



# AMES HIGH SCHOOL

PROJECT HVAC



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# PROJECT SCOPE

## Intro

In 2019, ACI was awarded the mechanical & plumbing pack-age for the new Ames High School project. The total project was estimated to cost over \$140 million. The project was con-tracted directly to the school district as a CM delivery meth-od. Story Construction was brought on as the construction manager, and they teamed with OPN ad Design Engineers as the A/E group.

- **10 Mechanical Rooms**
- **5 Chillers / Heaters**
- **5+ Miles of Hydronic Piping**
- **48,000 Gallons 25% Glycol**
- **18 Air Handler Units**
- **8 Energy Recover Units**
- **370 Fan Coil Units**
- **1862 Grilles, Registers & Diffusers**



# New Concept Building

OPN designed the building around multiple styles of construction including Precast Concrete, CMU block, Steel Structural and cast in place concrete. The south wing of the building houses an Olympic size swimming pool, state of the art weight room and wrestling room, and 3 gyms. The north wing includes classrooms, fantastic shop space, and an auditorium that rivals any other theater in the state of Iowa.



## Safety First

Each day at Ames High School started with an ACI daily huddle. With a crew size of over 30 at the peak points, it was critical to keep everyone working on the same page. Along with daily huddles, a weekly safety toolbox talk was also conducted.



## BIM

During preconstruction, we used Revit to create and coordinate a BIM model that was used for prefabrication of underground plumbing, mechanical room HVAC piping, ductwork, and also coil connections at all units. The model was also utilized to use our total station for hanger locations, in which all hangers were installed prior to the concrete decks going in.



**Mechanical**  
Engineering **with**  
SAFETY, PASSION & INTEGRITY



# Advanced HVAC System

The sophisticated chiller/heater system is used to both cool and heat the building. Unlike a typical chiller installation, there is no true condensing & evaporating side. Design Engineers designed the system to utilize the geothermal ground loops to supply both cooling and heating as required. All 3 systems are tied together, ground water, chilled water, and heating water. The 5 chillers/heaters are controlled by demand through the advanced building controls system. Control valves direct the water in the direction it's needed, and the chillers have a delineation line that determines which units are cooling and which are heating. The system is manipulated by 12 pumps, 3 air separators, 2 heat exchangers, and other hydronic specialties. The heating system also controls the pool water through another set of pumps and heat exchangers. Chilled and heating water is pushed throughout the building to coils in the AHU's and FCU's. Finally, spaces in the building are tempered by over 8 miles of ductwork.



## Owner

AMES SCHOOL DISTRICT



## Construction Manager

STORY CONSTRUCTION



## Delivery Method

MECHANICAL CONTRACTOR



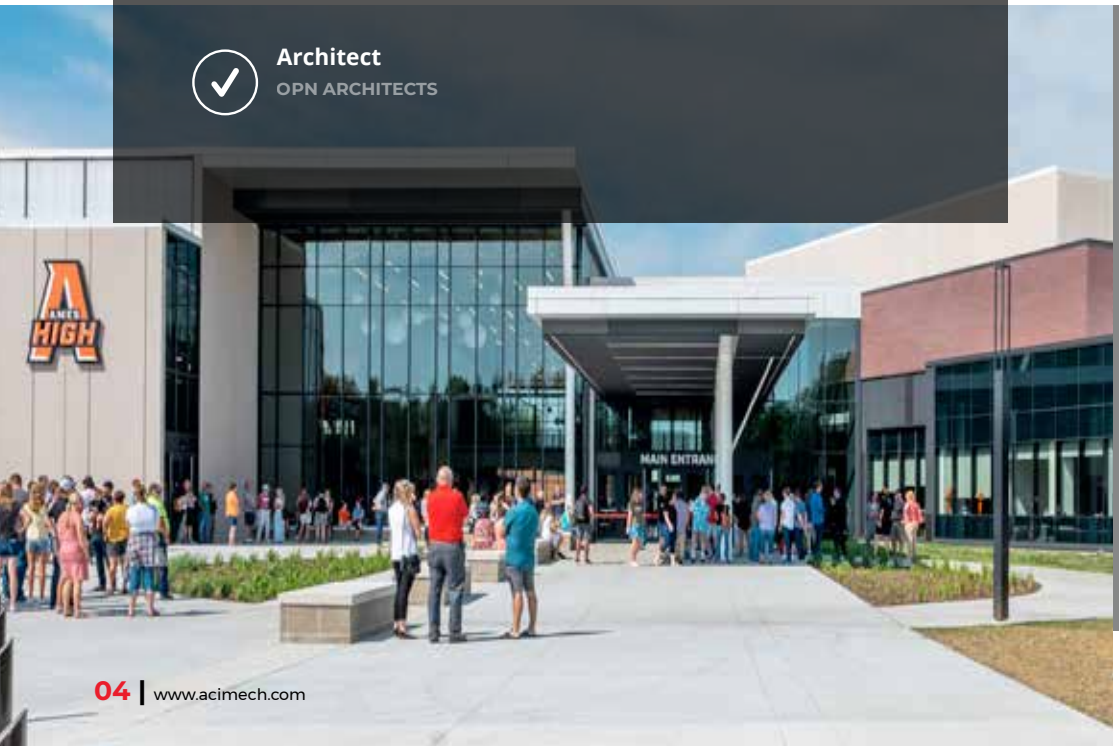
## Date Completed

JULY-2022



## Architect

OPN ARCHITECTS



# Project Portfolio

