ZEN CASTELLATED BEAMS

SINGLE SPAN PORTAL FRAME

LONG SINGLE SPAN PORTAL FRAME

SHOT BLASTED CASTELLATED BEAM

MEZZANINE FLOORS USING CASTELLATION

STADIUM STANDS WITH CLASSROOMS UNDERNEATH

Zenith STEEL FABRICATORS LTD
DESIGN, FABRICATE & ERECT STRUCTURAL STEEL WORK
An ISO 9001:2008 Certified Company
EAST AND CENTRAL AFRICA SINCE 1977

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INTRODUCTION

Zenith Steel is a leading steel fabrication company that has ISO 9001:2008 certification. The company started its operations in 1977 as a small fabrication workshop in Kenya which was founded by Mr. Abbas Biviji and Mr. Jayantilal Gohil. However, over the years, the workshop developed to be an outstanding establishment that took the fabrication industry by storm. The next generation intellects – Mr. Raheem Biviji and Mr. Kamlesh Gohil have since then expanded the business in Uganda, Tanzania, Zambia, Malawi, Rwanda, Southern Sudan, Ethiopia, Democratic Republic of Congo and Ghana.

The company specializes in the erection and fabrication of steel structures, which include but not limited to: warehouses, factories, multi-storey steel buildings, stadiums, petrol stations, churches, water tanks, towers, and bridges. Multi-storey buildings in steel is a trend that is fast breaking the dominance of conventional brick and mortar buildings that have for decades shaped worlds’ skyline. Although it is a recent adoption in Africa, multi-storey steel buildings have been around since the 1940’s in developed countries. With today’s advancements in research and technology, the use of structural steel and reinforced concrete together creates a composite design which is being implemented in multi-storey construction. Zenith Steel is the bona fide pioneer of multi-storey building technology in East Africa.

The benefits of using steel are that the design and fabrication are done under controlled conditions within the workshop simplifying the erection, safety, and speed while on site. Another benefit comes to the end of the lifespan of the building whereby most the steel can be recycled. Contrary to popular belief, steel produces an overall cheaper and smarter looking building than concrete, this is brought about by the speed of construction, less labour required, longer spans, aesthetic appeal, service integration and quality assurance.

Zenith Steel Fabricators Ltd has a well-educated team of engineers and draftsmen that are trained in using Tekla, Autocad, GSA Oasys, Steel Projects, DZF software and an internal program called ZSF that enables a high level to decision making and communication between clients to machines. Zenith Steel also has a well trained and organized fabrication and erection team that is able to produce a high-quality and elegant building.

Zenith steel proclaims that use of steel in construction is the way to go, and states that it will lead the way in taking the technology and know-how to all corners of the African continent and beyond.
ZEN CASTELLATED BEAM

A castellated beam is a commonly used name for expanded beams, the name has been derived from the patterns seen the web holes which means “built like a castle, having battlements”. They are used in roof beams/rafters in both portal frames and cantilever construction, chassis of trailers, mezzanine floor beams, girders and bridges.

FABRICATION PROCESS

It is made by separating a standard rolled shape into two halves by cutting the web in a regular alternating pattern as shown the diagram below. The halves are rejoined by welding, after offsetting one portion so that the high points of the web pattern come into contact. The depth brought from castellation of the beam has been increased by 50%.

Stage 1: Plasma Cutting

Stage 2: Separation of T-Sections

Stage 3: Welding and Shot Blasting

BENEFITS OF CASTELLATION

Castellation take advantage of the increased strength and the economy of the beams. They also showcase an elegant appearance and the functionality of the web holes enables services to pass through easily. The economy of castellated beams is one of their most important advantages. The savings depend on such factors as span, loading and depth requirements, so no single flat percent of savings can be stated.

UNIQUE OPPORTUNITIES

Curved Castellated Beams

The tooth width and pitches of the inner and outer halves are set differently, to ensure that after cambering they will perfectly match one another. Curved castellated beams can be supplied in a wide range of types; for example circular and parabolic, to name just a few.

Asymmetrical Castellated Beams

A specified angle is used to cut the standard rolled shape. The camber is sufficiently marked to avoid any risk of inverted installation. It is particularly suitable for the optimization of floor beams, where moments are high or to provide sufficient rigidity.
TECHNICAL DRAWING

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