Post-print of Recommendations for the 13th Five-Year Plan and 2025 Plan of the Steel Structure Industry

Authors: None

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Abstract

At the Seventh Member Representative Conference of the China Steel Construction Society, President Yue Qingrui proposed recommendations for the steel structure industry' s '11th Five-Year' Plan and outlined the key points of the 'Steel Structure 2025' Plan: to accomplish the transformation from a major steel structure manufacturing country to a strong steel structure manufacturing country within a ten-year timeframe.

Full Text

Research on Axis Generation in BIM Models Based on CAD Drawings

Ma Chen[1], Lu Xiaolon[2], Wang Dejian[1]
[1]Department of Civil Engineering, Shanghai University, Shanghai 200072, China
[2]State Grid Shanghai Municipal Electric Power Company Economic and Technology Research Institute, Shanghai 20000, China

Abstract: This paper presents a method for recognizing axis lines and axis labels through analysis of DXF file data exported from CAD drawings. Leveraging this CAD information, a program automatically generates axes and annotations in BIM via secondary development of the Revit platform, significantly reducing the time required to create BIM models from CAD drawings.

Keywords: BIM; CAD; Secondary Development

Steel Structure Industry Development Plans: 13th Five-Year Plan and 2025 Strategic Vision

At the seventh general meeting of the China Steel Construction Society, President Yue Qingrui presented recommendations for the steel structure industry' s "13th Five-Year Plan" and strategic vision for "Steel Structure 2025." The overarching goal is to transform China from a large steel structure manufacturing country to a steel structure manufacturing powerhouse within ten years.

2025 Strategic Goals: By 2025, steel structures and steel-concrete composite structures should account for 20-30% of total construction steel usage, aligning with current levels in developed countries. The CNC rate for key manufacturing processes must exceed 50%, with average labor productivity surpassing 100 tons per employee annually. Overall engineering technology levels should reach international standards, with full integration of Chinese steel structure technical standards into the international system and leadership in developing key ISO standards. China aims to capture over 50% of the global steel structure market share, forming more than ten internationally competitive multinational corporations specializing in steel structure engineering and general contracting, while establishing over ten national-level steel structure industrial clusters.

13th Five-Year Plan Targets (2020): The 2020 targets call for national steel structure consumption to double 2014 levels, reaching 80-100 million tons (over 10% of crude steel output). Exports should quadruple from 2014 levels to 10 million tons, representing more than 10% of total steel structure production. The primary steel grades should transition from the current Q345/Q235 to Q345/Q390. Key technologies for steel structure design, construction, and monitoring should reach the international advanced level overall.

Priority Development Areas: The plan prioritizes several sectors: building steel structures, bridge steel structures, energy steel structures, and defense-related steel structures. Specifically, building steel consumption should increase from approximately 10% of national construction steel usage in 2014 to 15-20% (exceeding 55 million tons annually). Other sectors will also see substantial growth.

Critical Technologies for 2025: Key breakthrough areas include CNC machine tools and steel cutting/distribution centers, welding robots and intelligent production lines, integrated anti-corrosion/fireproofing systems with automatic coating production lines, BIM and simulation technology applications, modular design and manufacturing, high-performance structural and connection materials, integration with international standards, "Internet Plus" and financial platform applications, big data and cloud platform technologies, and remote control systems for steel structure engineering.

Strategic Tasks for Enterprises: Large enterprise groups should build themselves into international "aircraft carriers" by aligning with national strategies, partnering with domestic general contractors to "sail abroad by hitching a ride,"

seeking international certification and alignment with top global contractors, achieving deep integration of informatization and industrialization to enhance innovation capacity, and integrating resources across internet, finance, talent, and technology for business model innovation. Medium and large enterprises should become specialized "frigate" companies by establishing clear product directions to create regional premium offerings, forming strategic partnerships with suitable large enterprises as specialized subcontractors, providing specialized services for general contractors or large companies, and avoiding blind expansion or reckless entry into overseas markets.

Note: Figure translations are in progress. See original paper for figures.