

# IBC SF-1 Cascade New Feature Overview

- Basically you can mix and match SF-1 tankless hot water heaters and combi boilers to increase both heating and hot water capacities.
- Unique Wireless Cascade Feature allows up to 8 units to operate together to provide up to 41.6 GPM of domestic hot water and 1 million Btuh of combined heating input.

## CASCADE FUNCTION

The cascade function allows up to 8 Tankless Water Heaters or Combi Boilers to operate together to satisfy a common demand. The Leader of the cascade system will enable, disable, and modulate Followers as necessary to maintain temperature as efficiently as possible. Cascade system benefits include:

- Wireless communication for simplified setup
- Redundancy allows for easy service and maintenance of cascaded units
- Tankless Water Heaters and Combi Boilers can be cascaded together to simultaneously satisfy space heating and DHW demands

## TANKLESS WATER HEATER CASCADE SYSTEM FUNCTION

Tankless Water Heater cascade systems are only able to satisfy domestic hot water demands. The Leader of the cascade system will enable, disable, and modulate Followers as necessary to provide domestic hot water. Reference Table 5 for required cascade settings.

Tankless Water Heater cascade systems should utilize an appropriately sized common header as shown in Figure 1. Reference Table 6 for minimum common domestic hot water header sizing.

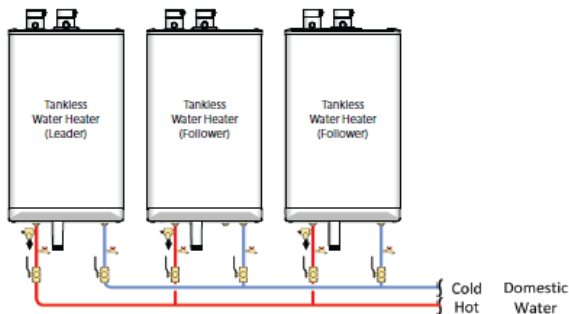


Figure 1: Typical Tankless Water Heater cascade piping – concept drawing. This drawing is only a simple schematic guide

## TANKLESS WATER HEATER AND COMBI BOILER CASCADE SYSTEM PIPING

A cascade system of Tankless Water Heaters and Combi Boilers can be configured for applications with a greater domestic hot water load than space heating load. A Tankless Water Heater and Combi Boiler cascade system can simultaneously satisfy both domestic hot water and space heating demands. The Leader of the cascade system will enable, disable, and modulate Followers as necessary to provide domestic hot water. Any Combi Boilers not supplying domestic hot water can provide space heating. Reference Table 7 for required cascade settings.

Tankless Water Heater cascade systems should utilize an appropriately sized common header as shown in Figure 2. Reference Table 6 for minimum common domestic hot water header sizing.

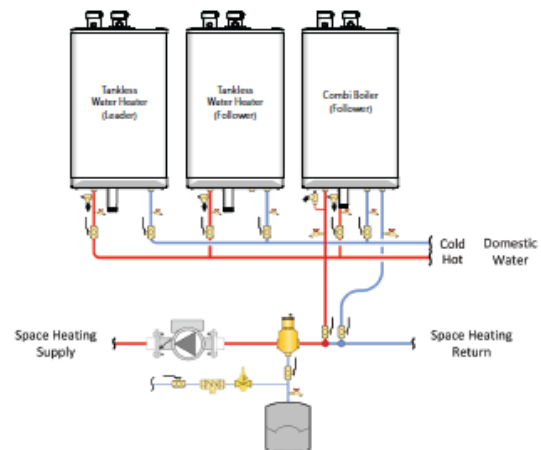


Figure 2: Typical Tankless Water Heater and Combi Boiler cascade piping – concept drawing. This drawing is only a simple schematic guide

## COMBI BOILERS 99 & 125 & 160 & 199

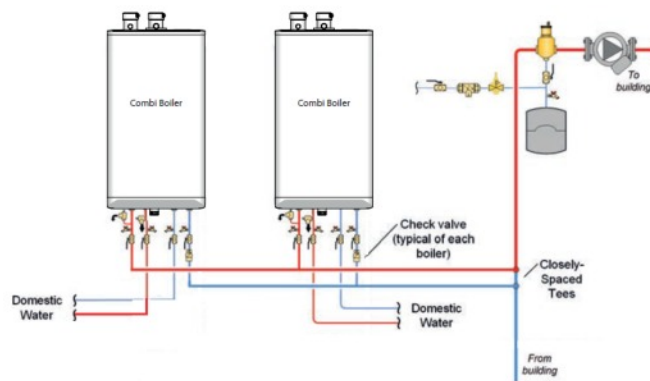


Figure 29: Multiple combi boiler piping concept – concept drawing. This drawing is only a simple schematic guide.

## CASCADE FUNCTION

The cascade function allows up to 8 Heating Boilers or Combi Boilers to operate together to satisfy a common demand. The Leader of the cascade system will enable, disable, and modulate Followers as necessary to maintain temperature as efficiently as possible. Cascade system benefits include:

- Wireless communication for simplified setup
- Redundancy allows for easy service and maintenance of cascaded units
- Increased efficiency from higher turndown ratio and parallel modulation
- Heating Boilers and Combi Boilers can be cascaded together to simultaneously satisfy space heating and DHW demands

## HEATING BOILER CASCADE SYSTEM PIPING

Heating Boiler cascade systems are only able to satisfy space heating demands. The Leader of the cascade system will enable, disable, and modulate Followers as necessary to provide space heating. Reference Table 6 for required cascade settings.

Heating Boiler cascade systems should utilize an appropriately sized common boiler header and hydraulic separator to isolate cascade system water flow from the system water flow as shown in Figure 1. Reference Table 7 for minimum common boiler header sizing.

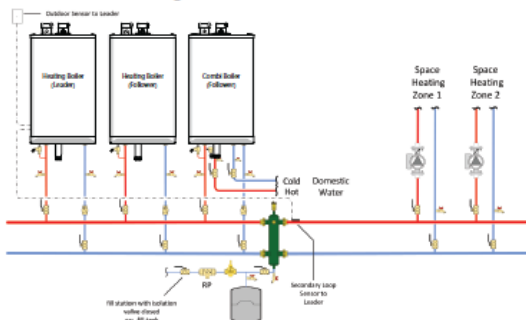


Figure 1: Typical Heating Boiler cascade piping – concept drawing. This drawing is only a simple schematic guide

## COMBI BOILER CASCADE SYSTEM PIPING

Combi Boiler cascade systems can simultaneously satisfy both space heating and domestic hot water demands. The Leader of the cascade system will enable, disable, and modulate Followers as necessary to provide space heating. A domestic hot water demand will take priority over the space heating demand. Any Combi Boilers not supplying domestic hot water can continue to provide space heating. Reference Table 8 for required cascade settings.

For space heating, the cascade system should utilize an appropriately sized common boiler header and hydraulic separator to isolate cascade system water flow from the system water flow as shown in Figure 2. Reference Table 7 for minimum common boiler header sizing.

For domestic water heating, the cascade system should utilize an appropriately sized common header as shown in Figure 2. Reference Table 9 for minimum common domestic hot water header sizing.

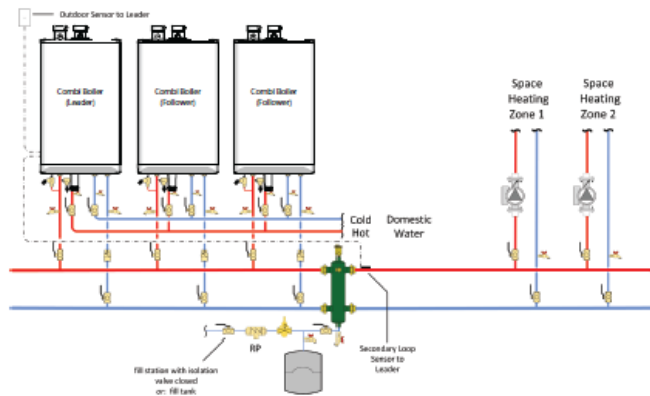


Figure 2: Typical Combi Boiler cascade piping – concept drawing. This drawing is only a simple schematic guide

Heating Boiler Model	Combi Model	Minimum Recommended Boiler Header Size						
		2 Units	3 Units	4 Units	5 Units	6 Units	7 Units	8 Units
99,000	99,000 125,000	1¼"	1½"	2"	2"	2½"	2½"	2½"
120,000	160,000 199,000	1½"	2"	2"	2½"	2½"	3"	3"

Table 7: Minimum Recommended Boiler Header Size

## Unique Wireless Cascade Feature

The Superflow™ Series now includes an innovative wireless cascade feature which allows up to 8 units to operate together for instances where a single Superflow™ unit is not large enough. Create a cascade system using multiple Superflow™ units to meet your domestic hot water needs with the added benefits of greater efficiency and redundancy. The Superflow™ wireless cascade system is incredibly easy to setup, yet flexible enough for your most demanding applications.

- Wireless communication means cascade system setup is as simple as enabling the built-in cascade function on up to 8 units. No communication cables required.
- Cascade multiple Superflow™ units for any DHW and/or space heating application.
- Wireless communication provides the ultimate in cascade system redundancy. The cascade system continues to operate during maintenance or repair of a cascaded unit.

