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## COMPOSITE UTILITY ACCESS COVERS & FRAMES

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# SAVE WITH GMI !

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Save Your People – Ergonomics

Save the Public – Pedestrian Safety

Save Your Investment – Theft Mitigation, Corrosion Resistant

Save Your Data – Capture Information

Save Your Money – Comparably Priced, Value Added

# GMI BACKGROUND INFORMATION



## **GMI COMPOSITES, INC.**

Located in Muskegon, MI

Established as a Button Manufacturer in 1923

54,000 Square Foot Facility

Purchased By Current Management In 1984

Current Management Brought Knowledge Of Structural Composites

All Products are **MADE IN USA**

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# **GMI CURRENT MARKETS**

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Civil Engineering

Structural Components

Furniture

Electrical

Recreational

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# GMI BACKGROUND INFORMATION

## GMI'S PEOPLE

GMI Employs 55 Full Time People

5 Graduate Level Engineers Specializing In:

- Plastics Processing
- Materials Technology
- Supply Chain Management
- Quality Control

2 MBA's

Various Technicians Specializing In:

- Robotics Operation
- CNC Operation
- Preventative Maintenance
- Quality Control
- CAD/CAM

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# GMI BACKGROUND INFORMATION

## GMI'S PROCESSES

- ❑ Compression Molding
- ❑ Injection Molding
- ❑ Filament Winding
- ❑ Resin Transfer Molding
- ❑ Pultrusion
- ❑ CNC Machining

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# GMI BACKGROUND INFORMATION

## GMI HISTORY IN INFRASTRUCTURE APPLICATIONS

- ❑ The First GMI Composite Manhole Covers Were Installed 15 Years Ago.
- ❑ GMI Now Supplies The Top Two Petroleum Distribution Firms In The Nation.
  - 8 Out of 10 Composite Covers Found In Service Stations Are Produced By GMI!
  - Improved Ergonomics Drove The Development
  - Composite Service Station Covers Have Been Deployed Around the Globe
- ❑ First Infrastructure Composite Covers Introduced In 2003
  - Compatibility with Automated Meter Reading Systems Provided the Initial Opportunity

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# GMI COMPOSITE ADVANTAGE

## ATTRIBUTES OF COMPOSITE UTILITY ACCESS COVERS & FRAMES



# GMI COMPRESSION EQUIPMENT LIST

- ❑ 4 - 150 Tons
- ❑ 2 - 500 Ton
- ❑ 1 - 750 Ton



# GMI RESIN TRANSFER MOLDING

- ❑ Ideal Process for Large, Low to Mid Volume Parts.
- ❑ Provides Enhanced Physical Properties.
- ❑ Stock Tooling Sizes



# GMI COMPOSITE ADVANTAGE



## ERGONOMIC ADVANTAGE

80% Weight Reduction Over Cast Iron

Safeguard Against Injury to Field Personnel

- ❑ Decrease Lost Time Accidents
- ❑ Reduce Workman's Compensation Expense



# GMI COMPOSITE ADVANTAGE



## PEDESTRIAN SAFETY

Block Stray Voltage

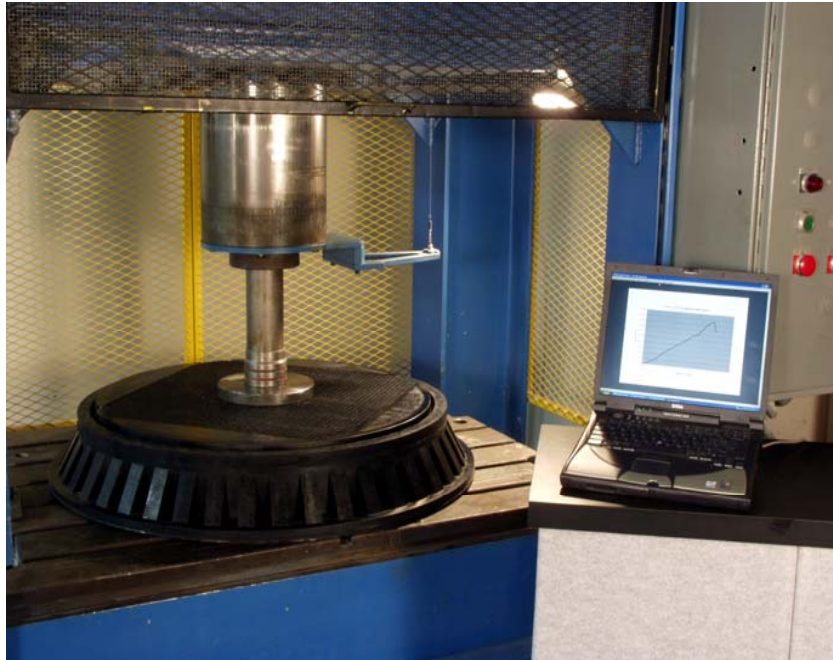
Insulate Extreme Heat

Non-skid Texture

Retention Features

- ❑ Eliminate the Hazard of an Exposed Vault
- ❑ Keep Curious People on the Correct Side of the Manhole Cover





## STRENGTH & DURABILITY

- ❑ GMI Products Meet and Exceed All Test Standards
- ❑ Non Corrosive
- ❑ Tested at Temperature
- ❑ Extremes With No Loss in Performance
- ❑ UV Radiation Will Not Affect GMI Product Performance

## STRENGTH & DURABILITY – LOAD TESTING

- ❑ H-20 Defined: H-20 loading is a theoretical loading that is defined the American Association of State Highway and Transportation Officials (AASHTO) *Standard Specifications for Highway Bridges – 17<sup>th</sup> Edition*.
- ❑ The AASHTO standard defines H-20 as a theoretical axle load of 32,000 lbs; which translates to a wheel load of 16,000 lbs.

## STRENGTH & DURABILITY – VAGUENESS OF H-20 & CERTIFICATION

There is no mention of a testing procedure in the AASHTO Standard.

- ❑ H-20 is Open to Interpretation by Vendors
- ❑ Manufacturer's Definitions of H-20 Vary Greatly
- ❑ There is no Certifying Body to Approve an H-20 Load Rating

## **SRENGTH & DURABILITY – AASHTO M-306**

United States Standard: *AASHTO M 306 Standard Specification for Drainage, Sewer, Utility, and Related Castings:*

Described as a 40,000 lbs. (H-20), or 50,000 lbs. (H-25)

Proof Load Concentrated on a 9” x 9” Square Area and Held for One Minute.

The Loadings Represent a 2.5 Times Safety Factor

- ❑ H-20 (16,000 lbs.)
- ❑ H-25 (20,000 lbs.)

# GMI COMPOSITE ADVANTAGE



## SECURITY & THEFT AVERSION

Zero Theft Value

Compatible With a Variety of Solutions

- ❑ McGard – for High Security
- ❑ Liber-T for Retention and Latching
- ❑ GMI Clamping Latch
  - ❑ Downward Force
  - ❑ Seals a Gasket
  - ❑ Vents Pressure In a Surcharged Sewer



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# GMI COMPOSITE ADVANTAGE



## AUTOMATION FRIENDLY

Radio Signals Pass Freely Through the Composite Access Cover

Applications include:

- ❑ Automated Electrical Switching
- ❑ Automated Meter Reading
- ❑ Flow Monitoring Equipment
- ❑ Event Detection
- ❑ Unauthorized Access Detection

# GMI COMPOSITE ADVANTAGE



## SIMPLE LOGISTICS

A Complete Composite Manhole Cover & Frame Set Can be Safely Installed by One Person

- ❑ Eliminate the Need for Specialized Lifting and/or Transportation Equipment  
Routine & Emergency Maintenance Simplified
- ❑ Minimal Crew
- ❑ Light Vehicle
- ❑ Rapid Response Time

# GMI COMPLIMENTARY TESTING

## GMI TESTS AT LEVELS BEYOND ENVIRONMENTAL EXTREMES

- ❑ Cycle Testing for Traffic Applications
- ❑ Explosion & Flame Testing for Electrical Applications



# GMI EXPANDED FACILITY

## FACILITY EXPANSION OF 12,000 SQ. FT.

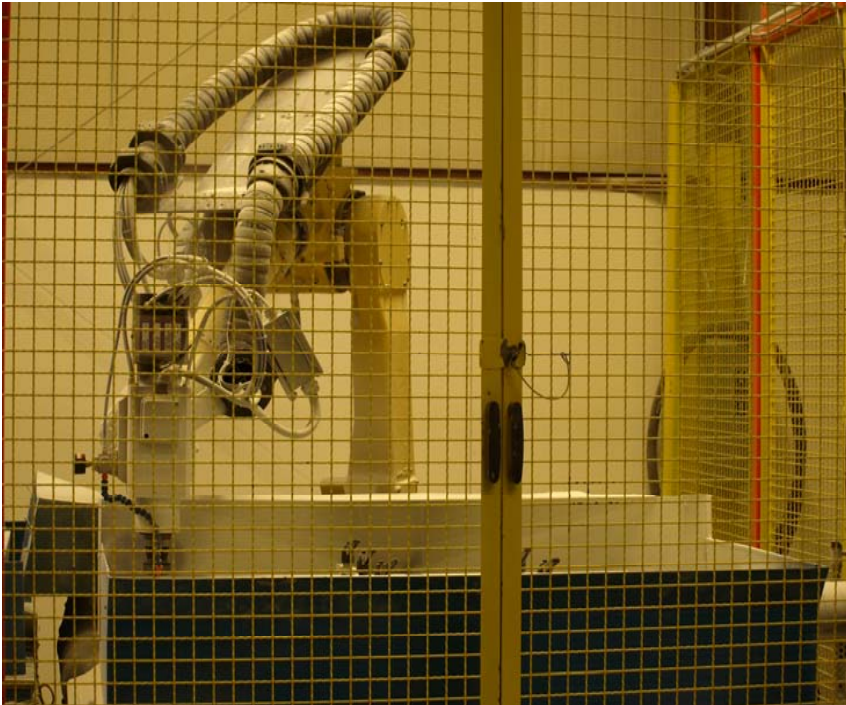
Future Expansion of 14,000 sq. ft.

- ❑ Expanded Production Floor
- ❑ New Engineering Offices

GMI Can Double Production Size on  
Current Property (12 Acres)



# GMI EXPANDED CAPABILITIES



## TECHNOLOGICAL CAPACITY EXPANDED

- ❑ Robotic Finishing Capacity Added
- ❑ Existing Machining Capacity Quadrupled

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# GMI EXPANDED CAPABILITIES

## GMI's INVESTMENT IN HUMAN CAPITAL

Positions are being added every day

- ❑ Technicians
- ❑ Expanded Engineering
- ❑ Expanded Sales & Marketing



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