



# Reliable and sustainable heating solutions for **Data Centers** guide

LETS BEGIN

**aggreko**



# Introduction

**This guide outlines the various options and applications using Aggreko's latest heating technologies and solutions, available to all data center customers - General, Electrical and Mechanical Contractors, as well as End-Users - during the heating season.**

The expertise behind the products, systems design and solutions implementation spans multiple years of expert, engineering-first heating process experience over our vast North American customer base.



**Our mission is to help our customers – and their customers - meet fuel efficiency and CO<sub>2</sub> reduction requirements via innovative approaches to heating systems and product design.**



# Aggreko offers tailor-made solutions for data center projects using temporary heating equipment.

Our main heating options include both electric and non-electric (fuel) heaters:

**Electric heaters range from 50 kW to 150 kW in size.** These heaters provide a no-fuel environment and allow for a fume, flame, and moisture free solution. These are implemented at sites when there is temporary power readily available (or) are coupled with an Aggreko generator for non-fuel heating requirements.

**Non-Electric (Fuel) Indirect heaters range from 500K BTU to 1.5M BTU.** These heaters are available in Diesel, Propane, and Natural Fuel fuel type options. Fuel consumption is approximately 70% efficient. They provide proper heating at early stages of construction. These heaters allow for the best way to positively pressurize an area that has several corridors such as an administration area.

**Non-Electric (Fuel) make up air heaters range from 500K BTU to 4.5M BTU.** These heaters are available in Propane, and Natural Fuel type options. These units are self modulating with high temperature control to shut down the burner when temperatures inside your project are met, reducing the total fuel consumption. They provide a tremendous volume of heat and air movement allowing for large data halls to be heated by one penetration point.

**Non-Electric (Fuel) ground thaw heaters range from 400K BTU to 900K BTU.** These heaters are available in Diesel and Heating Oil options. The trailer-mounted, fully self-contained units, suitable from small-scale projects to demanding heating requirements for ground thaw and concrete curing applications.



### Electric Heaters

Available in sizes from 171,000 to 512,000 BTU/HR

Provides air temperature rise up to 300°F

Completely fume, flame and moisture-free

Airflow rates to 10,000 cfm



### Indirect Heaters

Units from 500,000 to 1.5 M BTU/ HR

Provides air temperature rise up to 200°F

Available in diesel, propane and natural fuel

Provides up to 11,000 cfm and up to 5" static pressure



### High Static Make Up Air

Units from 500,000 to 4.5M BTU/HR

Provide air temperature rise up to 200F

Self modulating temperature control, reducing fuel usage

Up to 25,000 cfm with high static to pressurize facility



### Ground Thaw Heaters

Units from 400,000 to 900,000 BTU/HR

Provide air temperature rise up to 195 F

“Even heat” approach to curing reduces the risk of freezing, designed to lower fuel consumption

Thawing capacity of up to 13,500 sq. ft. and area heating capacity of up to 1,286,860 sq.ft.

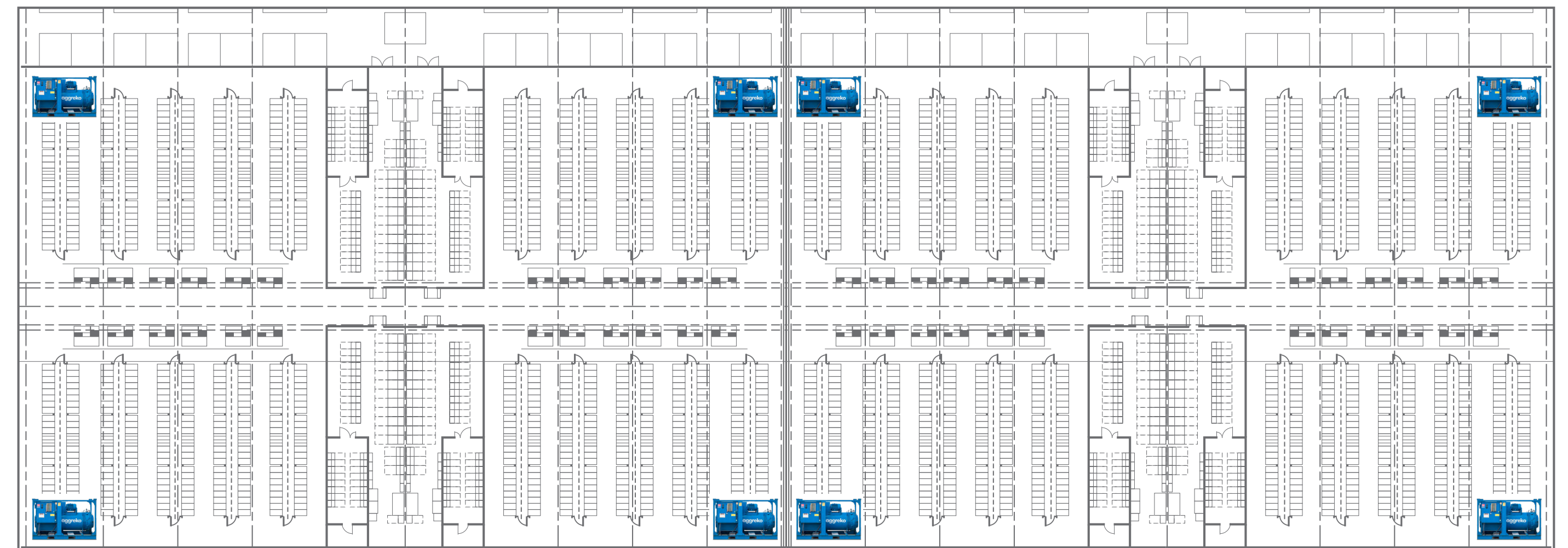
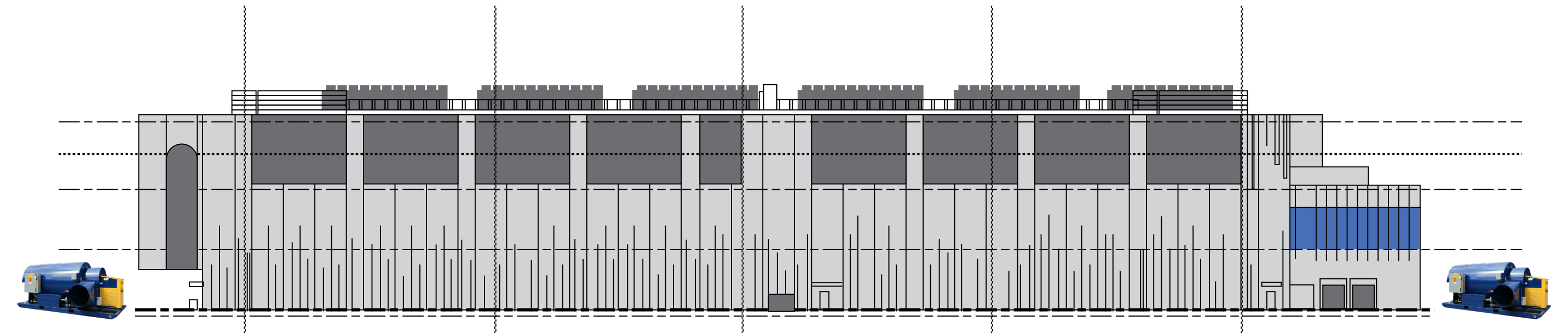
# Data Center heating solution examples.

**Aggreko's heating solutions are designed to meet your specific project needs, whether you have sufficient power on-site for electric heat or not, and they allow for a combination of heating products depending on your requirements.**

On this page two different data center heating applications are highlighted:

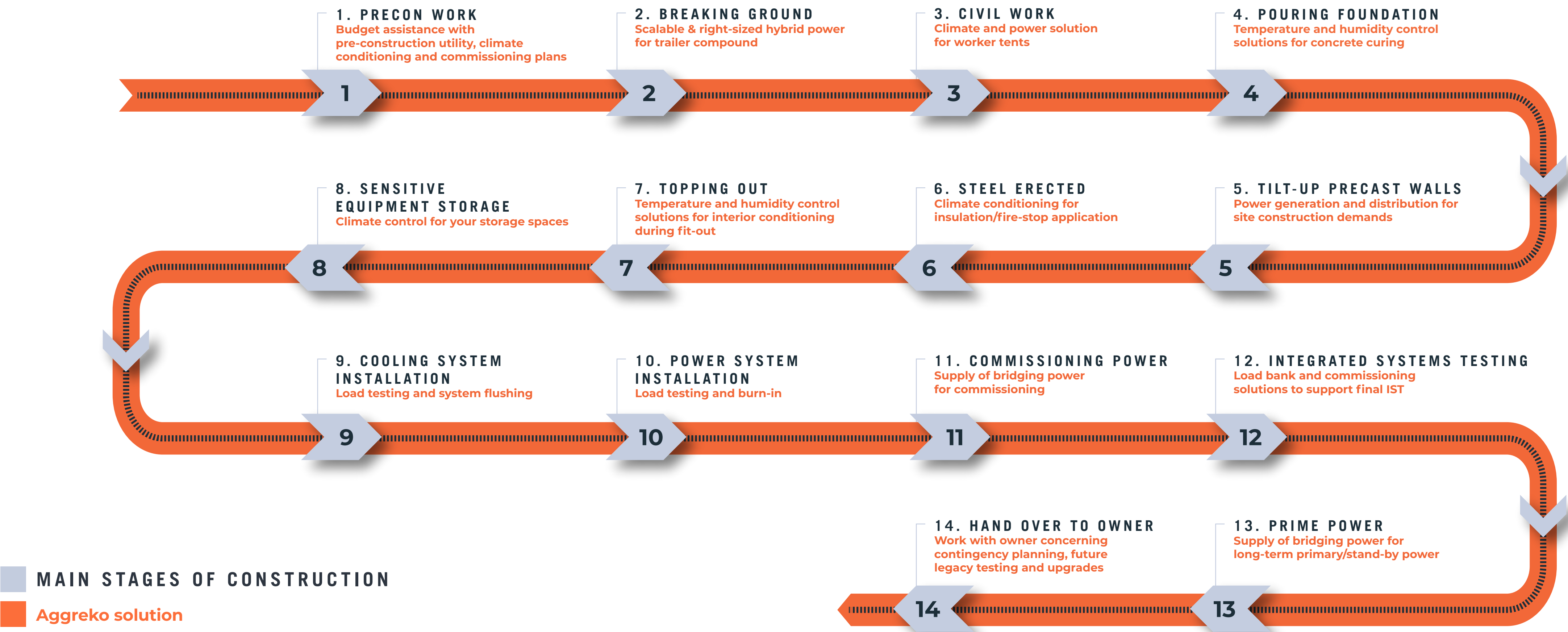
- In the first application Aggreko placed two large 4.5 M BTU make up air units on the exterior of the building, at opposite ends, and ducted them into the space.
- The second application involved the use of 50 kW electric heating units inside the data halls on opposite corners of each hall.

Both solutions adequately heated the space and kept both projects on time and on budget. With the electric heat being placed inside of the data halls, we delivered zero loss in heat and energy, providing a 100% efficient solution. The make up air units experienced minimal heat loss in the ducting, however, they also provided fresh air make up and air changes to the workers inside the space.





# Reliable power, temperature control and testing for every stage of your Data Center construction and commissioning





# Key heating solutions for your Data Center construction

MAIN STAGES OF CONSTRUCTION

Aggreko heating solution

Heating systems guide by project stage



Electric Heaters



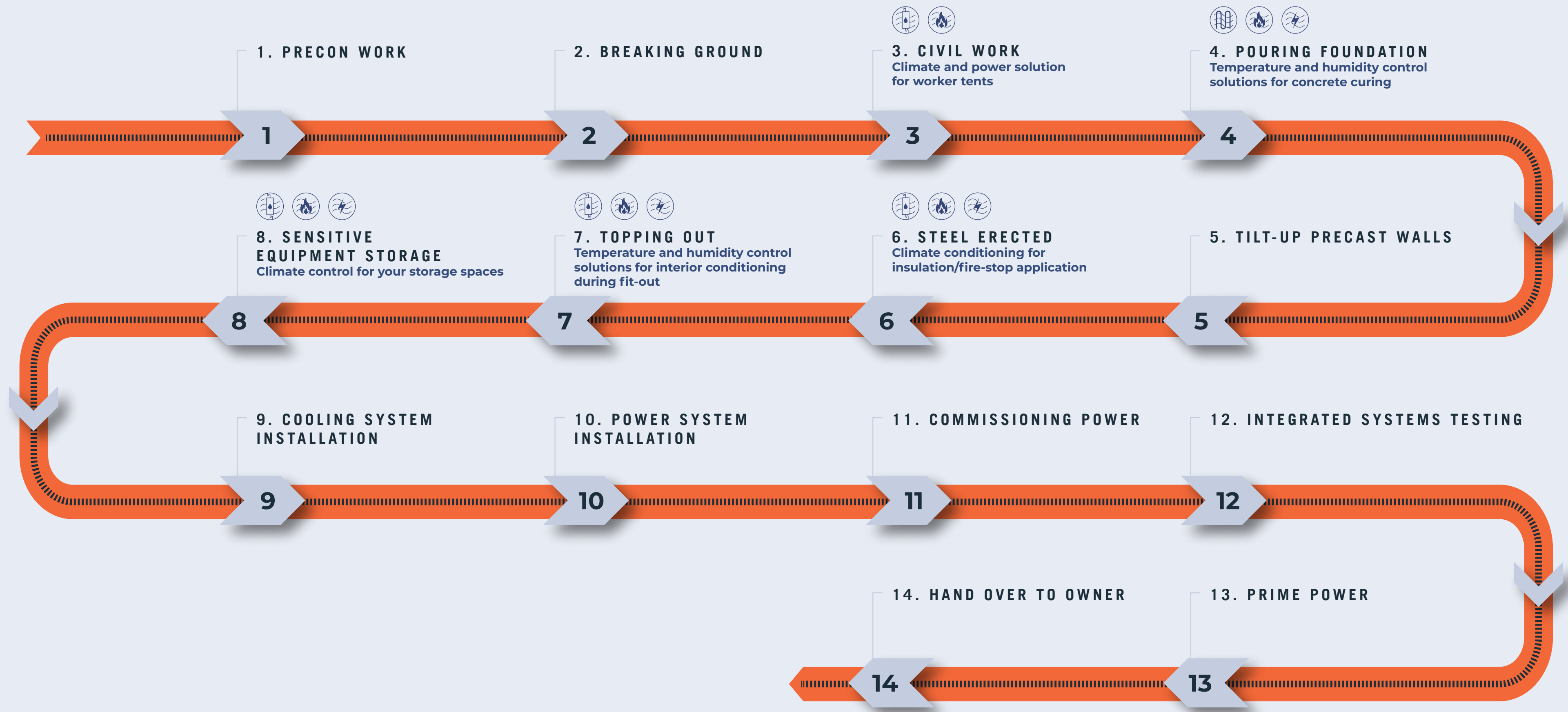
Indirect Heaters



High Static Make Up Air



Ground Thaw Heaters





# How Aggreko's heating solutions **add value to your Data Center project.**

## End-to-end, tailor-made heating solutions.

- Our team of engineers and other heating experts at Aggreko can work with General, Electrical and Mechanical Contractors as well as with building owners on projects from the bidding stages, through award and execution.
- We offer early engagement to contractors' teams, including estimators, project managers, and site superintendents to provide with expert advice on sustainable heating options.
- Our teams work towards understanding each construction project, calculating and defining overall and phased-in BTU heating requirements. Based on your specific needs, we provide recommendations on equipment for each stage of construction and proper on-site layout of heating equipment, while our fully trained technicians take care of equipment mobilization and demobilization.







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