



CASE STUDY

FABRICATION OF (2) FRAME 7 EXHAUST SYSTEMS WITH SILENCERS

April 2016
Wolverine Power
Gaylord, Michigan

CASE STUDY

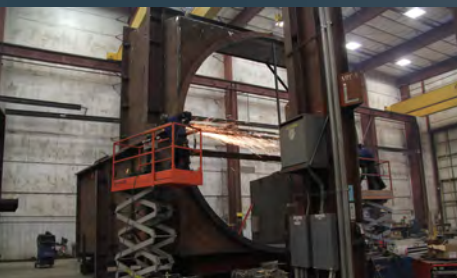
TWO FRAME 7 EXHAUST SYSTEMS WITH SILENCERS

April 2016



Moran Iron Works (MIW) was awarded the contract to supply design, engineering, fabrication, and installation of two exhaust systems for Wolverine Power Cooperative (Wolverine). The exhaust systems were installed at Wolverine's Alpine Power Plant located in Elmira Township near Gaylord, Michigan. The plant utilizes two General Electric Frame 7FA.05 turbines for natural gas to generate over 430 megawatts of nameplate electricity.

MIW's exhaust system design employed noise abatement guidelines and resulted in two of the most efficient exhaust systems in use. The systems required approximately 800 tons of steel to construct.



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CASE STUDY

TWO FRAME 7 EXHAUST SYSTEMS WITH SILENCERS

April 2016



PROJECT DURATION

August 2015 - April 2016

WEIGHT

800 tons

CUSTOMER

Wolverine Power Supply

LOCATION

Gaylord, Michigan



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CASE STUDY

HANDLING, PROCESSING, FABRICATING, AND MODULARIZING COMPLETE AIR QUALITY CONTROL SYSTEM DUCTING

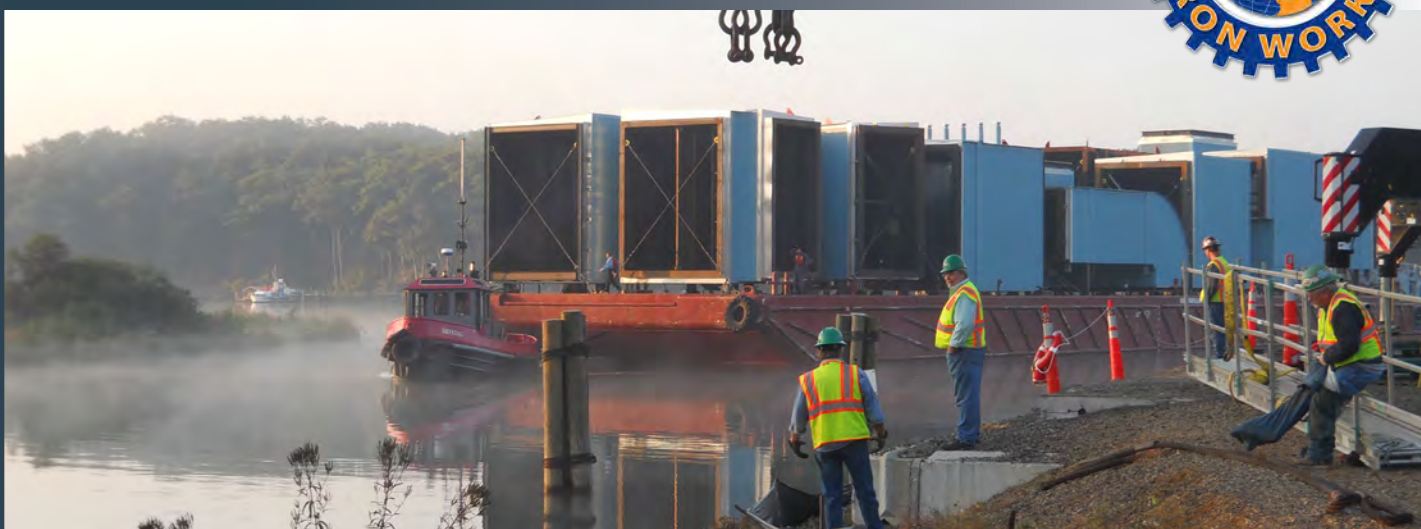
September, 2014
Consumers Energy
JH Campbell Plant

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CASE STUDY

AIR QUALITY CONTROL SYSTEM DUCTING

September, 2014



In September of 2014, Moran Iron Works completed its largest project to date, which kicked off in February of 2013. Over the year and a half period, eight barge loads of fabricated ductwork were shipped to the JH Campbell Plant in West Olive, Michigan.

This project was one of the most ambitious undertakings thus far, weighing in at over 3,382 Tons. More than 70,000 man hours in the shop were spent handling, processing, fabricating, and modularizing this Air Quality Control System Ducting. Our crews spent an additional 10,000 man hours at Port Calcite modularizing sub-assemblies and loading the barges.



CASE STUDY

AIR QUALITY CONTROL SYSTEM DUCTING

September, 2014



PROJECT DURATION

February, 2013 - September, 2014

WEIGHT

3,382 Tons

CUSTOMER

Consumer Energy

LOCATION

JH Campbell Plant
West Olive, MI



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CASE STUDY

FABRICATION OF FRAME 5 SILENCER AND TRANSITION

Aug. 2014 - Nov. 2014
Arizona Public Service

CASE STUDY

FABRICATION OF FRAME 5 SILENCER AND TRANSITION

Universal AET



Moran Iron Works was awarded the contract to fabricate a complex silencer and plenum heat shields for a 40 plus year old Frame 5 unit. This silencer stack had three levels of baffles for maximum performance. The plenum heat shields were replaced due to age and replacements were installed without the removal of the diffuser.

This unit was shipped via oversized load to Douglas in one piece with lifting lugs installed for both rolling and lifting. The project was completed and delivered in three months.



CUSTOMER

Arizona Public Service

LOCATION

Douglas, Arizona

PROJECT DURATION

Aug. 2014 - Nov. 2014

WEIGHT

50,000 lbs

MATERIAL

A36 Shell, 409 Stainless Liner/Perforated, Insulation



CASE STUDY

FABRICATION OF FRAME 7B DIFFUSER ASSEMBLY

Mar. 2015 - Sep. 2015
Universal AET

CASE STUDY

FABRICATION OF FRAME 7B DIFFUSER ASSEMBLY

Universal AET



Moran Iron Works was awarded a contract to fabricate a replacement diffuser assembly for install at Universal AET's customer. This unit was fabricated using 304H, high carbon stainless steel, for durability in the extreme heat of a Frame 7B exhaust. Flanges to hold tight tolerances and shipped direct to the project site.



CUSTOMER

Universal AET

LOCATION

Boulder, Colorado

PROJECT DURATION

Mar. 2015 - Sept. 2015

WEIGHT

10,000 lbs

MATERIAL

304H Stainless Steel



CASE STUDY

KEYS ENERGY FRAME 5

SILENCER AND TRANSITION FABRICATION, PLENUM REPAIRS

February 2016

Keys Energy / Florida Municipal Power Agency (FMPA)

Stock Key, Florida

CASE STUDY

KEYS ENERGY FRAME 5

Silencer and transition fabrication, plenum repairs



Moran Iron Works was awarded the contract to fabricate and deliver a new Frame 5 silencer. The work also included demo of the old silencer unit and installation of the newly fabricated one. This unit was shipped via oversized load to Stock Key / Key West in one piece with lifting lugs installed for both rolling and lifting. Plenum repairs were also required due to years of degradation in the salt water environment.



CUSTOMER

Keys Energy / Florida Municipal Power Agency (FMPA)

LOCATION

Stock Key, Florida

PROJECT DURATION

Oct. 2015 - Feb. 2016

2

CASE STUDY

KEYS ENERGY FRAME 5

Silencer and transition fabrication, plenum repairs



WEIGHT

47,000 lbs

MATERIAL

A36 Shell, 409
Stainless Liner/
Perforated, Insulation

OUTAGE TIME

Eight days





CASE STUDY

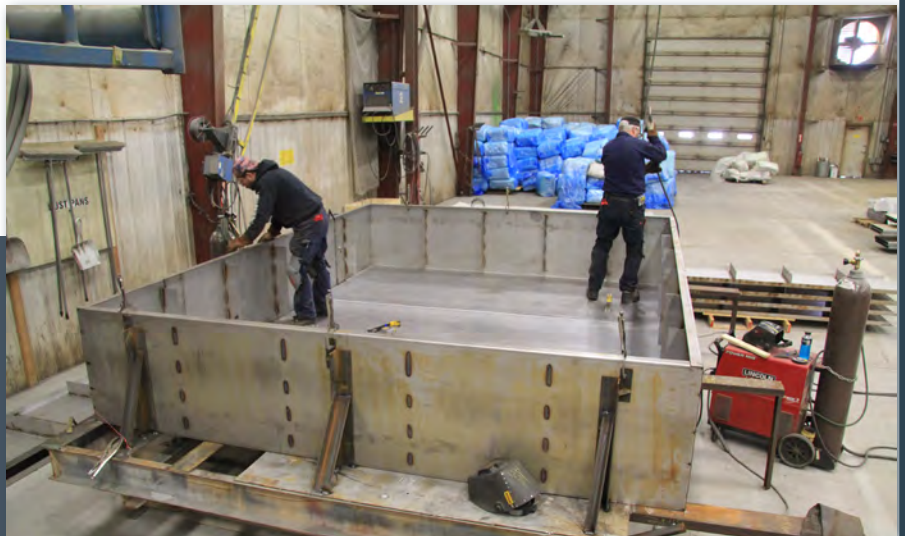
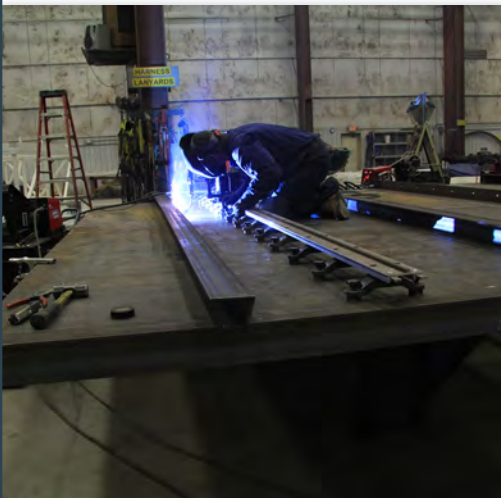
FABRICATION OF (2) EXHAUST SILENCER STACKS

October 2017
National Grid Generation LLC
Barrett Plant
Oceanside, New York

CASE STUDY

TWO EXHAUST SILENCER STACKS

October 2017



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CASE STUDY

TWO EXHAUST SILENCER STACKS

October 2017



PROJECT DURATION

May 2017 - October 2017

WEIGHT

52 tons

CUSTOMER

National Grid Generation LLC

LOCATION

Barrett Plant
Oceanside, New York



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CASE STUDY

FABRICATION OF (2) DUCTWORK SYSTEMS; NOTHING SQUARE, EVERYTHING FLARED AND TAPERED

June 2012
Monroe Power Plant
Monroe, Michigan

CASE STUDY

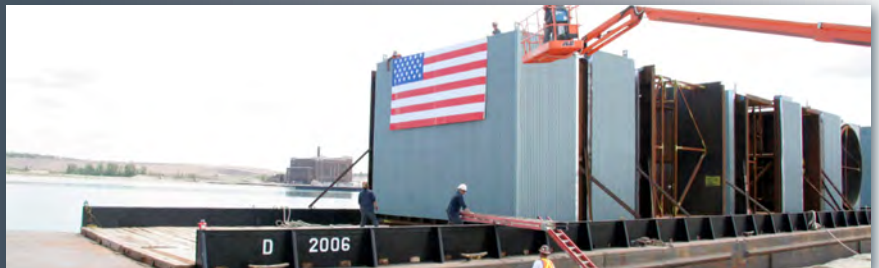
TWO DUCTWORK SYSTEMS; FLARED AND TAPERED

June, 2011 - June, 2012



This is one example of many Absorber Duct Work Systems that Moran Iron Works has produced. However, this particular project was challenging to manufacture given that nothing was square on the fabrication. Everything is flared and tapered. MIW fabricated two identical absorber duct work systems, for an ongoing AQCS system, for a customer in Southeast Michigan.

MIW detailed, fabricated, modularized, insulated, and lagged this project before barge shipping it to the project site. The duct work routes plant exhaust air to new fan inlets and from fan outlets to absorber inlets. Each of the projects are coordinated between MIW project managers and the clients engineering and logistic personnel.



CASE STUDY

TWO DUCTWORK SYSTEMS; FLARED AND TAPERED

June, 2011 - June, 2012



PROJECT DURATION

June 2011 - June 2012

WEIGHT

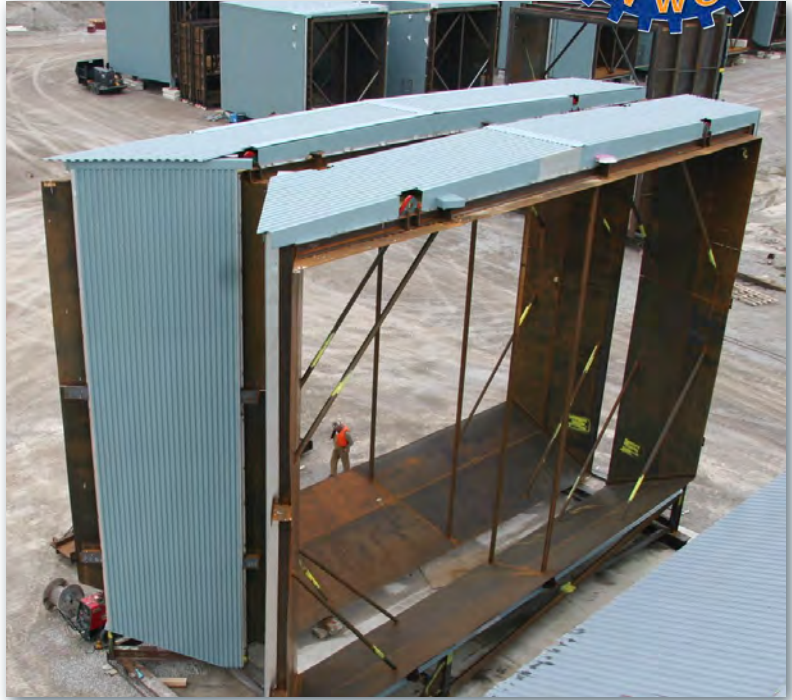
1,200 tons

CUSTOMER

Washington Midwest, LLC

LOCATION

Monroe, Michigan



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