

General and Comfort Ventilation

- 2 The system must be able to throttle smoothly over the total range of turndown (which can be as much as 25:1)
- 3 Burner must be able to produce complete combustion of the fuel throughout the turndown range
- 4 Flame retention and stability must be maintained in high velocity flow of air

So-called "line burners" are almost exclusively used because they give uniform temperature distribution across the air stream. Line burners are sectional burners available in a variety of shapes which are flanged so they can be bolted together into assemblies to fit the size and shape of the unit. Air-gas proportional and premixing equipment is required, as is a positive flame retention feature. A single flame failure or combustion safeguard device is usually satisfactory, as is a single gas pilot for ignition. The wide-range type line burner was developed especially to meet the needs of air heating as it utilizes oxygen from the stream of air being heated to supplement that provided in the primary air-gas mixture in order to extend the range of turndown to the 25:1 figure required. Be sure that heater manufacturer's recommendations are followed in installa-

tion, especially with regard to velocity of air flow across burner.

Steam Where excess steam capacity is available, use of steam coils or finned heaters should be considered carefully as steam heaters are relatively simple, inexpensive, easily maintained, and require no combustion safety equipment.

Precautions which must be taken when using steam include

- 1 Avoid long heating coils. These may give uneven temperature distribution from side to side in the duct as the steam supply is throttled over the wide range of turndown required (20:1 to 25:1).
- 2 Protect against freezeup. Outside air at subfreezing temperatures can be drawn over the heating coils.
- 3 Consider use of oil- or gas-fired tempering air heaters ahead of steam coils to reduce load during extreme low-temperature weather (which can already put a maximum heating load on boilers).

It is important that a qualified ventilation engineer be consulted.

References

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