

SHEPHERDSTOWN RECYCLING COMMITTEE

AGENDA – July 21, 2023, 9:00am – Town Hall

*CALL TO ORDER:

*APPROVAL OF MINUTES: June 15, 2023

*VISITORS:

*OLD BUSINESS:

A. Shepherdstown Sustainable Act – TC resolution

*NEW BUSINESS

B. Glass recycling program review

C. Glass crusher – county initiative?

*ADJOURN: Next meeting?

SHEPHERDSTOWN RECYCLING COMMITTEE (Ad Hoc)

MINUTES – June 15, 2023, 9:00am – Town Hall

*CALL TO ORDER: 9am – Chris Stroeck (CS), Jim Auxer (JA), Lori Robertson (LR);
Staff – Frank Welch (FW), Stephanie Grove (SG)

*APPROVAL OF MINUTES: None.

*VISITORS: Jim King (JK), Leah Rampy (LR)

*OLD BUSINESS:

A. Shepherdstown Sustainable Act – update:

CS reported that a state statute enacted after the SSA was passed renders it null and void per counsel. Upon review of the subject statute, it is clear that the town cannot enforce the SSA.

CS to draft a resolution that can be presented to Council encouraging town businesses and outskirt businesses to comply with the SSA.

SG to research whether home rule program would permit a waiver of the state statute.

Other ideas include a reusable bag program with drop-off locations in town, disposal bins for plastic bags, acknowledge / incentive programs for businesses who voluntarily comply with the SSA, grants for reusable bags, styrofoam recycling programs.

LR to contact food lion re disposal bins for plastic bags.

Shepherdstown Shares could be a partner.

***NEW BUSINESS**

A. New committee member(s):

CS made a motion to approve JK and LR as committee members, seconded by LR, passed.

B. Glass recycling program review:

CS advised that the committee has been charged with reviewing the glass recycling program due to increased costs, illegal dumping and wear on town equipment.

FW reported that glass recycling is booming, with restaurants producing the most. Since we are the only Town in Jeff Co with a glass recycling program, illegal dumping has also increased.

Ideas were discussed as follows-

LR suggested that we remove glass recycling option from town public receptables.

SG / CS to examine illegal dumping ordinance again.

Can town install one glass recycling drop off location?

Glass crusher – JK reported on machine and grant opportunities.

CS to circulate info to committee.

Committee might consider a field trip to Winchester to observe its glass crusher.

Committee believes that this is a county-wide issue.

As such, would county consider getting a glass crusher at one of its locations?

Mayor to gauge interest at Mayor's meetings.

Should businesses pay extra for their extra glass recycling?

Committee decided not to apply for the Real Grant this year for either a glass crusher or new truck, due to readiness and limitations on applying in the future.
Committee to consider all options.

*ADJOURN: LR motion to adjourn around 10:20am, second by CS, approved.

NEXT MEETING SCHEDULED FOR JULY 21, 2023, AT 9:00AM.

DRAFT



Waste Glass to Sand

**Local Processing
Local uses**

Cynthia Andela

Local Collection, Processing, and Uses Alternative Markets

Recycle and re-purpose glass into a safe-handling sand product with no sharp edges. Use in the community as an engineered aggregate, landscaping mulch, and substitute for sand.



Repurpose Glass to Sand

SOURCES | MATERIALS

MRF glass - Unsorted glass bottles

Whole or broken bottles

Plate glass

Tempered glass

Ceramics

Any frangible material





Glass Processing Systems

Glass Clean-up at the MRF
Remove shredded paper

Pulverize Glass into Glass Sand/Aggregate
Uniform Size – no sharp edges
3/8" (10mm) minus and/or
4 mesh (3-5mm) minus glass sand

Glass is Separated From Other Materials
Selective Reduction in size and removal of metal,
plastics and paper



Glass Processing Systems

Systems or Individual Components

Pulverizers or Crushers



Trommel Screens



Surge Hoppers and Conveyors



Glass Processing Systems

Turn Key Systems - ½ ton/hour to 20 tons/hour

**Operating Costs - Electrical and Wear parts -
½ ton/hour (\$7.00/ton) to 20 tons/hour (\$1.00/ton)**

Labor – 1-2 operators

Outside/Inside install: Concrete pad & 3 phase power

Stand alone system or integrated with a MRF

Systems designed to fit - Footprint (100 to 2,500 sq. ft.)

Repurposed Glass

BENEFITS: INTENDED | INCIDENTAL

Economic Development:
Local jobs

Reduced Carbon Footprint:
Reduced transportation of waste glass

Health | Silicosis Prevention:
Not Crystalline silica but
Amorphous Silica

LEED Credits
(Leadership in Energy and
Environmental Design)



Glass Sand

Properties

Amorphous Silica

Non-Crystalline Silica (Amorphous)

Inert – Hard – Stable

Does Not Absorb Water or Break Down

Followability – Filtration

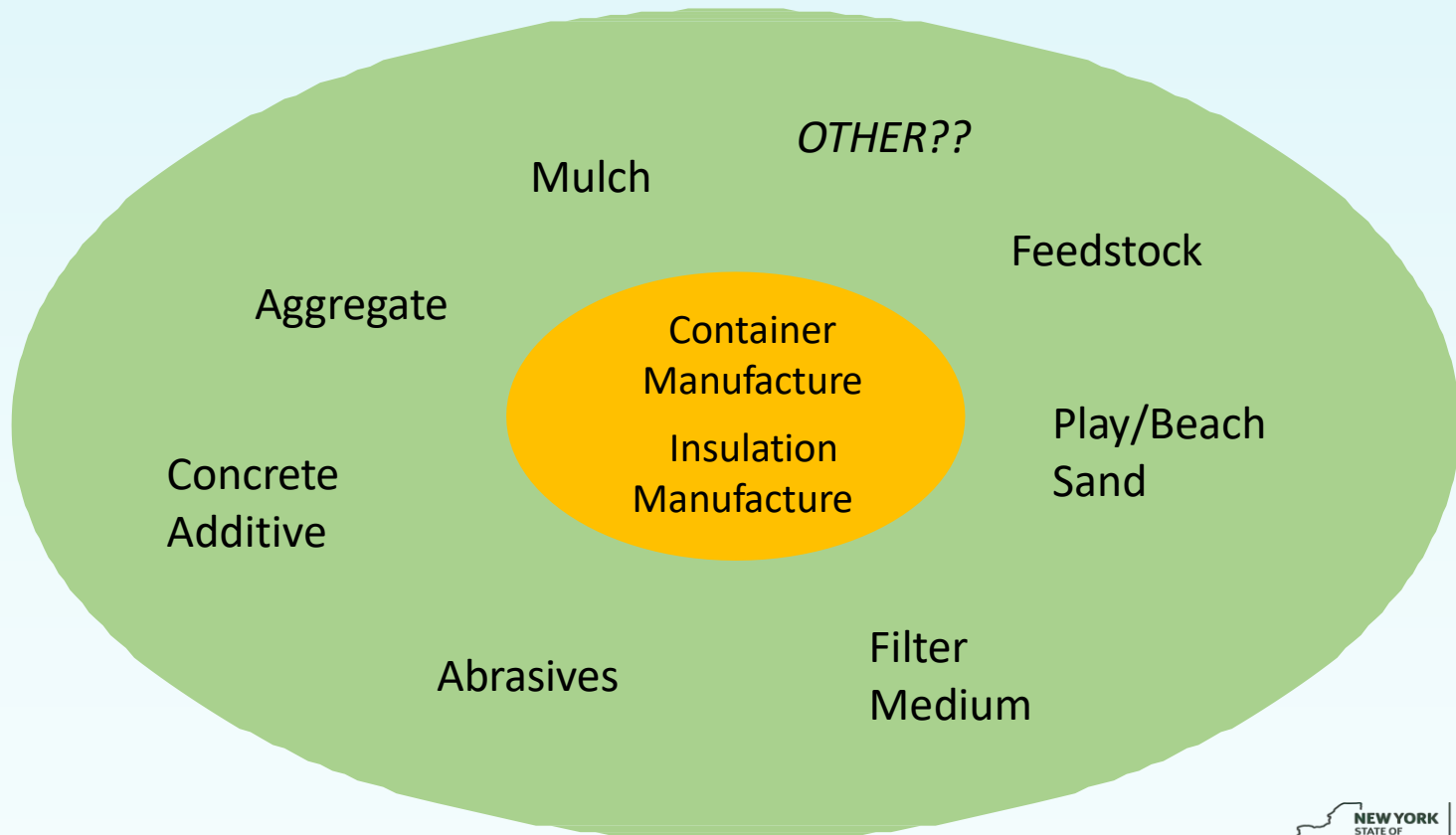
Less surface tension

Attracts water to particle surfaces

Repurposed Glass

Beneficial Use

Beneficial Use: Expanding Options for Glass



Repurposed Glass

GLASSPHALT



Engineered Construction
Aggregate

Glass Sand or Aggregate

UTILITY PIPE BEDDING – DRAINAGE – FILTRATION SAND



Repurposed Glass = Landscaping





Andela Products
493 State Rt 28
Richfield Springs, NY 13439
315-858-0055

candela@andelaproducts.com

www.andelaproducts.com

Andela Glass Pulverizing

Andela Products is a manufacturer of recycling equipment and systems for glass. We offer bottle, plate, mixed/broken glass, windshield and CRT/TV glass reduction and recycling systems.

Our systems recycle glass into a safe-handling fine granular product with no sharp edges. It is sold in the community and internationally as engineered aggregates, landscaping mulch and for various local use.

WASTE GLASS



PULVERIZED GLASS SAND



PULVERIZED GLASS AGGREGATE





Andela

GP-MegaMini

Glass Pulverizer/Screeners with Infeed Conveyor

**Accepts all
types of glass**

**Produce both glass sand
and glass aggregates,
separated
from larger debris**

Infeed Conveyor

**Total System: 7 HP
3 phase 240-480V**

Environmentally friendly

Reduces waste

*Provides cost effective remedy
for environmentally conscious
communities*

ANDELA PRODUCTS

493 State Route 28
Richfield Springs, NY 13439
315-858-0055

www.andelaproducts.com
info@andelaproducts.com



- Process 1500-2000 pounds of glass per/hour.
- Infeed all types of glass, no pre-cleaning required.
- Produce both a glass sand and glass aggregate, without sharp edges.
- Integrated trommel screen separates out the residue (caps, labels, and corks).
- Compact and integrated unit with Pulverizer, Trommel Screen, and Elec Controls

- Quiet operation
- Simple to operate and maintain
- Reasonably priced
- Industrial strength design
- Cleated rubber conveyor with self cleaning tail pulley
- Big machine features with a small machine

ANDELA GLASS PULVERIZER SYSTEM**MODEL GP-MegaMini**

Bulk Fed Miniature Pulverizer with Trommel Screen and Conveyor
1500-2000 lbs. / hour

MACHINE SPECIFICATIONS**Dimensions**

Overall Length 160"
Overall Width 102"
Overall Height 129"
Approx. Shipping Weight Machine- 3000 lbs. / Conveyor- 1300 lbs.

Pulverizer

Machine Input Opening 12" x 12"
Barrel Diameter and Length 16" x 34"
Barrel Liner CC Abrasion Resistant Steel
Motor Size 5 hp
Solid Steel Shaft Diameter 2"
Number of Hammers 28
Hammer Type Flailing Arm/Hardened Steel
Bearing Size 2" Heavy Duty
Seal Protection 2 Seals at Each Shaft Bearing

Trommel

Screen Barrel Diameter and Length 21" OD x 4' long
..... 21 in. x 2 ft. sand screen and 21 in. x 2 ft. aggregate screen
Rotating Brush (2) - 7" diameter
Screen Type Stainless Steel Woven Wire
Motor Size 1 hp

Conveyor

Belt Type Slider Bed, Cleated Rubber Belt, Self-Cleaning Tail Pulley
Motor 1 hp

Safety Features

E-Stop
Protective Guards Cover Input Hopper, Drive Unit and Bearings

Electrical – Control Panel Included Pre-wired to Motors

Motor Voltage 230/460V, 60 Hz 3 Phase
Controls Push Button Start/Stop

The manufacturer reserves the right to change designs
and specifications without notice.

Heavy Duty Design Highlights

High quality, low maintenance design for abrasion resistance

Heavy duty construction to outlast competitors

Chromium Carbide Liners last up to 6,000 hours

Produces crushed and/or pulverized glass with no sharp edges.

Two sizes: Glass Sand and Glass Aggregate

Use locally to replace sand or gravel in landscaping, construction, or other applications.

Electrical Control Panel

Enclosures - Enclosures are rated per the environment and are NEMA 4 or better. All enclosures are supplied with an emergency stop.

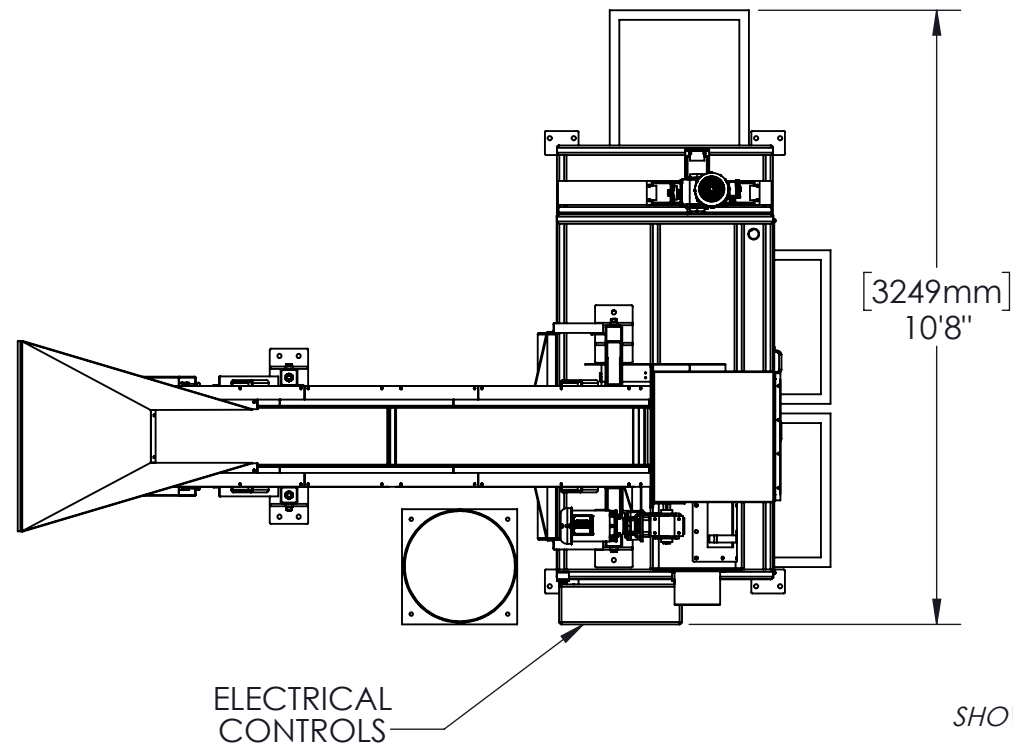
Main Disconnect - The main disconnect is provided with fuses or a circuit breaker and has a “Lockout/Tag out” feature.

Motor Starters - The motor starters are IEC rated.

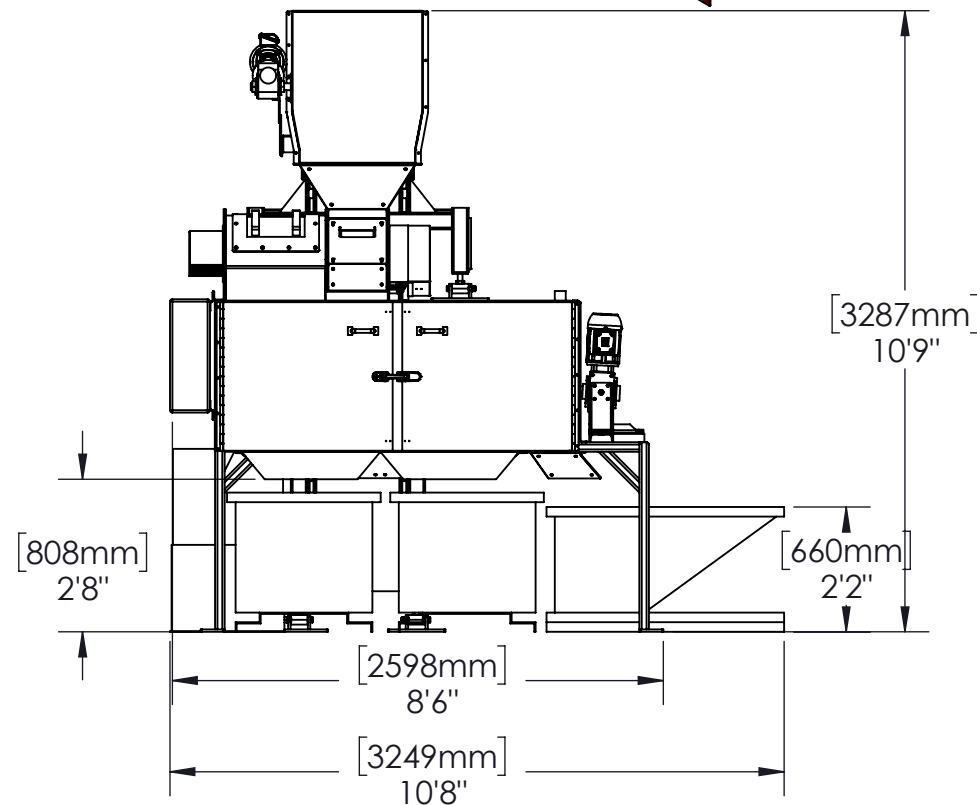
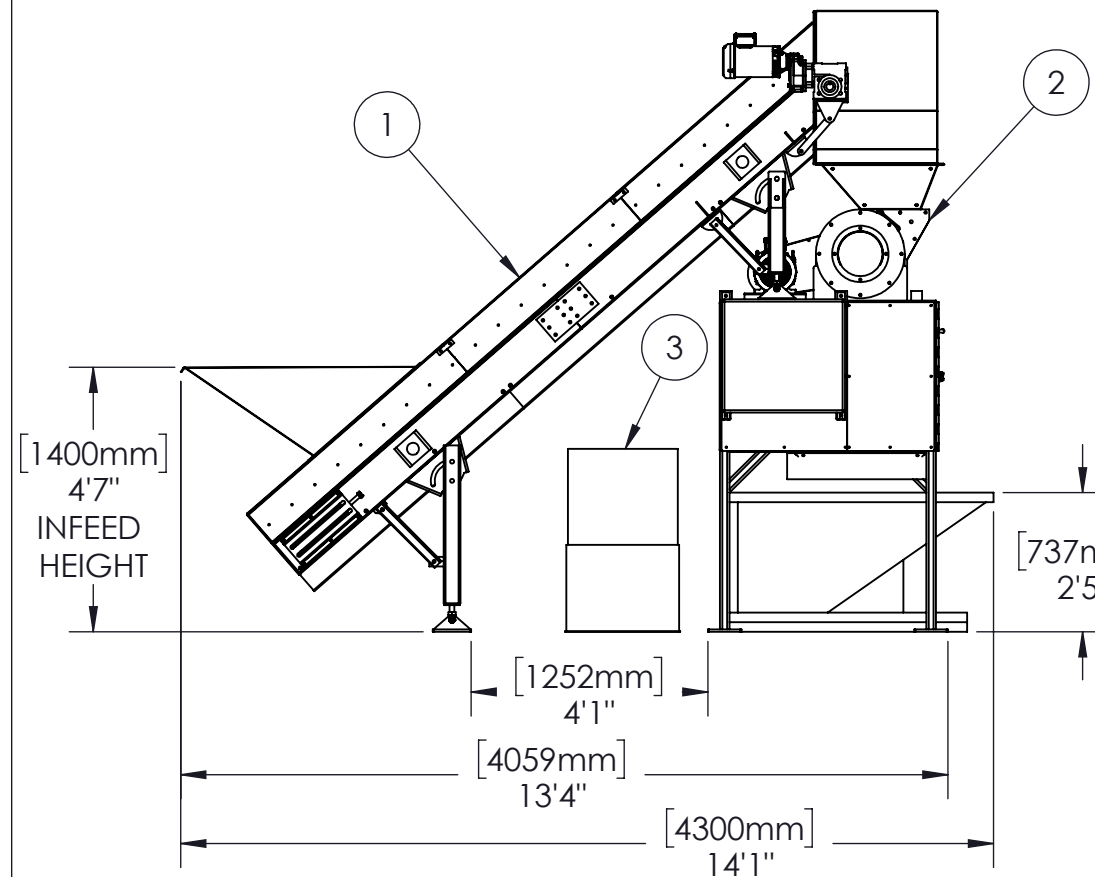
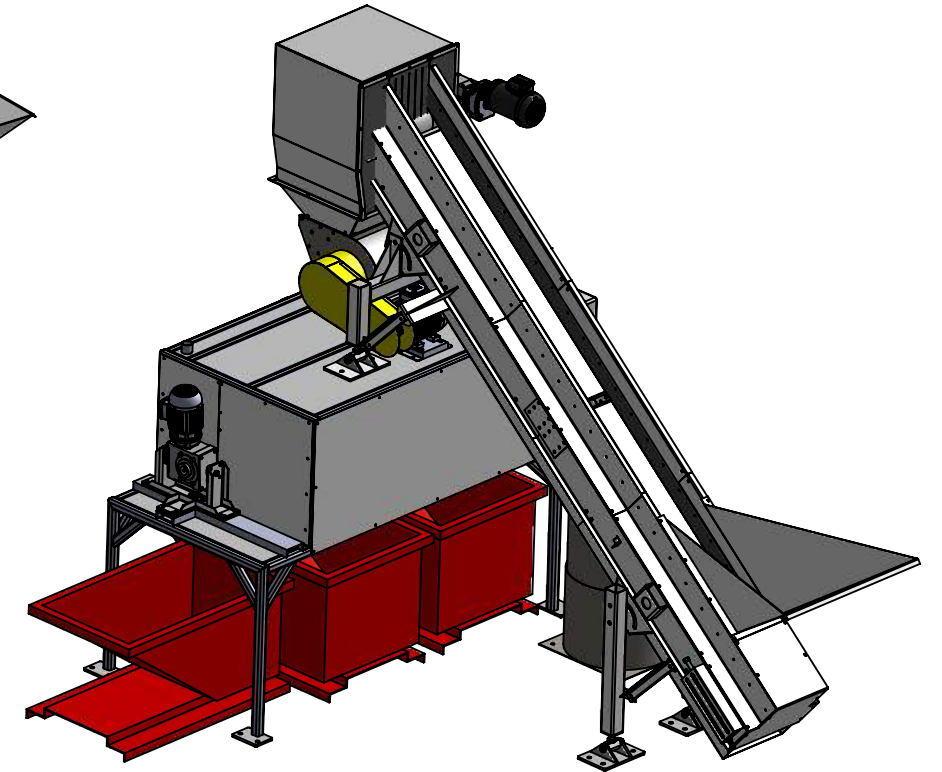
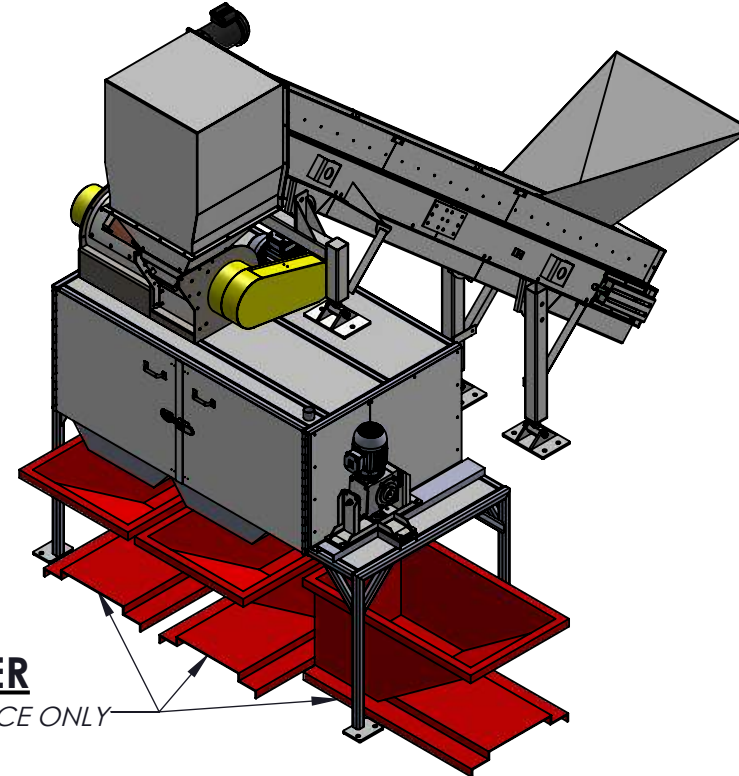
Branch Circuit Protectors - The Branch circuit protectors are provided with a circuit breaker and a motor overload as an integral part of the unit.

Push Buttons - All push buttons are heavy duty dust tight/water tight design.

Standards - Built to UL-508 Industrial Standards. Electrical schematics and parts lists are supplied with the unit when the whole system is shipped. Can be CE certified upon request.



BINS BY CUSTOMER
 SHOWN FOR REFERENCE ONLY



NOTES:
 1) ALL DIMENSIONS ARE REFERENCE DIMENSIONS AND MAY VARY PER CUSTOMERS SPECIFICATIONS
 2) MISTING BARREL LOCATION IS TO BE DETERMINED BY CUSTOMER

ITEM NO.	DESCRIPTION	Hp.
1	INFEED CONVEYOR	1 Hp
2	PULVERIZER/TROMMEL	5 Hp/1 Hp
3	OPTIONAL MISTING SYSTEM	1/12 Hp



493 State Route 28
 Richfield Springs, NY 13439
 Tel: 315-858-0055
 andelaproducts.com

DRAWN JEA
DATE 4/9/2021
CHECKED
DATE
SCALE 1:40

GPM
 MEGA MINI GLASS PULVERIZER SYSTEM

ANDELA PRODUCTS

REVISION	DATE

GPM

SHEET 1 OF 1



www.andelaproducts.com

Andela Glass Pulverizer
Budgetary System Pricing 2022

<i>GP-MINI</i>	<i>1,500 LBS/HR</i>	<i>\$34,800</i>	
<i>GP-MEGAMINI</i>	<i>1 TPH</i>	<i>\$63,700</i>	
<i>GP-05L</i>	<i>1-2 TPH</i>	<i>\$124,300</i>	
<i>GPT-1HD</i>	<i>3-5 TPH</i>	<i>\$194,800</i>	
		<i>\$231,600</i>	<i>W/ SERVICE PLATFORM AND OPTIONS</i>
<i>(ADD \$55,000 FOR ADDITIONAL GLASS CLEAN-UP SYSTEM)</i>			
<i>*GP-1HD</i>	<i>10 TPH</i>	<i>\$294,800</i>	
		<i>\$336,900</i>	<i>WITH SERVICE PLATFORM</i>
<i>(ADD \$80,000 FOR ADDITIONAL GLASS CLEAN-UP SYSTEM)</i>			
<i>(ADD \$90,000 FOR WINDSHIELD STRIPPER + CONVEYOR)</i>			
<i>*GP-2HD</i>	<i>20 TPH</i>	<i>\$389,500</i>	
		<i>\$473,700</i>	<i>WITH SERVICE PLATFORM</i>
<i>(ADD \$80,000 FOR ADDITIONAL GLASS CLEAN-UP SYSTEM)</i>			
<i>(ADD \$90,000 FOR WINDSHIELD STRIPPER + CONVEYOR)</i>			

Andela Laminated Glass Processing System

<i>AWS-2/ATROM-104</i>	<i>3-5 TPH</i>	<i>\$200,000</i>	
		<i>\$252,700</i>	<i>WITH SERVICE PLATFORM</i>

(Pricing provided does NOT include cost of shipping or installation)

ANDELA RECYCLING SYSTEMS

Low cost, high capacity, and smoothness of the aggregate, is some of the reasons many customers prefer to process their incoming glass with this system.

The Andela System produces an aggregate ranging from 10 to .1mm in size that is smooth enough to use in a child's sandbox. These turn-key systems process 1 to 20 tons/hour of glass and balance processing capacity and equipment cost, for an inexpensive solution to volume production needs.

A system usually consists of a metering surge hopper, glass pulverizer or crusher, conveyors and a trommel screen separator. Custom system design is offered. Central to the system is the patented pulverizer with a flexible impact system that pulverizes glass into usable aggregate the consistency of fine sand to gravel. The flexible impact system eliminates the grinding process typical of other machines (this reduces wear and maintenance) and produces a distinctly different aggregate, which is safe and easy to handle. It creates a cubical aggregate that is not sharp.

The trommel separator is designed to separate and size the glass and to sort out any residue that is larger than 7/16" in size. If material other than glass (plastic, metal caps, or covers) goes through the pulverizer, they will keep their larger form and thus be easily separated from the glass-sand. The trommel screen can produce three outputs; two different sized glass products (3/16" minus glass sand, and 3/16 – 7/16" glass aggregate), and oversized residue.

All moving parts are readily accessible for ease of maintenance and replacement. Rubber seals isolate and protect all open-air bearings and wear resistant liners protects the inside of the machine.

We also offer glass crushers designed to reduce all kinds of glass into cullet. The speed of the impacting can be adjusted to produce a course cullet that is 2" minus or a finer cullet size of 3/4" minus. The glass crusher/breaker can process liquid filled glass for product destruction and glass recovery.

ANDELA GLASS SYSTEM COMPONENTS

Andela Metering Surge Hopper

The Andela Metering Surge Hopper is designed to accept large quantities of glass to be metered out evenly onto the Andela Glass Pulverizer or Crusher Infeed Conveyor. It prevents a large surge of material from overloading the processing system with reciprocating plate feeder and adjustable door.

Andela Glass Pulverizer

The Andela Glass Pulverizer is designed to reduce all kinds of glass into an aggregate the consistency of sand and fine gravel (7/16" minus). It does not have any sharp edges and can replace natural sands and aggregates. The Andela Glass Pulverizer and Crushers have patented flexible impactors that selectively reduce glass into a glass-sand product or glass cullet.

Andela Trommel Separator

The Andela Trommel Separator is designed to separate and size the glass-aggregate and to sort out any material or trash that is larger than 7/1" in size. If material other than glass (plastic, metal caps, or covers) goes through the Andela Glass Pulverizer, it will keep its larger form and be easily separated from the glass-sand with the Trommel Separator. One or two screen sizes can be used to produce one aggregate mix (3/8" minus) or two different sized aggregates (1/8" minus and 1/8" to 3/8").

Conveyors

The Andela Conveyors are provided to convey the whole glass or cullet into the Andela Glass Pulverizer/Crushers Systems. They are designed to handle abrasive glass, and are available in various sizes for each application.

These are some of the items of importance to consider. Please let us know what additional information we can supply to educate and support you.

1. Sources of glass: - how much, what kind, and how will it get to your recycling location? Consider a charge to provide the service, or free at your “door/recycling location”.
 - a. How much waste glass is available? What recycling programs are in place now? Can separation and collection programs be set-up for consumers, restaurants, businesses, etc.? Who would set these programs up and provide the service (at a fee) to place containers for the glass and bring them to the recycling center?
 - b. Types of glass that can be accepted include bottles, plate glass, mixed color glass, and also ceramics. The glass may contain some non-glass residual.
2. Location – Where can you locate the machine? Any permits needed? Is it available and convenient for people and businesses to bring you glass?
 - a. Need a concrete pad and three phase power. A bunker to drop-off the glass, and a loader to pick up and put in the surge hopper. The GP-Mini and GP-MegaMini are hand fed or fed with a barrel or small box tipper. The large systems include a 4 ton surge hopper for loading the systems.
 - b. Can be located outside, but good if there is a rain/sum roof, and windbreak.
 - c. Not very noisy. The glass being deposited in the bunker or surge hopper is the loudest intermittent noise.
 - d. Dust is controlled with a misting system. The glass dust is not crystalline silica or have any negative impact on your health. .
3. Technology – The Andela Glass Pulverizer or Crusher Systems will process all types of glass, no sorting or pre-cleaning needed, and the finished product is a crushed sand cullet, or glass sand and aggregates with rounded edges.
 - a. Andela Products offer a full line of crushers, pulverizer, trommel screens, conveyors and hoppers. The individual components are put together to make a turn-key system for each customer to their operational parameters. The systems are designed to make a crushed glass cullet, a glass “stone”, or glass sand.
4. Funding: Can you get community support and funding to make this possible? Private donations? Grants? Loans? Investors? Leasing options are available. Incorporate into the existing or new recycling system.
5. Markets: Sell the pulverized glass as sand or aggregate in your community. Implement a “scoop your own” program. The community will pay \$5.00 - \$10.00 a 5 gallon bucket and bring it back for their home projects (landscaping, glass mulch, play sand, etc.). You can also dry and screen to make a sandblasting abrasive. Also use Andela Systems designed to produce glass cullet or glass feedstock for mfg. into new bottles, or fiberglass.

A short list of uses are:

- Mulch for various landscaping applications. It is attractive and never rots or breaks down – long lasting.
- Glass sand retains moisture on the particle surfaces. It holds the moisture below the surface and is available of the plant's roots.
- Glass mulch keeps insects, slugs and other pests from coming up to the plants. It also never fades or rots. (long lasting)
- Glass is an insulator, so it creates an insulated layer of mulch to protect the plant's roots from extreme temperatures.
- Mix glass sand with compost to make a soil blend that includes organics nutrients from the compost and filtration and water retention rom the glass sand.
- Amorphous silica – it is safer to use than regular sand (see attached)
- Filtration aggregate – it is angular sand, but not sharp. The water flows through it faster than natural aggregates. (Pipe bedding, septic filter sand etc.)
- Fine glass particles are a substitute for Diatomaceous Earth (DE) It has the same chemical structure as DE and is an organic pesticide. (The fines glass dust sucks the moisture out of insects)
- Concrete products - use only the sand size, and make a stronger concrete product
- Construction sand or aggregate replacement in any building or construction applications.

Please feel free to call or email me to discuss in more detail. We have different system sizes and configurations depending on the type of glass you will be putting into the system, how much you need to process, and what the final product specifications might be in your community.

Thank you,

ANDELA "FRIENDLY GLASS"

The questions most people interested in pulverizing recycled glass ask are;
What will I do with it? Who will buy it?

The answers to these questions will depend on your local market. Local markets are virtually unlimited and since they are local, the high cost of hauling this heavy commodity will not eat away profitability. The key is to collect, process, and sell locally.

To find the local markets you need to know:

What am I selling? What are its advantages? What are my customer's needs? Does my product offer my potential customer any advantages over their existing material?

These are all important questions and we can help you with the answers.

The Andela pulverized glass has no sharp edges. This is why it is called "*friendly glass*". It is used as landscape material, driveway cover, and other construction material supplements such as paver sand, drainage sand, or gravel. The Andela glass ranges from fine sand to pea gravel sized aggregate.

When material is processed through an Andela System it creates a unique cubical shaped sand. It is hard and inert, and retains water of the particle surfaces, making it a superior filter sand, soil amendment or compost additive.

Your local markets may offer more possibilities than we have listed on the following page but here are some of the uses that Andela customers have found for their processed glass.

Markets for Andela Pulverized Glass

Glassphalt - Paving Applications

Aggregate Base Course, Asphalt Base Course-Glassphalt,
Permeable Pavement,
Parking Lots and Driveways

Aggregate

Backfill/Clean Fill, Embankments, Hydroponics, Paver Sand,
Mason Sand, Road Sand, Termite Barrier,
Utility Bedding and Backfill, Weighted Bags-Construction

Filtration

Wastewater Filter Sand or Gravel
Filter Sand for Septic Tank Systems

Drainage

Drain Pipe Bedding, Backfill, Drainage Aggregate, Septic Fields,
Underdrains, French Drains