

Alloy 1 & 2 Project, Sioux Falls, SD

Submitted by: Buffalo Ridge Concrete, Inc.

The Alloy 1 & 2 project consisted of two warehouse/industrial buildings located on north Career Avenue in Sioux Falls. The building itself is a unique style of building, as the shell of the building was constructed completely of insulated concrete tilt-up walls. Tilt-up construction features a series of concrete panels cast on-site and tilted up into place to form the building walls. The tilt-up walls on this project featured a “sandwich panel” design with a 3” thick insulation between two layers of concrete. The 15-inch thick tilt-up walls were cast on site by K & M Concrete using wood forms, rebar, and concrete with structural fibers provided by Buffalo Ridge Concrete. The combined 240,000 square feet of interior floors used the Ductilcrete flooring system, allowing the joint spacing to be extended to 50 feet, reducing the amount of joint filling, curling, rocking, and spalling that can typically be found around joints. The exterior Ductilecrete provided reduced cracking and curling around the pavement joints, as well as providing more resistance to salts and de-icers.

The project consisted of a total of 17,000 cubic yards of concrete using a 3500 psi mix for the foundations, a 4000 psi Ductilecrete mix for the floors and exterior paving and a 4000 psi mix with structural fiber mesh for the tilt-up wall panels. The project started in September of 2022 and was completed in July of 2023.