

2 May 2018

Crown Iron Works-Mortenson Site Tower Extension

It is Crown Iron Works's intention to construct a 100' tower on the proposed Mortenson site to provide pilot plant functionality for our Liquids group. Crown's current facility has neither capability nor space for piloting activities for Liquids, which is a main driver for Crown's relocation.

Activities Within the Tower

Crown Iron Works's Liquids group designs world class equipment that provides solutions to vegetable oil processors. The new Innovation Center will provide space for traditional vegetable oil processing:

- Refining
- Degumming
- Bleaching
- Winterizing & Dewaxing

The additional height is required to allow for proper processing of a variety of vegetable oils (soy, canola, sunflower, palm, palm kernel, etc.) in the fields of:

- Distillation/Deodorization
- Fat Splitting/Fractionation
- Biodiesel Production
- Glycerin Production

Distillation/Deodorization

Removes off-flavor components under high temperature and vacuum. This is an important technology in aiding developing countries feed their people in a cost-effective manner.

Fat Splitting/Fractionation

Separating high-melting and low-melting fractions of oils provides customers with their desired product characteristics.

Biodiesel Production

Converts triglyceride chains in the oil to biodiesel fuel.

Glycerin Production

Fat splitting byproducts are converted to glycerin utilizing vacuum distillation. Glycerin is used as a base in the soaps and cosmetics industries.

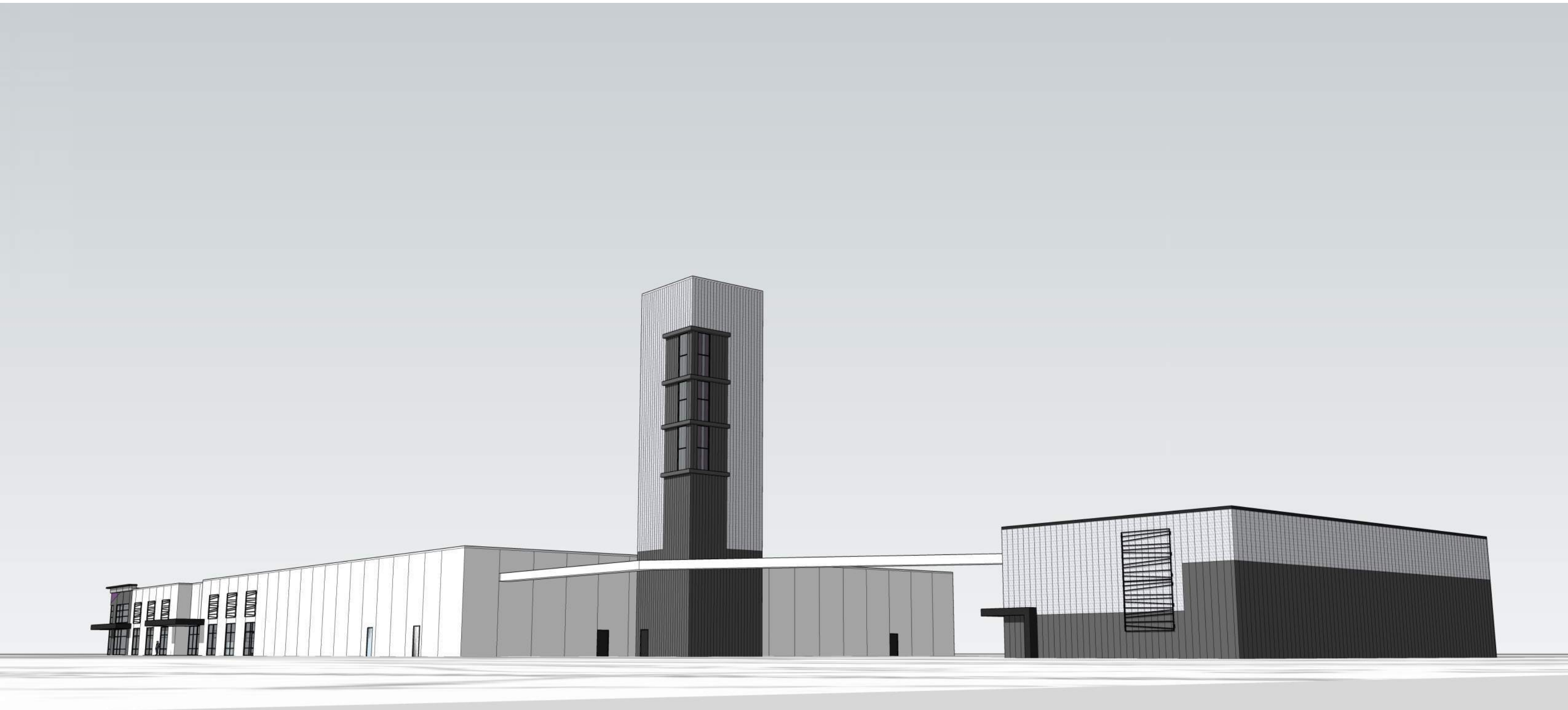


**CROWN
IRON WORKS**
Your Partner in Productivity

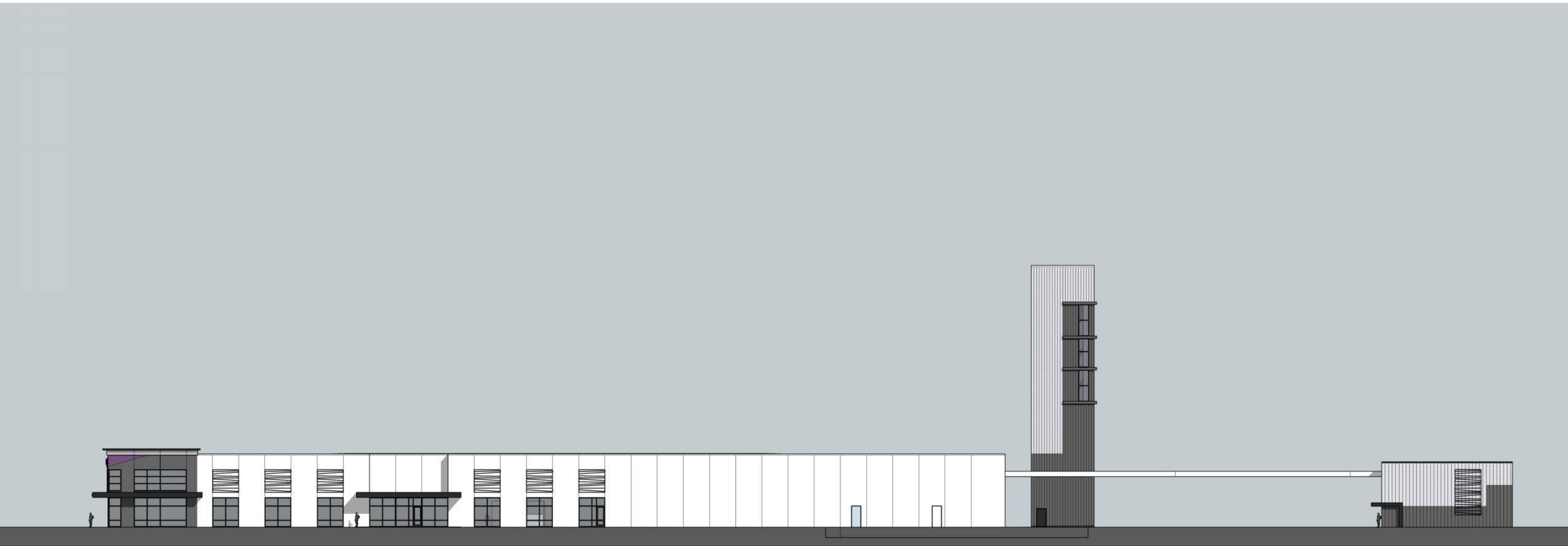
Equipment Requirements

The equipment required for these processes must be 100' tall as the technology relies heavily on gravity flow. Pumping the material through a series of smaller columns disrupts the processes and does not provide the desired results.

Throughput is a function of the column diameter. As such, Crown is looking at installing four (4) 18" diameter columns. This will provide considerably less capacity than an industrial plant, but still allow us to demonstrate what makes our equipment successful. The bulk of the space in this tower will be a stairwell that allows operator access to the tops of the columns.



CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 1 - SOUTHWEST BIRDSEYE



CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 1 - SOUTHWEST BIRDSEYE



CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 1 - SOUTHWEST BIRDSEYE



CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 2 - SOUTHWEST BIRDSEYE



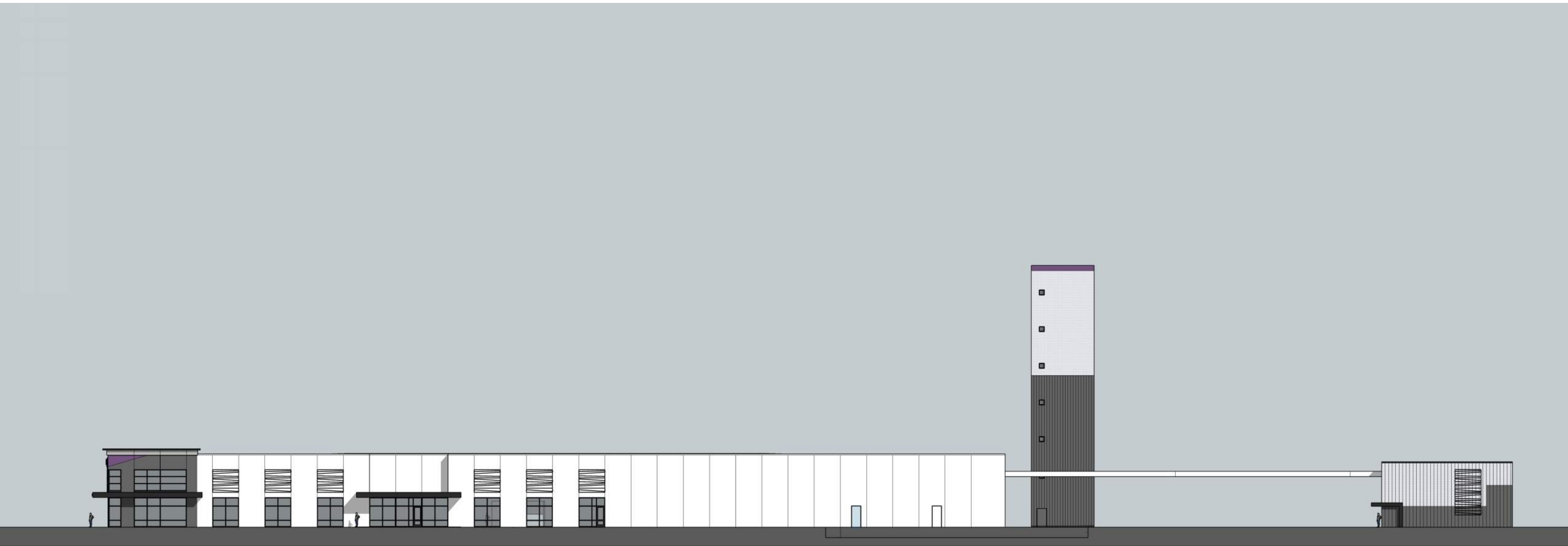
CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 2 - SOUTHWEST BIRDSEYE



CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 2 - SOUTHWEST BIRDSEYE



CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 3 - SOUTHEAST GROUND VIEW



CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 3 - SOUTH ELEVATION



CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 3 - SOUTHWEST BIRDSEYE



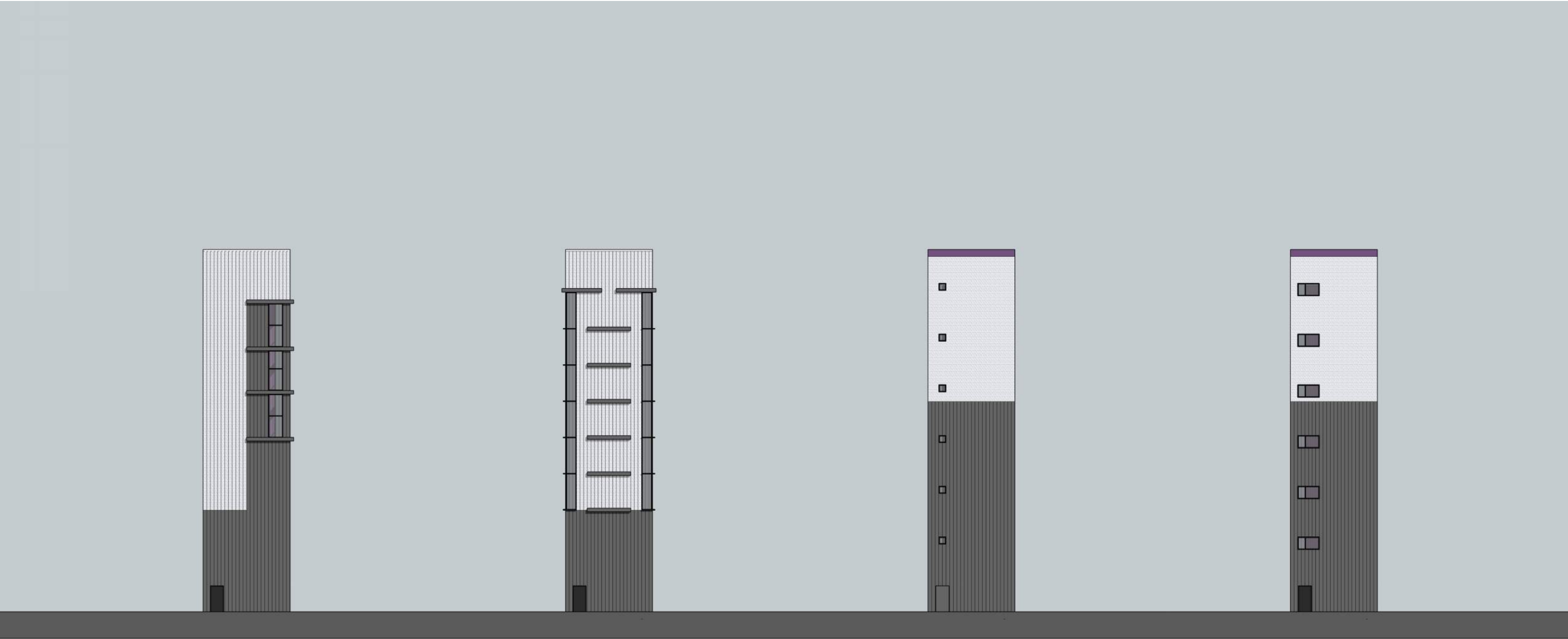
CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 4 - SOUTHEAST GROUND VIEW



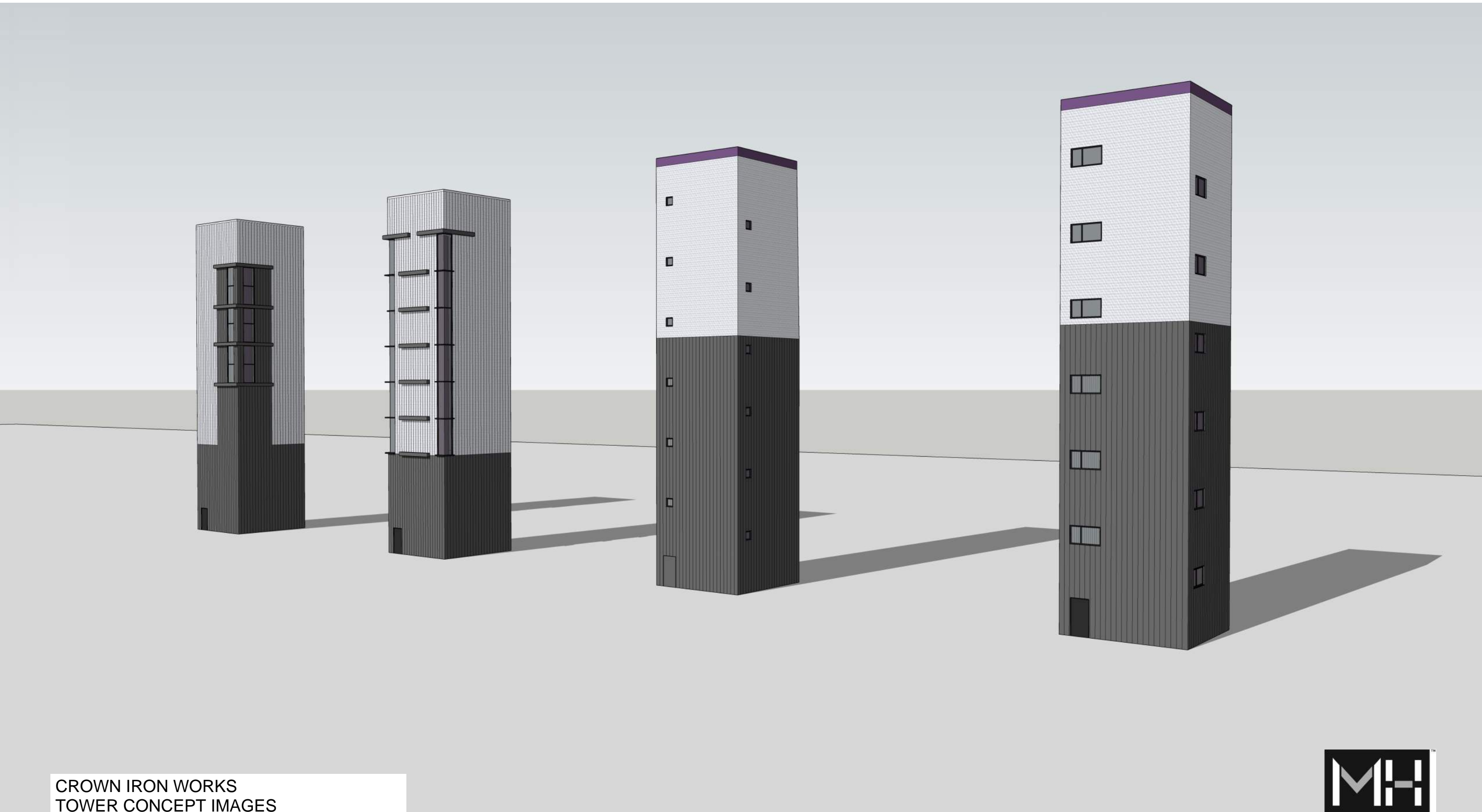
CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 4 - SOUTH ELEVATION



CROWN IRON WORKS
TOWER CONCEPT IMAGES
TOWER 4 - SOUTHWEST BIRDSEYE



CROWN IRON WORKS
TOWER CONCEPT IMAGES
FOUR TOWERS - SOUTH ELEVATION



CROWN IRON WORKS
TOWER CONCEPT IMAGES
FOUR TOWERS - PERSPECTIVE