

### Background:

Rinnai periodically receives calls pertaining to error codes 11 and 12 in applications involving beauty salons.

An investigation has concluded that the corrosive nature of chemicals such as acetic acid, acetone, ammonia, sulfur, ethyl alcohol, chlorine, is the cause of the error codes. These chemicals are commonly found in products like aerosol sprays, detergents, bleaches, cleaning solvents, oil based paints/varnishes, paint removers, and refrigerants.

During combustion in the water heater, these chemicals may be introduced to the burner and form corrosive compounds that react with the water heater flame rod. Error codes 11 and 12 result and shut down the water heater.

### Recommended Locations:

In locations such as beauty salons, photo processing labs, indoor pool areas, chemical storage areas, and commercial laundry rooms, Rinnai strongly recommends the following:

#### Indoor/Internal Water Heaters:

- Install in areas where uncontaminated air is present
- Where possible, install the water heater in a sealed closet so that it is free of contaminated indoor air
- Chemicals that are corrosive in nature should not be stored or used near the water heater

#### Outdoor/External Water Heaters and Vent Terminations of Indoor/Internal Water Heaters:

- Install as far away as possible from exhaust vent hoods
- Install as far away as possible from air inlet vents. Corrosive fumes may be released through these vents when air is not being brought in through them.
- Chemicals that are corrosive in nature should not be stored or used near the water heater or vent termination.

### Recommended Water Heaters:

Rinnai recommends the use of the model R98LS tankless water heater or any of Rinnai's Condensing Tankless models (RC80HP or RC98HP) for hair salon applications. These models will require less overall maintenance associated with the periodic need to clean the flame rod as a result of operating in these types of harsh chemical environments.