



STEAM ENGINEERING

A DIVISION OF VORTOMECH INDUSTRIES INC



STEAM ENGINEERING

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WHO WE ARE

Since 1989, we have designed and manufactured innovative steam heating solutions which challenge the standards of today's concrete plants, grain/seed mills, and mushroom farms. Through product development, prototyping and joint ventures, we are expanding into additional markets.



COMPANY HIGHLIGHTS

- Custom Electrical panels built to CSA standards built to C22.2 No.14
- Steam Generators are built to CSA B149.3-15 Compliance
- NRMCA Member (National Ready Mixed Concrete Association)
- NPCA Member (National Precast Concrete Association)
- IAOM Member (International Association of Operative Millers)
- GEAPS Member (Grain Elevator and Processing Society)
- CMI Member (Canadian Mushroom Institute)

Products

INDUSTRIAL STEAM GENERATORS









Our industrial steam generators incorporate a mixer-burner with a tough, refractory lined combustion chamber which ensures safety, efficiency and many other improvements over current steam generating systems. This new system drives air into a mixer-burner with fuel, where the mixture is ignited as it enters the combustion chamber. Water is sprayed on the hot gases exiting the chamber, generating steam instantly. This system capitalizes on non-condensable stack gases which, rather than being vented, represent a useful supply of energy when combined with the steam, thus maximising efficiency.

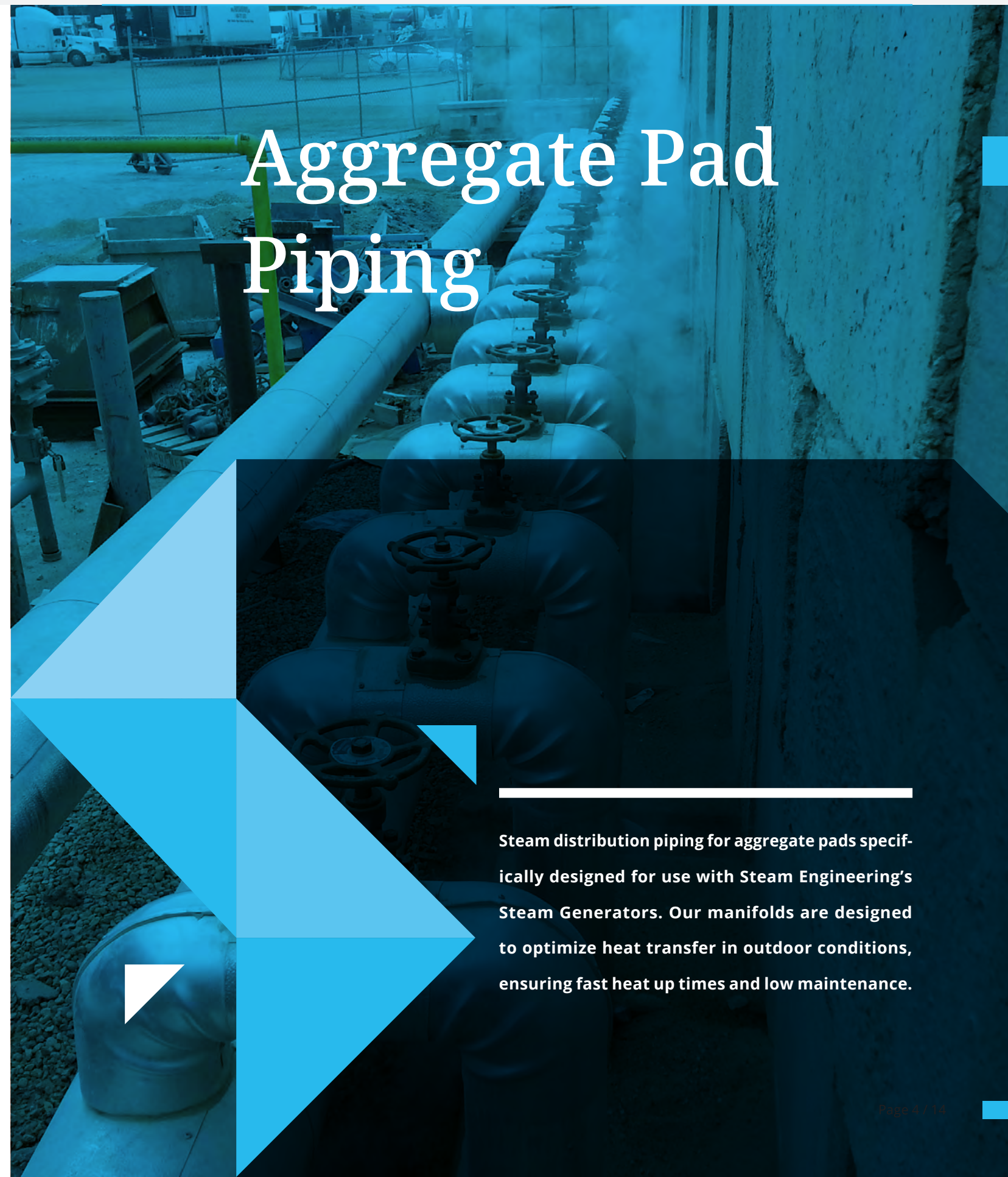
The immediate benefit of the STEAM ENGINEERING steam generator is that steam is available on demand. Fifteen seconds after powering on the machine, steam is generated. When steam is no longer required, the unit is switched off for cooling and blowdown of manifolds.

Another major benefit of this unit is its ENERGY SAVING features. Due to its high efficiency, it produces saturated, or "superheated" steam with only the adjustment of water flow rates. With its unique ability to produce instant steam, it only consumes fuel when steam is generated. The unit does not maintain a mass of water at a high temperature when steam is not required.

Steam is produced at atmospheric pressure, and uses a high pressure blower to push through material or exchangers up to a resistance pressure of 8 PSIG. Since pressure does not exceed 15 PSIG, no special boiler room, stationary engineer, or high insurance rates are required.



- 
CARBON MONOXIDE OUTPUT LEVELS BELOW 10PPM
- 
FUEL SAVINGS UP TO 50%
- 
STEAM IN 15 SECONDS
- 
STEAM PRESSURES UP TO 8 PSIG
- 
PRE-ASSEMBLED FOR EASE OF INSTALLATION
- 
NO STATIONARY ENGINEER REQUIRED
- 
NO CHEMICALS REQUIRED
- 
NO STACK OR BOILER ROOM REQUIRED



Aggregate Pad Piping

Steam distribution piping for aggregate pads specifically designed for use with Steam Engineering's Steam Generators. Our manifolds are designed to optimize heat transfer in outdoor conditions, ensuring fast heat up times and low maintenance.

Containerized Steam Systems

DROP ON SITE - TURN KEY INSTALLATIONS

This complete containerized steam generator system is the perfect fit for limited indoor space or turn key installations:

- Drop on site
- Spray foam insulation
- LED strip lighting
- Electric thermostat for climate control
- Inspected to CSA electrical wiring standards
- External flood light
- Cross ventilated fan controls
- Aluminum checker plate flooring
- Steel clad walls
- Built to suit a variety of configurations
- 20 ft and 40 ft containers available



Wheat Heaters

Highly Efficient

Bulk Solid Heat Exchangers

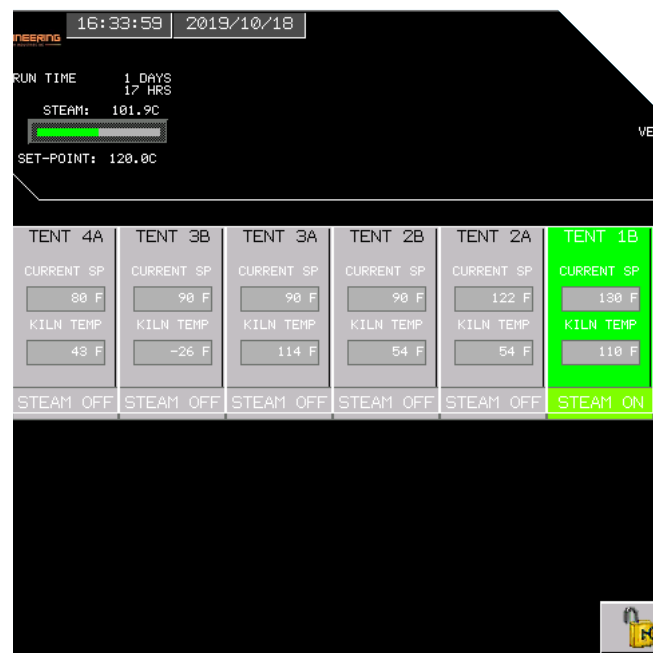
A new and exciting product that Steam Engineering has recently developed is our Wheat Heating System. When comparing the cost savings of operating our new fuel efficient Steam Generator versus using a standard boiler, as well as the ability to increase your production, the choice is clear. The newly designed Wheat Heater System is an innovative, rugged and effective product. Our Wheat Heaters are constructed with a 4-pass SCH40 1-inch piping. Standard bolted flange connections make the Wheat Heaters modular allowing them to be easily added or removed in an evolving plant.

The large surface areas are optimized for even heating, resulting in year round consistent product temperatures and moisture content. Our Wheat Heaters reduce tempering times of cold product and increases extraction rates for increased yields and reduced ash content. Wheat Heaters are perfect for controlling moisture content in the milling process. Sizing is never an issue, as we have a full series of different sizing (options/solutions). All solutions/options are stackable to fit within your available space, while still meeting process rate requirements.

Industrial PLC Controls

CUSTOM BUILT TO FIT ALL APPLICATIONS

Our PLC Panels are inspected to CSA Standards for compliance and are built using only cULus or cCSAus components for ease of installation and reliability. Every panel that we make has the capability to be monitored over the internet via a range of devices. The capability to provide e-mail alarms is easily configured for reliability and constant connectivity.



- Aggregate temperature / timer controlled
- Kiln curing management and monitoring
- Precast tarp curing

- Water tank temperature monitoring
- Seed and grain heating management

Applications

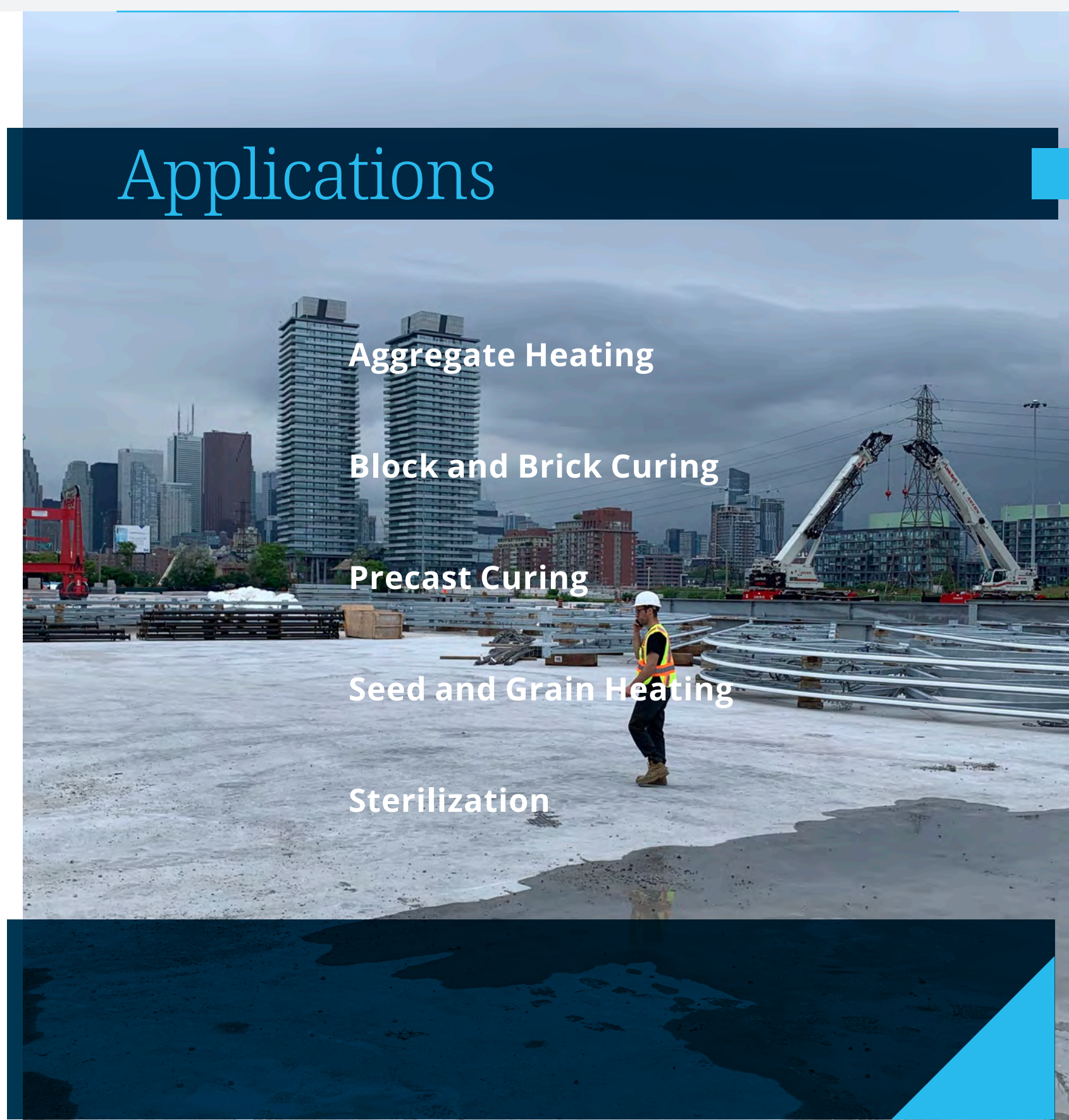
Aggregate Heating

Block and Brick Curing

Precast Curing

Seed and Grain Heating

Sterilization



Aggregates

Aggregate Heating

Steam Engineering's steam generators are perfect for defrosting and heating your aggregates and sands. Creating steam and operating at pressures below 8PSIG, operators can safely work around materials being heated and be confident of the quality of concrete they are producing.



Simple and Efficient

Designed to each customer's specifications, Steam Engineering will provide 3D Cad layouts to streamline installations.

Variable Controls

Keep it simple. Steam Engineering offers systems on a broad spectrum, from manual valves, to full PLC controlled system with electronic or pneumatic valving for temperature and/or timer heating controls.

Multi-Location Heating

If your materials are kept in bins or in pads, we can provide you with a variety of different solutions to keep your facilities up and running in the coldest of winters.

High Strength Concrete

Our system provides carbon dioxide (CO2) rich steam which has been recorded to provide high strength concrete with little to no additives. Meet or exceed specifications with ease.

Boiler and Pressure

Vessel Act

Steam Engineering's Steam Generators do not fall under the boiler and pressure vessel act. Unlike standard boilers, high pressure water heaters, and high pressure waste energy heaters, our systems are all low pressure, high flow steam heaters capable of heating all of your materials with one system. Our Steam Generators are recommended for improved efficiencies and safety.

Block, Brick, Precast Curing



Steam Curing Systems

Steam Engineering's Steam Generators provide steam curing solutions in a simple, robust, complete package. Simplify your process with a reliable, even heat.

Reduced Energy Requirements

Our Steam Generators are recommended for improved efficiencies and safety. They have the added benefit of CO2 enriching the curing environment for accelerated curing and reduced Boiler HP requirements.

PLC Monitored Systems

Intuitive, simple interfacing reduces training and provides consistency of product.

In House Design Work

Our staff has been designing and manufacturing systems start to finish since 1989. Feel confident in our services on any project.

Modular Space Saving Design

Steam Generators come in a variety of installation configurations to fit any space requirements: Containerized, skidded or stackable.



Seed and Grain Heating



High Efficiency Bulk Solid Heat Exchangers

Steam Engineering's high efficiency bulk solid heat exchangers are built to last with high strength SCH40 pipes. Uniform heat flow ensures a consistent discharge temperature of your product.



Reduced Energy Requirements

Compared to a direct heating system, indirect heating uses up to 85% less energy.

NO Emissions Generated

With the use of indirect heating and or cooling, wasted energy can be re-directed for use.

No Moving Parts or Seals To Replace

With no moving electrical or mechanical parts, maintenance costs are virtually eliminated.

Compatible With Existing Heating Systems

Boilers, water, and waste energy heaters are compatible with our system, but will have to be pressure regulated to prevent pressure vessel requirements. Our Industrial Steam Generators are recommended for improved efficiencies and safety.

Modular Space Saving Design

Stackable sections which can be expanded or reduced to a large variety of shapes and sizes,

Product Conditioning

With a slow, controlled discharge of product, there is little to no abrasion, reducing both dust and degradation. Consistent product improves yield by 2%, as a result, creating consistent grinding conditions and preventing condensation, leading to better sanitation.

Steam Sterilization

Grow Room Sterilization

Steam Engineering's Steam Generators have been installed since 1998 into mushroom farms to sterilize grow rooms and prevent mould and mildew. A unique burner design ensures low NOx and CO levels, conforming to all installation standards.



Reduced Energy Requirements

Compared to a boiler system, Steam Generators are designed for 100% make-up and do not fall under the pressure vessel act. With a Steam Generator, fuel savings could be as much as 50% and water consumption rates are minimal.

Low NOx and CO Emissions Generated

A unique burner design provides low NOx and CO emissions for environmental concerns and operation safety.

Lower Maintenance Costs

With limited moving electrical and mechanical parts, maintenance costs are minimized.

Space Saving Design

Compared to a traditional boiler, Steam Generators are small in size and are built in three standard configuration to meet customer's requirements. 3D Layout concepts are generated for customers to reduce installation costs and time.

CASE STUDY

COLDSTREAM CONCRETE

Drycast, wetcast, concrete pipe and ready-mix - four businesses within the same industry with very different applications. While most companies in this field just focus on one method of operation, Coldstream Concrete encompasses all four.

Based in Ilderton, Ontario, Bob Browns family business has evolved to meet the needs of his expanding market of small towns and rural areas. Coldstream really is a one-stop shop for any concrete application need, thanks to Coldstreams commitment to house four business divisions all under one roof.

Mr. Brown looked closely at his growing company, hoping to determine a strategy to consolidate some of his business and manage his overall vision. He realized that all four of his business divisions shared one common necessity: STEAM. The company needed to heat sand, defrost gravel, cure wetcast, drycast, concrete pipe and heat water. At the time, Coldstream used different heat sources for each application. Mr. Brown first heard of Steam Engineering from a used equipment dealer, although he was already familiar with the concept of direct-fired Steam Generators. He was certainly aware of the huge fuel savings that would be available to his operations with a direct-fired unit and he was confident that his out dated boilers were running at 60% efficiency at best.

Brown's business concerns centered on its five concrete pipe kilns, three wetcast/drycast tarped curing areas and a 4500 gallon water tank, as well as three 120-ton sand and gravel pads.

These days, Bob Brown could not be happier with his heat source decision. Steam Engineering has really come through as a company he can trust for his current needs and future demands.



COLDSTREAM CONCRETE

Coldstream Concrete represents the most challenging of Steam Engineering's installations to date, including over 1,500 feet of six-inch steam header. The job took over one year to complete.



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