



MAJESTY

STEEL & PLATE WORK CONSTRUCTION

MAJESTY Portfolio

BUILT TO BUILD THE FUTURE



STRENGTH
YOU CAN TRUST



QUALITY
THAT LASTS



INNOVATION
THAT BUILDS



COMMITMENT
THAT DELIVERS





MAJESTY

STEEL & PLATE WORK CONSTRUCTION

ABOUT OUR COMPANY

Majesty is a leading Egyptian company specialized in integrated steel structure solutions. We deliver full-cycle services including design, fabrication, and on-site installation for industrial, commercial, and agricultural sectors. With decades of experience, we combine precision engineering, modern technology, and field-tested methods to bring your vision to life.



OUR MISSION

To provide durable, efficient, and customized steel structures using cutting-edge engineering and sustainable practices.



OUR VISION

To set the benchmark for steel construction quality and innovation across Egypt and the region.





ABOUT OUR COMPANY



MAJESTY was established in 2017 and since then MAJESTY has been working in Steel and Plate work Construction.



MAJESTY has a very unique experience in Steel and Platework Construction field as its owners was the previous Engineers of Orascom, Hassan Allam, Mantrac, Redcon and DALAL Steel Industries Company and has been working in this field since then.



Within the Steel Structure field MAJESTY developed its own methods that enabled it to enhance its performance and expand its clients.



Working for many years in Steel Structure enables MAJESTY to be more specialist in specificin Steel and Plate work Construction.



SECTION 2

ABOUT OUR SERVICES

**PROJECT MANAGEMENT**

Efficient planning, coordination and execution to deliver successful projects

**MANUFACTURING**

High precision manufacturing solutions with advanced technology and expertise.

**ESTIMATION**

Accurate cost estimation ensuring feasibility and value for every project.

**CONSTRUCTION**

Safe, reliable and efficient construction services. built to last

**QUALITY ASSURANCE & CONTROL**

Strict quality standards and continuous monitoring to ensure excellence at every stage.

**MATERIAL PLANNING**

Strategic material planning to optimize resources and ensure timely delivery



MAJESTY

STEEL & PLATE WORK CONSTRUCTION

SCOPE OF WORK

We provide end to end steel solutions for a wide range of industries.



Transport & Installation



Project Applications



Maintenance & Expansion



Steel Fabrication



Engineering Design



Steel Building Systems



OUR COMMITMENT

Delivering high quality, innovative and sustainable steel solutions with safety and excellence at the core.

QUALITY
You Can Trust

SAFETY
Our Priority

ON-TIME
Every Time

MANUFACTURING PROCESS

A structured and precise manufacturing process that ensures the highest standards of quality, safety, and on-time delivery.



Cutting & Common

Utilizing advanced machinery to ensure high precision in shaping raw steel materials according to project specs.



Built UP

Assembling primary structural components meticulously to create a solid foundation for the final steel framework.



Fit-Up

Aligning and tacking pieces together accurately to verify dimensions before the permanent welding process starts.



Welding

Skilled technicians perform manual welding with extreme focus to maintain structural integrity and joint strength.



Automatic Welding

Implementing automated welding technology to achieve uniform seams and accelerate production for large scale tasks.



Visual

Conducting thorough visual inspections to detect any surface defects and ensure compliance with quality standards.



FORKLIFT

Using specialized heavy equipment to safely handle and transport massive steel structures within the factory floor.



MACHINES & UTILITIES

Equipped with advanced machinery and facilities to ensure precision and efficiency



**CNC
MACHINES**



**PLASMA & OXY
FUEL CUTTING**



**WELDING
MACHINES**



**OVERHEAD
CRANES**



**PAINTING
BOOTH**



**FABRICATION
LINES**



OUR TEAMS

Our strength lies in our people. A dedicated team of engineers, technicians and skilled professionals working together to deliver excellence.

50+

SKILLED
EMPLOYEES

10




ENGINEERS &
SUPERVISORS

15+

PROJECTS
COMPLETED



PRE-QUALIFICATION & MAJOR PROJECTS

-  Prequalified with leading contractors and oil & gas companies.
-  Successfully completed various projects across multiple sectors
-  Proven track record of quality, safety and timely delivery



SECTION 3

OUR FACTORY

- ▶ We have two factories that support the manufacturing of our major projects.
- ▶ One workshop is located in the 10th of Ramadan industrial zone, and the other is located in the Qalyub industrial zone.

**Factory:**

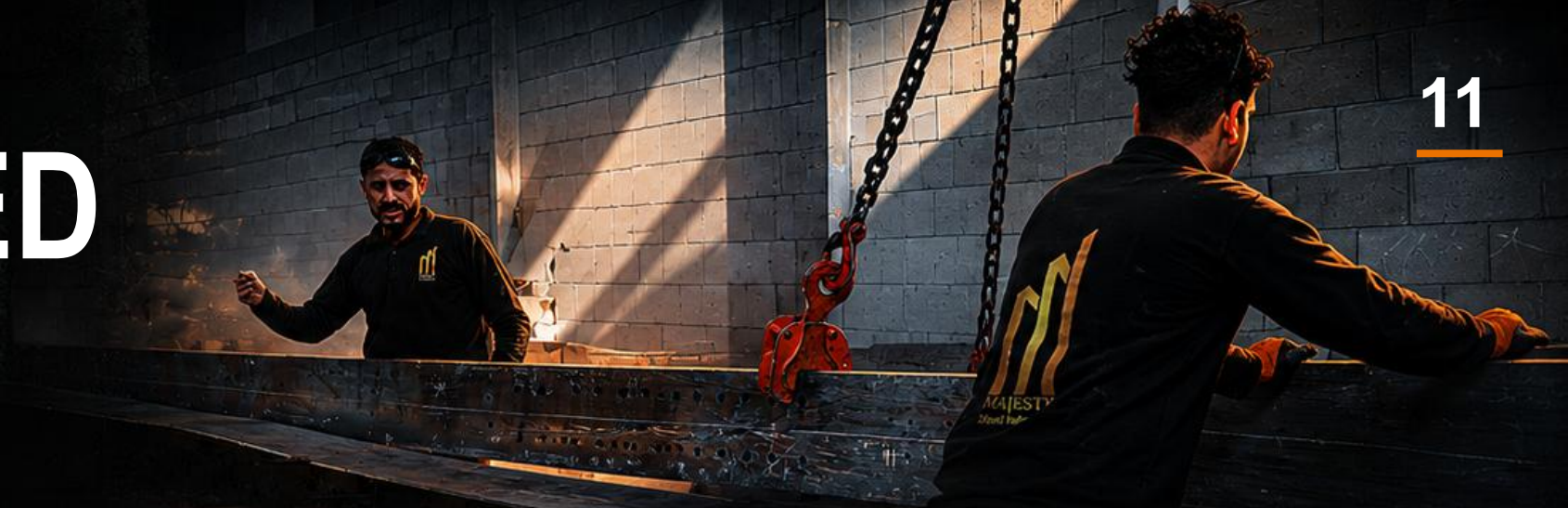
block 111, 8th industrial zone, Al-Sadat, Egypt.

**Head Quarter:**

G43, talaat harb axis, new narges, 5th settlement, new cairo, egypt.



WE WORKED WITH



Urban Communities
Authority



Savola Foods



AlShaafar General
Contracting



Engineering Authority of
the Armed Forces



ECG - Engineering
Consultants Group



EMAAR Misr



Cosmos Consultants



Hassan Allam Construction



Orascom Construction



Dalal Steel Industries



Redcon Construction



MAJESTY

STEEL & PLATE WORK CONSTRUCTION

Our Recent Projects



Mivida English School Playground



AREA

AREA 1440 m²



TONNAGE

42 ton



SCOPE OF WORK

Design, shop drawing, fabrication, erection, and sandwich panels installation according to the project specifications.



CLIENT

EMAAR Misr



CONSULTANT

EGEC



Our Recent Projects



Mivida English School Theatre



AREA

AREA 1080 m²



TONNAGE

34 ton



SCOPE OF WORK

Design, shop drawing, fabrication, erection and sandwich panels installation according to the project specifications



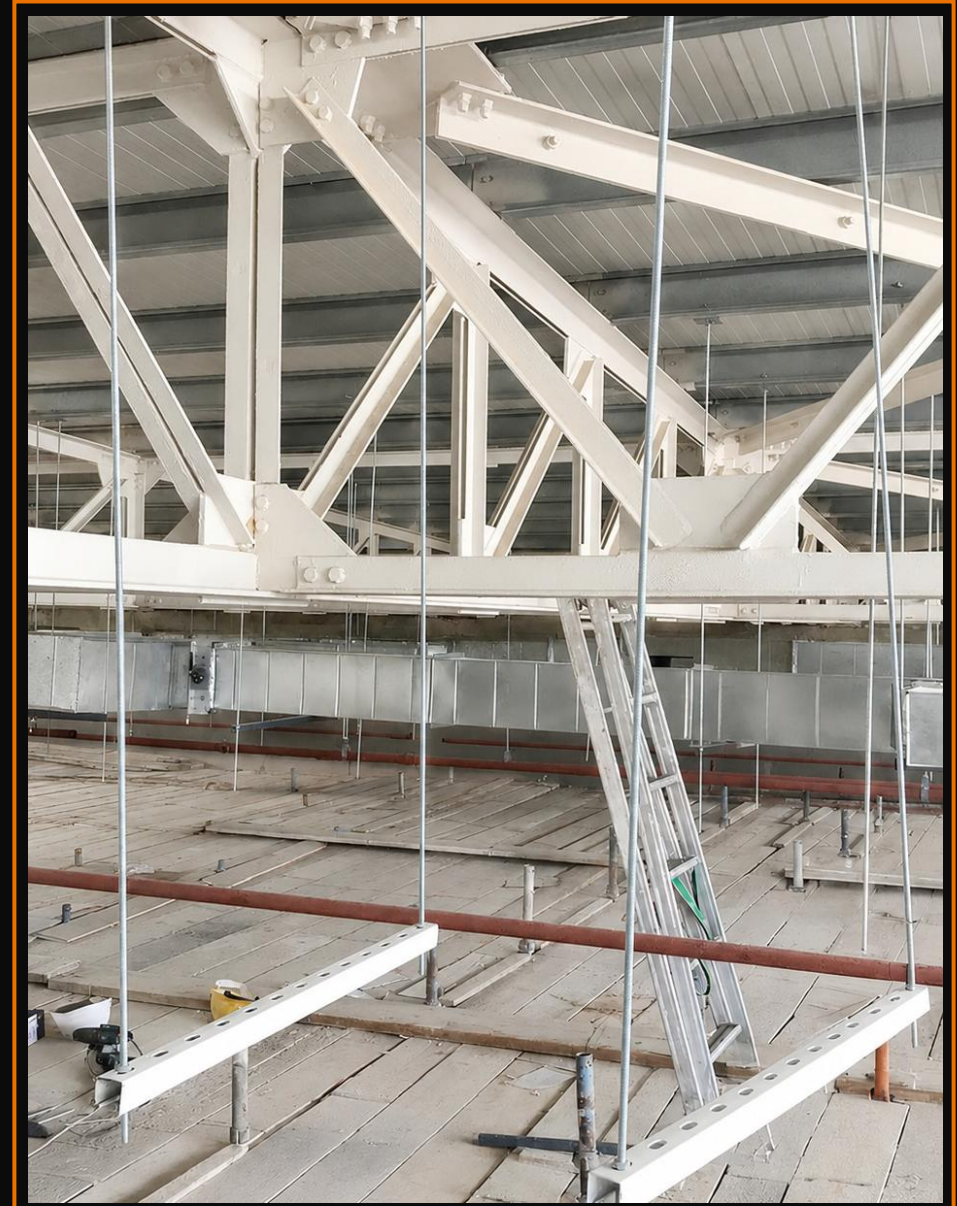
CLIENT

EMAAR Misr



CONSULTANT

EGEC



Our Recent Projects



AlBahy for poultry feed - Ismailia desert RD



AREA

AREA 2100 m²



TONNAGE

61 ton



SCOPE OF WORK

Design, shop drawing, fabrication and erection according to the project specifications.



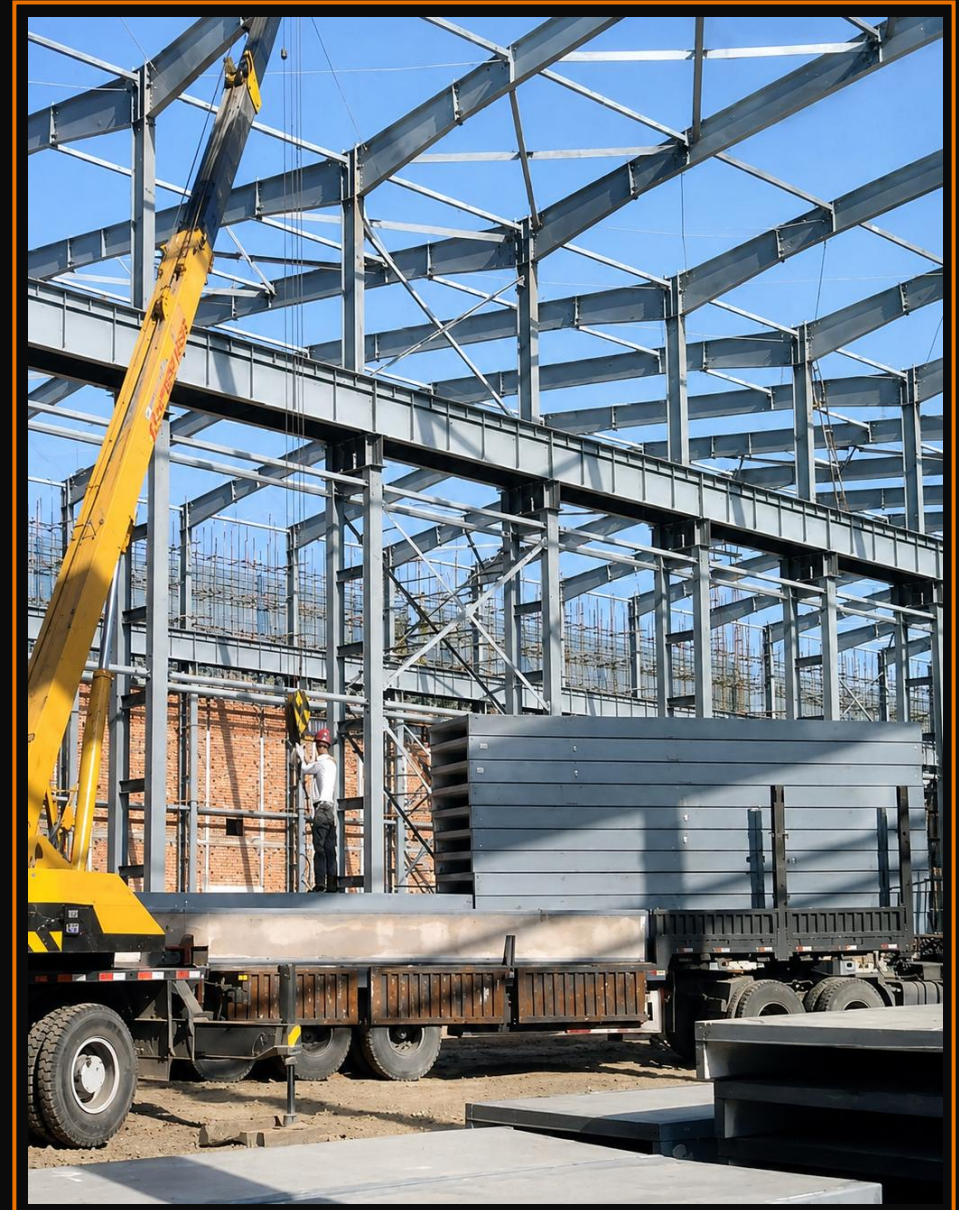
CLIENT

AlBahy



CONSULTANT

Dr. Nabil Foad



MAJESTY

STEEL & PLATE WORK CONSTRUCTION

Our Recent Projects



AlJazi - Al-rehab - New Cairo



AREA

Area of one building 80 m²



TONNAGE

128 ton



NUMBER OF BUILDINGS

16



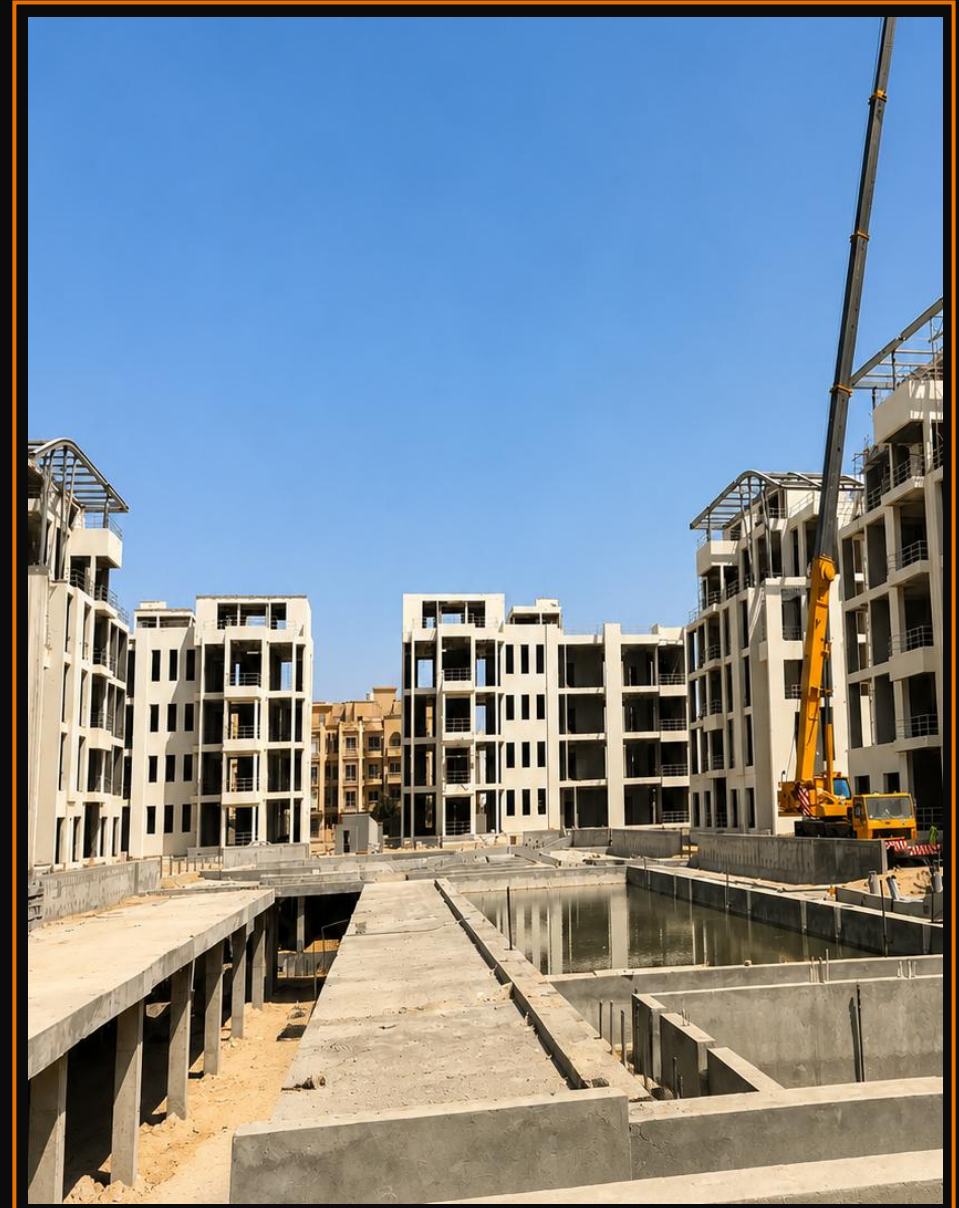
SCOPE OF WORK

Design, shop drawing, fabrication and erection according to the project specifications.



CLIENT

AlJazi



Crisis Building- Gharbia Government



**Installation Of Steel Structural System
And Decking Slab Of Crisis Building at
Gharbia Government**



AREA

AREA 584 m2



TONNAGE

36 tons



SCOPE OF WORK

Shop Drawings, Fabrication
and Erection of Steel Structure and Steel Decking Slab
According to Project Specification.



CLIENT

Gharbia Government



CONSULTANT

Engineering Authority of
Gharbia Government



Senyorita Foods - Americana Group



Structural System Of A New Production Lines



TONNAGE

14 ton



SCOPE OF WORK

Design According To AISC (american institute of steel construction), Shop Drawings, Fabrication And Erection of Steel Structural System.



CLIENT

Senyorita Foods



CONSULTANT

Prof.Dr: Hany Al-Khareby



Kidney Hospital - Tanta University



Installation of Roof CatWalk, Connected Bridge And Transistors Bases



TONNAGE
16 ton



SCOPE OF WORK

Shop Drawings, Fabrication And Erection According To Project Specification



CLIENTS
Tanta University



CONTRACTOR

Military Production Company For Projects, Engineering And Consultancy

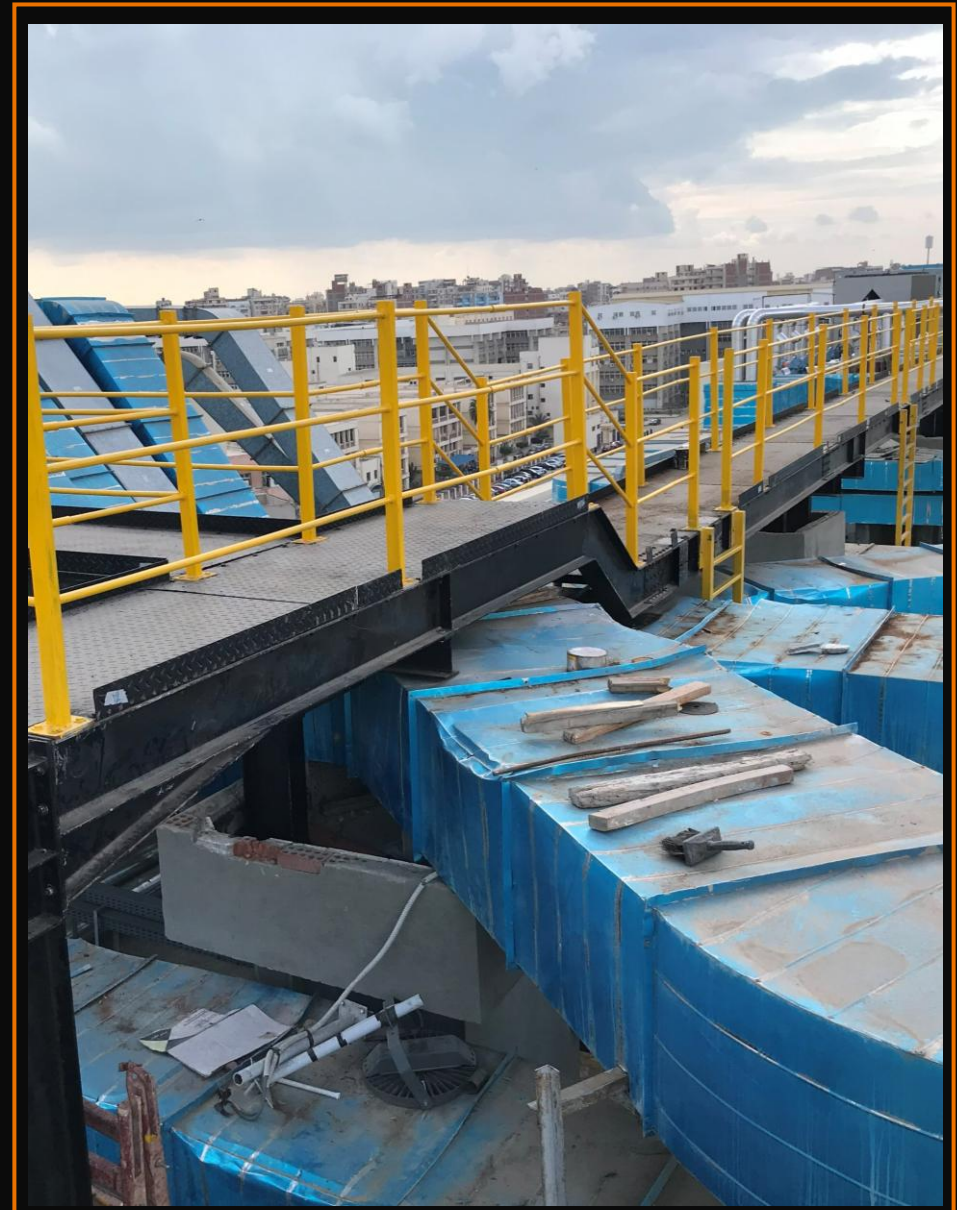


EXECUTIVE CONTRACTOR
Emaar Al-delta Group



CONSULTANT

Engineering Research and Consulting Center of (Faculty Of Engineering - Tanta University)



MAJESTY

STEEL & PLATE WORK CONSTRUCTION

EPP-Egyptian company for Propylene and polypropylene



Strengthening of RC Columns of pipe rack 2303



TONNAGE

Lump Sum



SCOPE OF WORK

Design According To AISC (american institute of steel construction), Shop Drawings, Fabrication, Site Welding And Erection of Steel Structural System.



CLIENT

EPP



CONSULTANT

Prof.Dr: Hany Al-Khareby



Solar Panels Chassis- Alsalam University



Construction of Solar Panels Chassis



SCOPE OF WORK

Design According To AISC (american institute of steel construction), Shop Drawings, Fabrication, Hot-Dip galvanization And Erection of Steel Structural System.



CLIENT

Alsalam



CONSULTANT

Alsalam civil engineering
department



Chillers Platform-new Banha University



Construction of Chillers platform Chassis

SCOPE OF WORK



Design According To
ECP, Shop Drawings, Fabrication, Epoxy Painting And
Erection of Steel Structural System.



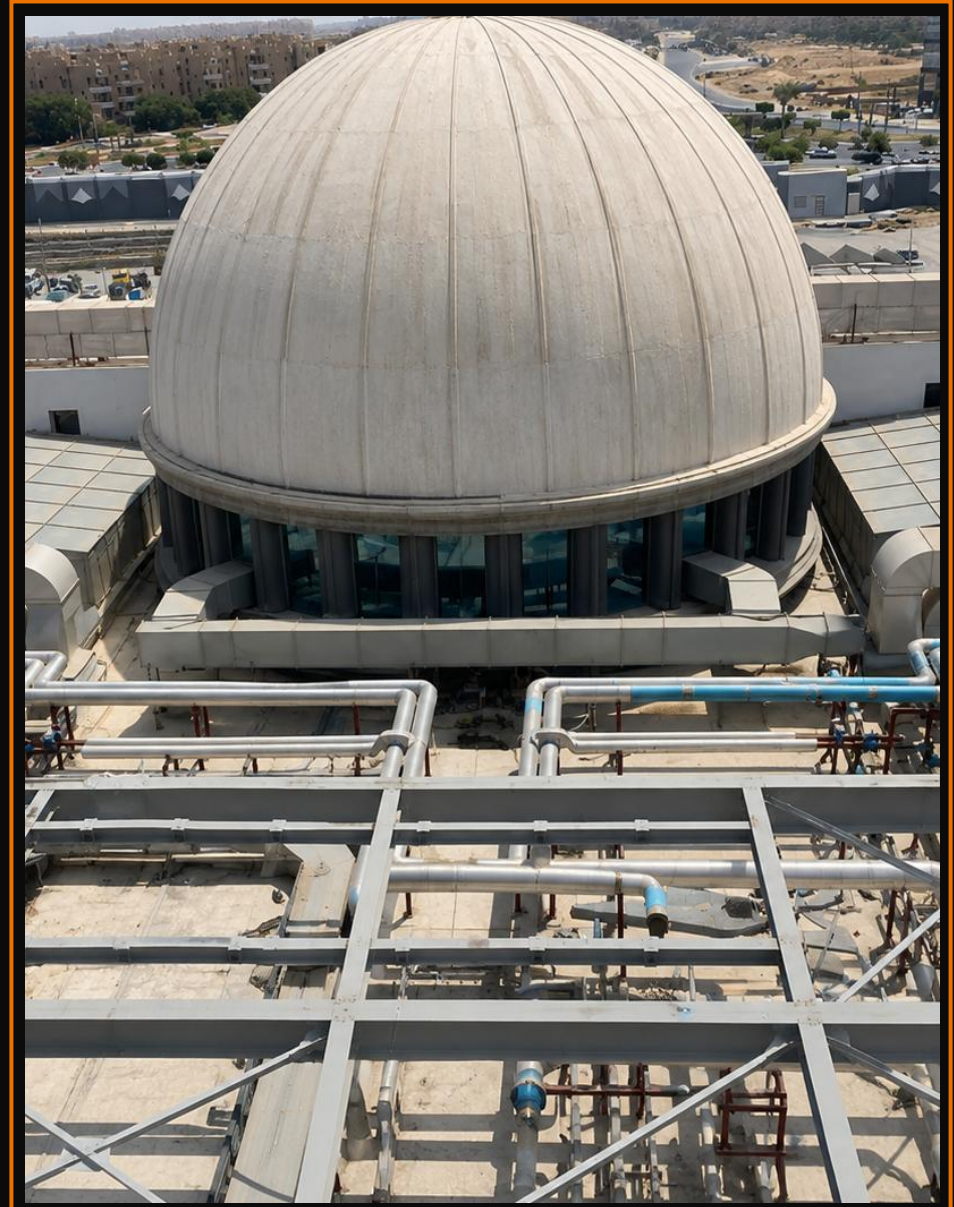
CLIENT

Egyptian armed forces
engineering authority



CONSULTANT

CES consulting,
engineering Centre



Final product stores cladding



EPP-Egyptian company for propylene and polypropylene

SCOPE OF WORK



Sheeting Shop Drawings, Supply And Erection of Steel Sheeting.



CLIENT
EPP



CONSULTANT
EPP engineering department



Green Organic Foods



Construction of green organic factory

SCOPE OF WORK



Design According To AISC (american institute of steel construction), Shop Drawings, Fabrication, Sand blasting, Epoxy paintings And Erection of Steel Structural System.



CLIENT

Green organic -
Prof.Dr.Eng. Emad Etman



CONSULTANT

Green organic
engineering department



BRT-West Mall



Fabrication Of Steel Structure of west mall of bus rapid transit at the intersection of the ring road with the Suez road in cairo

**AREA**

AREA 3300m2

**TONNAGE**

3500 tons

**SCOPE OF WORK**

Shop Drawings and Fabrication of Steel Structure According to Project specification and AWS standards.

**CLIENT**

Ministry of Transportation

**CONSULTANT**

Dr.Fouad Farahat



AIShal Centre



Steel Shed of alshal shed designed and fabricated with system as space truss system

SCOPE OF WORK



Design According To AISC (american institute of steel construction), Shop Drawings, Fabrication And Erection of Steel Shed with system as space truss system that gives an elegant architectural look similar to space truss With significant difference in actual cost which increases the value engineering of the project.



TONNAGE

This project is an elegant architectural cover and cannot be measured by weight.



Client

Alshal centre



Roles & Responsibility



Project Manager



QC & QA Manager



Production Manager



Fabrication Inspector



Construction Manager



Site Engineers



Roles & Responsibility



Project Manager

- 01** Overall execution and administration of the project as per contract requirements, specifications and the PQP
- 02** Liaise with the Head (Quality & HSE) for preparation and updating of PQP.
- 03** Directly control the Site Engineers and Supervisors.
- 04** He is responsible to ensure that all the correct procedures are followed and all necessary permits for the works are obtained in advance



QA/QC Manager

- 01** Responsible for the monitoring and implementing of quality related matters and ensure the works are being executed with the approved Project Quality Plan and requirements of the Contract Documents approved method statement and ITPs.



MAJESTY

STEEL & PLATE WORK CONSTRUCTION

Roles & Responsibility



Production Manager

- 01** Responsible for production management and execution of quality procedures that meets project specifications and project requirements
- 02** Establishment of production organization.



Fabrication Inspector

- 01** Shall be responsible for inspection on production of shell plates, beams, angles, pipes, fittings and spools to ensure the procedures are being followed in order to ensure that quality standards being achieved as per project procedures requirements and specifications
- 02** Shall be responsible for maintaining of NDT records and Project Documentation.



MAJESTY

STEEL & PLATE WORK CONSTRUCTION

Roles & Responsibility



Construction Manager



Assess manpower, equipment or other resources required to ensure timely completion of the project.



Monitor availability of all materials as per schedule.



Inform the Project Leader for any non availability of materials to take proper action.



Carry out receiving inspection in coordination with the QA/QC Engineer.



Ensure that the drawings and documents are up to date and the latest drawing is available and is being utilized in the project site works.



Fill-up the check-sheet and submit the necessary IR to the QA/QC function when the work is ready for inspection.

Health & Safety



Safety is at the core of Majesty's operation.



Majesty's advantage relies on its highly specialized team, the company therefore attaches the utmost importance to the health and safety of every individual.



MAJESTY

STEEL & PLATE WORK CONSTRUCTION



WELDING BOOK & CERTIFICATES

We maintain highest quality standards with approved welding procedures and certified by international bodies.





Welder Performance Qualification (WPQ)

WELDER Name	Ahmed Hiba Abd Elsalam
WELDER Stamp No.	MAJ-S002
WPS Reference	MAJ-WPS-001
Date	Oct-25



TESTING CONDITIONS AND QUALIFICATION LIMITS

Welding variables (QW-350)	Actual values	Range of qualification
Process	SMAW	SMAW
Type	Manual	Manual
Transfer mode	NA	NA
GTAW Current/polarity	NA	NA
Base metal P or S no (material specification) (QW-423)	S235JR	P No. 1 To P No. 1
Filler metal Specification (SFA)	SFA 5.1	
Filler metal Classification	E 7018	Up to F no 4
P-No. (QW-423)	4	
Backing (metal, weld metal, double welded)	Without backing (With Gouging)	With Backing/Gouging
Filler type (basic metal stored or fused) (GTAW/PWAW)	NA	NA
Deposit weld metal thickness (t) (QW-431.1)	15 mm	3mm-Unlimited
Position (QW-421.3)	3D	F, V
Pipe outside diameter (QW-452.3)	NA	≥ 24" outside dia.
Welding progression	UP	UP
Consumable insert	NA	NA
Gas/Flux type	NA	NA
Inert gas backing	NA	NA

VISUAL INSPECTION (QW-302.4)

Acceptable	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
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GUIDED BEND TEST RESULTS (QW-462) NA

Sample	Type	Result	Inspected by
			Organization
			Date

FILLET TEST RESULTS (QW-180) NA

Fracture test	Macteloch (QW-184)
Fillet size	Concavity/Convexity
Inspected by	Organization
Report no.	Date

ULTRASONIC TEST RESULTS (QW-191)

Ser	Report no.	Inspected by	Level	Result	Date	Remarks
1	MAJ-JUT-011	Redo Gomaa	II	ACC		

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of ASME IX.

Prepared by	Reviewed by
Signature	Signature
Date	Date



Welder Performance Qualification (WPQ)

WELDER Name	Ali Hassan Abdullah Abdel Salam
WELDER Stamp No.	MAJ-S003
WPS Reference	MAJ-WPS-001
Date	Oct-25



TESTING CONDITIONS AND QUALIFICATION LIMITS

Welding variables (QW-350)	Actual values	Range of qualification
Process	SMAW	SMAW
Type	Manual	Manual
Transfer mode	NA	NA
GTAW Current/polarity	NA	NA
Base metal P or S no (material specification) (QW-423)	S235JR	P No. 1 To P No. 1
Filler metal Specification (SFA)	SFA 5.1	
Filler metal Classification	E 7018	Up to F no 4
P-No. (QW-423)	4	
Backing (metal, weld metal, double welded)	Without backing (With Gouging)	With Backing/Gouging
Filler type (basic metal stored or fused) (GTAW/PWAW)	NA	NA
Deposit weld metal thickness (t) (QW-431.1)	15 mm	3mm-Unlimited
Position (QW-421.3)	3D	F, V
Pipe outside diameter (QW-452.3)	NA	≥ 24" outside dia.
Welding progression	UP	UP
Consumable insert	NA	NA
Gas/Flux type	NA	NA
Inert gas backing	NA	NA

VISUAL INSPECTION (QW-302.4)

Acceptable	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
------------	---	-----------------------------

GUIDED BEND TEST RESULTS (QW-462) NA

Sample	Type	Result	Inspected by
			Organization
			Date

FILLET TEST RESULTS (QW-180) NA

Fracture test	Macteloch (QW-184)
Fillet size	Concavity/Convexity
Inspected by	Organization
Report no.	Date

ULTRASONIC TEST RESULTS (QW-191)

Ser	Report no.	Inspected by	Level	Result	Date	Remarks
1	MAJ-JUT-011	Redo Gomaa	II	ACC		

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of ASME IX.

Prepared by	Reviewed by
Signature	Signature
Date	Date



Welder Performance Qualification (WPQ)

WELDER Name	Sameh Ahmed Fouad Ibrahim Abdel Gawad
WELDER Stamp No.	MAJ-S001
WPS Reference	MAJ-WPS-001
Date	Oct-25



TESTING CONDITIONS AND QUALIFICATION LIMITS

Welding variables (QW-350)	Actual values	Range of qualification
Process	SMAW	SMAW
Type	Manual	Manual
Transfer mode	NA	NA
GTAW Current/polarity	NA	NA
Base metal P or S no (material specification) (QW-423)	S235JR	P No. 1 To P No. 1
Filler metal Specification (SFA)	SFA 5.1	
Filler metal Classification	E 7018	Up to F no 4
P-No. (QW-423)	4	
Backing (metal, weld metal, double welded)	Without backing (With Gouging)	With Backing/Gouging
Filler type (basic metal stored or fused) (GTAW/PWAW)	NA	NA
Deposit weld metal thickness (t) (QW-431.1)	15 mm	3mm-Unlimited
Position (QW-421.3)	3D	F, V
Pipe outside diameter (QW-452.3)	NA	≥ 24" outside dia.
Welding progression	UP	UP
Consumable insert	NA	NA
Gas/Flux type	NA	NA
Inert gas backing	NA	NA

VISUAL INSPECTION (QW-302.4)

Acceptable	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
------------	---	-----------------------------

GUIDED BEND TEST RESULTS (QW-462) NA

Sample	Type	Result	Inspected by
			Organization
			Date

FILLET TEST RESULTS (QW-180) NA


Fracture test	Macteloch (QW-184)
Fillet size	Concavity/Convexity
Inspected by	Organization
Report no.	Date

ULTRASONIC TEST RESULTS (QW-191)


Ser	Report no.	Inspected by	Level	Result	Date	Remarks
1	MAJ-JUT-011	Redo Gomaa	II	ACC		

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of ASME IX.


Prepared by	Reviewed by
Signature	Signature
Date	Date



MAJESTY



ISO 9001 : 2015
Certified



QUALITY STAR
ENGINEERING SERVICES

Form No.	CQC-005
PQR No	majesty-PQR-001
Page No	2
Date	21-Oct-25

PROCEDURE QUALIFICATION RECORD (PQR)

Quality Control Department

PQR No.: MAJ-PQR-001

Weld Layer(s)	process	Filler Metal		Current		Voltage Volts	Travel Speed Cm/in	Transfer Mode	Heat Input (KJ/mm)	Other
		Class.	Dia.	Polarity	Amp.					
Second Side 1 (Root)	SMAW	E7018	2.4mm	DCEN	94	11	7	NA	0.069	N/A
Second Side 2 (Hot)	SMAW	E7018	2.4mm	DCEN	96	11	7	NA	0.09	N/A
Second Side 3 (Fill)	SMAW	E7018	3.25mm	DCEP	105	25	8	NA	0.197	N/A
Second Side 4 (Fill)	SMAW	E7018	3.25mm	DCEP	107	27	8	NA	0.217	N/A
Second Side 5 (Cap)	SMAW	E7018	3.25mm	DCEP	110	24	8	NA	0.198	N/A
Second Side 6 (Cap)	SMAW	E7018	3.25mm	DCEP	109	25	8	NA	0.204375	N/A
Second Side 7 (Cap)	SMAW	E7018	3.25mm	DCEP	108	25	8	NA	0.2025	N/A


TENSILE TEST (QW-150)

Specimen No.	Width,mm	Thickness,mm	Area,mm ²	Ultimate Tensile Load,KN	Ultimate Unit Stress,Mpa	Type of Failure and Location
1	19.44	15.89	308.902	339	403	Base metal
2	19.80	15.7	305.208	340	407	Base metal

GUIDED BEND TESTS (QW-160)

Type Of Test	Result
Side Bend 1	Acceptable
Side Bend 2	Acceptable
Side Bend 3	Acceptable
Side Bend 4	Acceptable

Macro etching



The macro-etched cross-section of the weld joint reveals no visible cracks, porosity or slag inclusions which confirm sound quality of the weld joint

Result - Satisfactory: Yes No Penetration in to Parent Metal: Yes No

Macro Results : N/A


OTHER TESTS

Type of Test: N/A
Deposit of Analysis: N/A
Other: N/A

Tests conducted by: Central Metallurgical Research&Development Institute (CMRDI) Laboratory test No.: MAJ-PQR-001

We certify that the statements in this record are correct and that the test welds were prepared,welded and tested in according with the requirements of ASME Code Sec.IX and were found to be within the specification.

Position	Prepared by Welding Engineer	Approved by QA/QC Manager	Approved by
Name			
Signature			
Date			



MAJESTY

PROCEDURE QUALIFICATION RECORD (PQR)

Form No.	CQC-005
PQR No	MAJ-PQR-001
Page No	1
Date	21-Oct-25

Quality Control Department

Procedure Qualification No.: MAJ-PQR-001

WELDING PROCESS: SMAW Type: Manual Semi-Auto. Auto. Machine

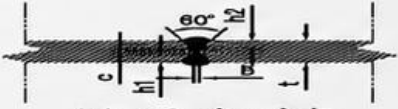
Code: ASME IX (2023)

JOINTS (QW - 402)

Backing : Without

Type : Base metal Weld metal

Retainers: Yes NO



$h1 = h2 = (t - c) / 2$
 $b = 2, c = 2$

BASE METAL (S) (QW-403)	POST WELD HEAT TREATMENT (QW-407)
Material Spec.type or Grade: S335JR	Type: N/A
To Material Spec.type or Grade: S335JR	Temperature: N/A
P.No. 1 Gr.No. 1 To P.No. 1 Gr.No. 1	Time: N/A
Thickness Of Test Coupon: 15 mm	Other: N/A
Diameter of Test Coupon: None. (PLATE)	
Other: None.	

FILLER METAL (S) (QW-404)	GAS (QW-408)
Process: SMAW	Gas(es):
Weld Metal Analysis & No.: 1	Percent composition (Mixture):
Size Of Filler Metal: 2.5 - 3.35	Flow Rate (L/M):
Filler Metal F No.: 4	Shielding: N/A
SPA Specification: SPA 3.1	Backing: N/A
AWS Classification: E7018	Trailing: N/A
Trade Name: APAL (a)	
Manufacturer: N/A	
Deposited Weld Metal Thickness: 16 mm	
with or without filler metal: N/A	
Flux clog class: N/A	
Alloy Sux: N/A	
Alloy Elements: N/A	
Flux Type: N/A	
Supplemental: N/A	
Recurred slag: N/A	
Others: N/A	

Table 2: Results of Vickers hardness test, Hv

Specimen No	Base metal, Hv	HAZ, Hv	Weld zone, Hv	Remarks
1	148	166	202	

POSITION (QW-405)	TECHNIQUE (QW-410)
Position Of Groove: 3G	Travel Speed: See Table.
Weld Progression(Uphill,Downhill): Up Hill	Stitching or Weave Bead: Weave
Others: N/A	Oscillation: None
	Multipass or Single pass per Side: Multipass.
	Single Or Multiple Electrode: Single
	Chamber Wtting: N/A
	Use of thermal processes: None
	Orifice gas size : None
	Initial & Interpass Clearing: Grinding & Brausing

PREHEAT (QW-406)

Preheat Temperature : 20°C
Interpass Temperature : 180°C
Others: N/A.

ELECTRICAL CHARACTERISTICS (QW-408)

Tungsten Electrode size and type: N/A
3G fit Per Approved List

Weld Layer(s)	process	Filler Metal		Current		Voltage Volts	Travel Speed Cm/in	Transfer Mode	Heat Input (KJ/mm)	Other
		Class.	Dia.	Polarity	Amp.					
First Side 1 (Root)	SMAW	E7018	2.4mm	DCEN	94	11	7	NA	0.069	N/A
First Side 2 (Hot)	SMAW	E7018	2.4mm	DCEN	96	11	7	NA	0.09	N/A
First Side 3 (Fill)	SMAW	E7018	3.25mm	DCEP	105	25	8	NA	0.197	N/A
First Side 4 (Fill)	SMAW	E7018	3.25mm	DCEP	107	27	8	NA	0.217	N/A
First Side 5 (Cap)	SMAW	E7018	3.25mm	DCEP	110	24	8	NA	0.198	N/A
First Side 6 (Cap)	SMAW	E7018	3.25mm	DCEP	109	25	8	NA	0.197	N/A
First Side 7 (Cap)	SMAW	E7018	3.25mm	DCEP	108	25	8	NA	0.198	N/A

Position	Prepared by Welding Engineer	Approved by QA/QC Manager	Approved by
Name			
Signature			
Date			

Majesty Resport Mech.-Macro 22-1-025

CMRDI Central Metallurgical Research and Development Institutes (CMRDI)
Manufacturing Technology Institute
Welding Technology and NDT Department

Results of Tensile, Guided Side Bend, Hardness, and Macrostructural Examinations of SMAW-Welded EN10025 S235JR Steel Plate (16 mm Thickness) Using E7018 Electrode

Prepared by
Mohamed Mosalam
Prof. Dr. Mohamed Mosalam Ghanem
Principal Investigator

Approved By
Ibrahim
Prof. Dr. Ibrahim Ghayad
President of CMRDI

Submitted to
Majesty for Construction Company

October 21, 2025

مركز بحث وتطوير الفلزات
المكتب الفني

[Page 1 of 6]

CMRDI Central Metallurgical Research and Development Institutes (CMRDI)
Manufacturing Technology Institute
Welding Technology and NDT Department

1. Introduction

An EN10025 S235JR steel plate sample, approximately 16 mm thick, was received by CMRDI from Majesty Construction Company. The plate was welded using the Shielded Metal Arc Welding (SMAW) process with a 3 mm ϕ E7018 electrode. The sample was submitted for mechanical testing, including tensile testing, guided side bend testing, hardness measurements, and macro-etch examination. The as-received sample is shown in Figure 1.




Figure 1: Close up views of the as-received welded sample are showing both front and back views of the joint.

2. Experimental Work

Two tensile test specimens and four guided side bend test coupons were cut and machined from the as-received sample. Additionally, specimens were sectioned, ground, and polished with emery papers, then etched with a 5% Nital solution for macrostructural and hardness examinations. The tensile and guided side bend tests were performed using a SHIMADZU UH-F1000kN universal testing machine. Hardness measurements were conducted using a digital Vickers hardness tester under a 2 kg. load.

3. Results

3.1 Tensile and Guided Side Bend Test Results

Close-up views of the prepared test specimens after the tensile and guided side bend tests are shown in Figures 2 and 3, respectively. The tensile test results for the two welded specimens are summarized in Table 1. The welded joint exhibited an

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average ultimate tensile strength of approximately 405 MPa. Both specimens fractured within the base metal, displaying a ductile fracture mode, which confirms the satisfactory quality of the weld joints. The results of the guided side bend tests for the four specimens showed no cracks exceeding 3 mm and no evidence of porosity or slag inclusions, as illustrated in Figure 3, further confirming the acceptable quality of the welded joints.



Figure 2: Close up views of the two tested samples reveal that fracture occurred in base metal away from weld zone which confirming good quality of the welded joint.

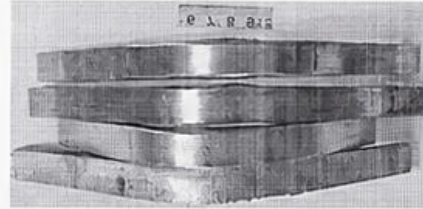


Figure 3: Close up views of the Four guided side bend test samples reveal no cracks more than 3mm existed which is accepted according to ASME IX code.

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Table 1: Results of tensile test

Specimen No	Thickness, mm	Width, mm	Area, mm ²	Ultimate tensile strength, MPa	Fracture location	Remarks
1	15.890	19.440	308.902	403	Base metal	accepted
2	15.700	19.800	305.208	407	Base metal	accepted

3.2 Hardness Test Results

The results of the Vickers hardness test for the welded specimens are presented in Table 2. The average hardness values for the base metal (BM), heat-affected zone (HAZ), and weld zone (WZ) are 148 HV, 166 HV, and 202 HV, respectively.

Table 2: Results of Vickers hardness test, Hv

Specimen No	Base metal, Hv	HAZ, Hv	Weld zone, Hv	Remarks
1	148	166	202	

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3.3 Macro etching

The macro-etched cross-section of the weld joint is shown in **Figure 4**. No visible cracks, porosity or slag inclusions are observed in weld zone.

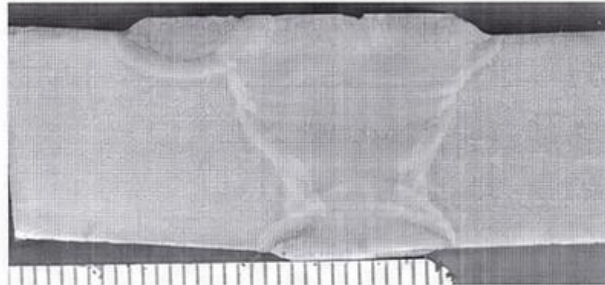


Figure 4: The macro-etched cross-section of the weld joint reveals no visible cracks, porosity or slag inclusions which confirm sound quality of the weld joint

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4 Conclusions

Based on results of this study, the following conclusions could be submitted:

1. Tensile and guided side bend tests, along with hardness measurements and macro-etch examinations, were conducted on the received SMAW-welded EN10025 S235JR steel plate with a thickness of 16 mm.
2. Average ultimate tensile strength of the welded joint is 405 MPa and fracture in the tested specimens occurred in the base metal, indicating acceptable weld joint.
3. Average measured hardness values for the base metal (BM), heat-affected zone (HAZ), and weld zone (WZ) are 148 HV, 166 HV, and 202 HV, respectively
4. No visible cracks, porosity or slag inclusions were observed in the guided side bend or macro-etched test specimens.

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