装：吊装钢柱并初拧地脚螺栓，使用全站仪或经纬仪校正垂直度。
- Rigid Bay Formation: Always start with the bay that has cross-bracings to establish a stable structural unit.
 - 形成刚性单元：优先安装带有柱间支撑的一跨，建立稳固的结构单元。
- Main Beam Assembly & Lifting: Assemble roof beams on the ground and lift them as a complete span.
 - 大梁拼装与吊装：在地面拼装屋面梁，整跨吊装。
- High-Strength Bolt Tightening: Perform 'Initial Tightening' followed by 'Final Tightening' using a torque wrench.
 - 高强螺栓紧固：使用扭矩扳手进行初拧和终拧。

Phase 3: Bracing & Secondary Structure / 第三阶段：支撑与次结构

8. Bracing Tensioning: Install roof and column bracings. Use turnbuckles to ensure the bracing is tightened properly.
 - 支撑涨紧：安装屋面及柱间支撑，通过花篮螺栓确保支撑系统完全张紧。
9. Purlin & Girt Installation: Install purlins and wall girts. Ensure the sag rods are installed straight to prevent purlin rotation.
 - 檩条与墙梁安装：安装屋面檩条与墙部龙骨，拉条需安装平直以防檩条扭转。

Phase 4: Cladding & Roofing / 第四阶段：围护系统安装

10. Wall Panel Installation: Install wall panels (e.g., Carved Metal Panels) from the bottom up, ensuring proper alignment of the joints.
 - 墙面板安装：由下至上安装墙面板（如金属雕花板），确保接缝对齐。
11. Roof Sheet Installation: Start from the leeward side and ensure double-row sealant is applied at the overlaps.
 - 屋面板安装：从背风侧开始安装，搭接处须使用双道密封胶条。

Phase 5: Trims & Finishing / 第五阶段：收边与完成

12. Flashing & Ridge Caps: Install ridge caps, corner flashings, and window/door trims using self-tapping screws at 300mm intervals.
 - 收边与屋脊盖板：安装屋脊瓦、包角及门窗收边件，自攻钉间距保持在 300mm 左右。
13. Gutter & Downspout: Ensure the gutter has a 1% slope towards the downspouts to prevent water accumulation.
 - 天沟与落水管：确保天沟向落水管方向有 1% 的排水坡度。