MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

December 2, 2016

PERMIT TO INSTALL
186-16

ISSUED TO
Grede, LLC – Iron Mountain

LOCATED AT
801 South Carpenter Avenue
Kingsford, Michigan

IN THE COUNTY OF
Dickinson

STATE REGISTRATION NUMBER
B1577

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: **November 2, 2016**	
DATE PERMIT TO INSTALL APPROVED: **December 2, 2016**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO_2e	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
		gr	Grains
EU	Emission Unit	HAP	Hazardous Air Pollutant
FG	Flexible Group	Hg	Mercury
GACS	Gallons of Applied Coating Solids	hr	Hour
GC	General Condition	HP	Horsepower
GHGs	Greenhouse Gases	H_2S	Hydrogen Sulfide
HVLP	High Volume Low Pressure*	kW	Kilowatt
ID	Identification	lb	Pound
IRSL	Initial Risk Screening Level	m	Meter
ITSL	Initial Threshold Screening Level	mg	Milligram
LAER	Lowest Achievable Emission Rate	mm	Millimeter
MACT	Maximum Achievable Control Technology	MM	Million
MAERS	Michigan Air Emissions Reporting System	MW	Megawatts
MAP	Malfunction Abatement Plan	NMOC	Non-methane Organic Compounds
MDEQ	Michigan Department of Environmental Quality	NO_x	Oxides of Nitrogen
		ng	Nanogram
MSDS	Material Safety Data Sheet	PM	Particulate Matter
NA	Not Applicable	PM10	Particulate Matter equal to or less than 10 microns in diameter
NAAQS	National Ambient Air Quality Standards		
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonable Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO_2	Sulfur Dioxide
SCR	Selective Catalytic Reduction	TAC	Toxic Air Contaminant
SNCR	Selective Non-Catalytic Reduction	Temp	Temperature
SRN	State Registration Number	THC	Total Hydrocarbons
TEQ	Toxicity Equivalence Quotient	tpy	Tons per year
USEPA/EPA	United States Environmental Protection Agency	µg	Microgram
		µm	Micrometer or Micron
VE	Visible Emissions	VOC	Volatile Organic Compounds
		yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**

2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**

3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**

4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**

5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**

6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**

7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**

8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.

9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
    a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
    b) A visible emission limit specified by an applicable federal new source performance standard.
    c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-P032 MODULE SAND SYSTEM	Module Sand System - Activities associated with collection and distribution of mold sand used in the Module Plant. These activities include the Module Sand Muller, collecting spill sand, screening used sand, and conveying sand. The Module Sand System is controlled by a Torit fabric filter baghouse.	1975	NA
EU-P034 MODULE FINISHING	Module Finishing Process - Includes activities associated with metal finishing conducted in the Module Plant. These activities include grinding, chipping, and hang blast (Wheelabrators). The Module Finishing Process is controlled by a Torit fabric filter baghouse.	1975	NA
EU-P038 MODULE SHAKEOUT	Module Shakeout - Castings, gates, risers, and sand are mechanically separated by shaking in the Module Shakeout. Module Shakeout is controlled by a Torit fabric filter baghouse.	1975	NA
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

The following conditions apply to:
EU-P032

DESCRIPTION: Module Sand System - Activities associated with collection and distribution of mold sand used in the Module Plant. These activities include the Module Sand Muller, collecting spill sand, screening used sand, and conveying sand.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Torit fabric filter baghouse

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.10 pound per 1,000 pounds of exhaust gases.	Test Protocol*	EU-P032 MODULE PLANT SAND SYSTEM	SC V.1, VI.1	**R 336.1331**
2. PM10	1.27 pph	Test Protocol*	EU-P032 MODULE PLANT SAND SYSTEM and EU-P012 MAIN PLANT SAND SYSTEM	SC V.1, VI.1	**R 336.1331, 40 CFR 52.21 (c) and (d)**
3. PM10	5.56 tpy	12-month rolling time period as determined at the end of each calendar month	EU-P032 MODULE PLANT SAND SYSTEM and EU-P012 MAIN PLANT SAND SYSTEM	SC V.1, VI.1	**R 336.1331, 40 CFR 52.21 (c) and (d)**
* Test protocol shall specify averaging time					

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall submit an updated Inspection and Preventative Maintenance Program within 45 days of permit issuance. The updated Inspection and Preventative Maintenance Program shall, at a minimum, specify the following for the Torit fabric filter baghouse associated with EU-P032:
   a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
   b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
   c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

   If at any time the plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. **(R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**

2. The permittee shall operate all processes and control equipment in accordance with manufacturer's specifications and in a manner consistent with good environmental engineering practice. All process and control equipment shall be monitored, including the keeping of appropriate records, in accordance with the Inspection and Preventative Maintenance Program instituted at the facility. The Inspection and Preventative Maintenance Program will be subject to change based upon the need to provide a safe working environment and to minimize emissions. **(R 336.1331, 40 CFR 52.21 (c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip the Torit fabric filter baghouse associated with EU-P032 with a differential pressure gauge. **(R 336.1331, 40 CFR 52.21 (c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Upon request from the AQD District Supervisor, the permittee may be required to verify PM and PM10 emission rates from EU-P032 by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1331, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) and (d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall continuously monitor, and record the pressure drop across the Torit fabric filter baghouse associated with EU-P032 once per day during production operations. **(R 336.1331, 40 CFR 52.21 (c) and (d))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-S032-334100-A	51 inches	55 feet	**40 CFR 52.21(c) and (d)**

IX. OTHER REQUIREMENTS

NA

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to:
EU-P034

DESCRIPTION: Module Finishing Process - Includes activities associated with metal finishing conducted in the Module Plant. These activities include grinding, chipping, and hang blast (Wheelabrators).

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Torit fabric filter baghouse

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.10 pound per 1,000 pounds of exhaust gases.	Test Protocol*	EU-P034 MODULE FINISHING	SC V.1, VI.1	**R 336.1331**
2. PM10	0.33 pph	Test Protocol*	EU-P034 MODULE FINSHING and EU-P014 MAIN PLANT FINISHING	SC V.1, VI.1	**R 336.1331, 40 CFR 52.21 (c) and (d)**
3. PM10	1.45 tpy	12-month rolling time period as determined at the end of each calendar month	EU-P034 MODULE FINSHING and EU-P014 MAIN PLANT FINISHING	SC V.1, VI.1	**R 336.1331, 40 CFR 52.21 (c) and (d)**
* Test protocol shall specify averaging time					

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall submit an updated Inspection and Preventative Maintenance Program within 45 days of permit issuance. The updated Inspection and Preventative Maintenance Program shall, at a minimum, specify the following for the Torit fabric filter baghouse associated with EU-P034:
   a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
   b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
   c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

   If at any time the plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. **(R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**

2. The permittee shall operate all processes and control equipment in accordance with manufacturer's specifications and in a manner consistent with good environmental engineering practice. All process and control equipment shall be monitored, including the keeping of appropriate records, in accordance with the Inspection and Preventative Maintenance Program instituted at the facility. The Inspection and Preventative Maintenance Program will be subject to change based upon the need to provide a safe working environment and to minimize emissions. **(R 336.1331, 40 CFR 52.21 (c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip the Torit fabric filter baghouse associated with EU-P034 with a differential pressure gauge. **(R 336.1331, 40 CFR 52.21 (c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Upon request from the AQD District Supervisor, the permittee may be required to verify PM and PM10 emission rates from EU-P034 by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1331, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) and (d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall continuously monitor and record the pressure drop across the Torit fabric filter baghouse associated with EU-P034 once per day during production operations. **(R 336.1331, 40 CFR 52.21 (c) and (d))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-S032-334100-A	51 inches	55 feet	**40 CFR 52.21(c) and (d)**

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to:
EU-P038

DESCRIPTION: Module Shakeout - Castings, gates, risers, and sand are mechanically separated by shaking in the Module Shakeout.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Torit fabric filter baghouse

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.02 pound per 1,000 pounds of exhaust gases	Test Protocol*	EU-P038 MODULE SHAKEOUT	SC V.1, VI.1	**R 336.1331**
2. PM10	1.03 pph	Test Protocol*	EU-P038 MODULE SHAKEOUT and EU-P018 MAIN PLANT SHAKEOUT	SC V.1, VI.1	**R 336.1331, 40 CFR 52.21 (c) and (d)**
3. PM10	4.51 tpy	12-month rolling time period as determined at the end of each calendar month	EU-P038 MODULE SHAKEOUT and EU-P018 MAIN PLANT SHAKEOUT	SC V.1, VI.1	**R 336.1331, 40 CFR 52.21 (c) and (d)**
* Test protocol shall specify averaging time					

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall submit an updated Inspection and Preventative Maintenance Program within 45 days of permit issuance. The updated Inspection and Preventative Maintenance Program shall, at a minimum, specify the following for the Torit fabric filter baghouse associated with EU-P038:
   a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
   b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
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2. The permittee shall operate all processes and control equipment in accordance with manufacturer's specifications and in a manner consistent with good environmental engineering practice. All process and control equipment shall be monitored, including the keeping of appropriate records, in accordance with the Inspection and Preventative Maintenance Program instituted at the facility. The Inspection and Preventative Maintenance Program will be subject to change based upon the need to provide a safe working environment and to minimize emissions. **(R 336.1331, 40 CFR 52.21 (c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip the Torit fabric filter baghouse associated with EU-P038 with a differential pressure gauge. **(R 336.1331, 40 CFR 52.21 (c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Upon request from the AQD District Supervisor, the permittee may be required to verify PM and PM10 emission rates from EU-P038 by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1331, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) and (d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall continuously monitor and record the pressure drop across the Torit fabric filter baghouse associated with EU-P038 once per day during production operations. **(R 336.1331, 40 CFR 52.21 (c) and (d))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

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1. SV-S032-334100-A	51 inches	55 feet	**40 CFR 52.21(c) and (d)**

IX. OTHER REQUIREMENTS

NA

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).