



## **Summary & PowerPoint**

### **Far Side Sensing: The Latest NFPA 86 Safety Requirement for Your High Capacity Ovens**

The oven is the heart of any baking process. Without it, all the ingredients are just a pile of worthless dough. Like any piece of industrial equipment, ovens have evolved over the years. Some of these changes have been motivated by the need for improved productivity, baking performance, efficiency, and flexibility, while others have been driven by updates to safety codes and standards.

In the United States, the primary safety standard for ovens is the NFPA 86: Standard for Ovens and Furnaces. The NFPA 86 has a 4 year revision cycle. Just released is the 2019 edition, with an effective date of May 24, 2018. One of the updates to the 2019 edition that is of major impact to the baking industry is the requirement for ovens to have flame sensing on the opposite side from the ignition point on any burner with a flame space greater than 3 feet in length. Prior to this, traditional tunnel, tray, and brand ovens were designed with flame sensing and ignition on the same end of the burner, usually incorporated into a single assemble. This new requirement will apply to all new and upgraded burner systems. This will present a challenge to many bakers and manufacturers as their existing ovens and oven designs were not intended for this requirement.

Bakers should know solutions are available for these "classic" oven applications to meet this new NFPA 86 requirement and need not fear modernizing their ovens over concerns in meeting it. These updated NFPA 86 requirements and new tools for meeting them will be discussed.

### **Learning Objectives**

- Understand the new requirements of the updated NFPA 86 Standard
- Be aware of the complications involved in complying with the new Standard requirements
- Be confident that there is a solution to this challenge

### **Presenter**

Edward Baldwin, Banner-Day

### **Presentation Time**

### **Session**



## **OPPOSITE SIDE FLAME SENSING**

The Latest NFPA 86 Safety Requirement for  
Your High Capacity Ovens

Presented by:

Ed Baldwin, Banner-Day

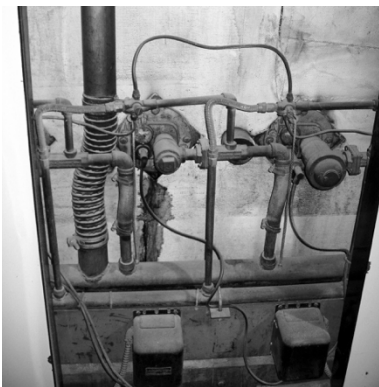
Director of Engineering Operations

ASB ANSI Z50 Safety & Sanitation Committee Member

NFPA 86 Technical Committee Member

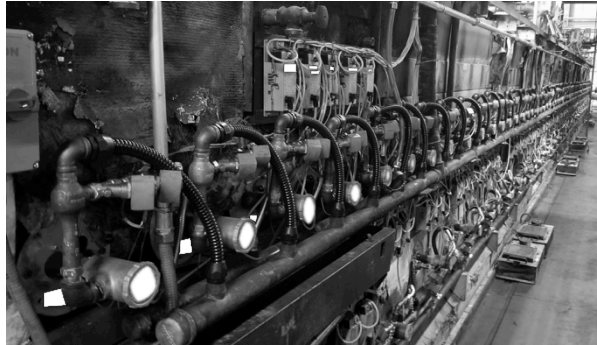


## No Flame Sensing “Constant Spark”



- No flame detection or supervision
- Igniters are always sparking
- Can only assume burners are lit
- Any unlit burners are dumping raw fuel/air mixture into the oven

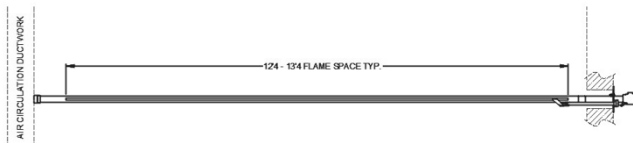
## Flame Sensing & Supervision at Every Burner “DSI”



- Every burner has flame detection/supervision
- Individual burner gas valves are only open while burners are lit
- All burners are monitored for the presence of flame
- The gas valves are closed at any burner that isn't lit – there's no unburned fuel going into the oven

## NFPA 86, 2015 and Earlier

**8.10.6** Line burners, pipe burners, and radiant burners, where installed adjacent to one another or connected with flame-propagating devices, shall be considered to be a single burner and shall have at least one flame detector installed to sense burner flame at the end of the assembly farthest from the source of ignition.

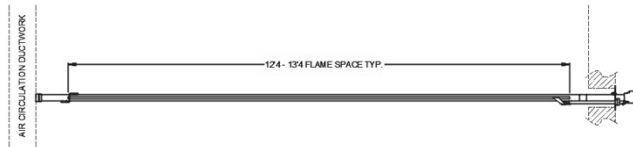


### Previous requirements for opposite side flame sensing:

- Burners must be “adjacent” or connected with a flame-propagating device
- **NO** length requirement

## NFPA 86, 2019 Edition (effective date: May 24, 2018)

**8.10.6** A Line burner, pipe burner, or radiant burner with flames propagating 3 ft (1 m) or longer shall have at least one flame detector installed to sense burner flame at the end of the assembly farthest from the source of ignition.



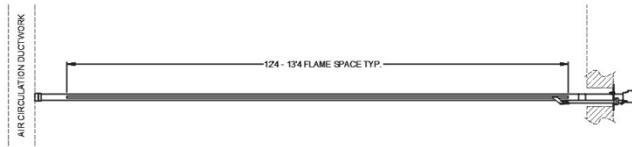
**2019 requirements for opposite side flame sensing:**

- Flame propagation of 3' (1 m) or longer

## Opposite Side Flame Sensing Requirement Comparison

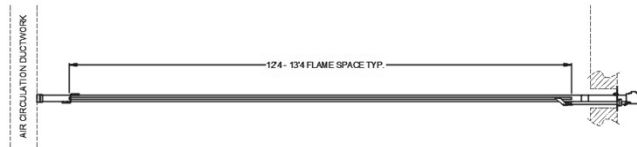
**Pre-2019 requirements for opposite side flame sensing:**

- Burners must be "adjacent" or connected with a flame-propagating device



**2019 requirements for opposite side flame sensing:**

- Flame propagation of 3' (1 m) or longer



## **Negative Impacts**

- Must add an additional flame sensor to the opposite end of every burner
  - Added cost of the additional sensor
  - For upgrade projects, may require all new burners in order to keep the timeframe as short as possible, even if existing burners are in good shape and could be retrofitted.
  - May require the oven shell to be modified in order to bring the flame signal back to the ignition module.
- Overall cost increase of both new and retrofit ovens
- Increased install time, especially on upgrade projects

## **QUESTION**

**ARE BAKERIES GOING TO SPEND THE  
ADDITIONAL TIME AND MONEY TO UPGRADE  
THEIR CONSTANT SPARK OVENS TO THE 2019  
STANDARD, OR WILL THEY LIVE WITH THEM  
VIA THE NFPA 86 “GRANDFATHER CLAUSE?”**

## What Can We Do?

- In August of 2018, the ASB ANSI Z50 Safety and Sanitation Committee authorized the creation of a subcommittee to discuss and deal with this issue.
- The subcommittee is made of various industry experts, including end users as well as oven and burner manufacturers and upgrade experts.
- The subcommittee concluded that the best course of action was the submission of a Temporary Interim Amendment (TIA) to the NFPA 86-2019 Standard.
- The TIA proposes an alternative to the section(s) of the Standard in question.

## TIA Submission

**8.10.6** A line burner, pipe burner, or radiant burner with flames propagating 3 ft (1 m) or longer shall have at least one flame detector installed to sense burner flame.

- 1) Burners with a capacity of 150,000 Btu/hr or less shall meet the requirements of 8.5.1.8 and 8.5.1.9.
- 2) Burners with a capacity greater than 150,000 Btu/hr or that do not meet the requirements of 8.5.1.8 and 8.5.1.9 shall have at least one flame detector installed to sense burner flame at the end of the assembly farthest from the source of ignition.

**NOTE:** 8.5.1.8 and 8.5.1.9 allow burners to be relit after going out without going through an ignition pre-purge cycle first. Including this requirement in 8.10.6 “replaces” the extra safety that was originally obtained by opposite side flame sensing.

## **What Can YOU Do?**

- The TIA was submitted to NFPA on February 18, 2019. The NFPA 86 Technical Committee has approximately 45 days from that date to review the TIA and any public comment/input and vote.
- The Public comment/input period is now open for approximately 40 days.
- **SUBMIT YOUR INPUT IN SUPPORT OF THE TIA!!!** The ASB ANSI Z50 Committee has contact information available, along with a draft letter for you to start with. See me after the meeting.

## **Worst Case**

- If the TIA is voted down, compliance will be mandatory on new ovens and many retrofit ovens.
- The manufacturers here at BakingTech have developed solutions to meet the 2019 edition Standard, just in case. Any or all of them would be more than happy to discuss this with you during this afternoon's Marketplace.

# Thank You

The ASB ANSI Z50 Committee thanks you for your attendance

## QUESTIONS?

If you have further questions, please feel free to contact me:

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