

35SXC SERIES • QUICK SELECTION



The trend towards building office space without an acoustical tile ceiling is on the rise. The lack of the acoustical ceiling above an occupied office space poses new challenges to providing an acceptable acoustical environment in the occupied space. This challenge is particularly difficult for the manufacturers of HVAC equipment in the space. Derating equipment to achieve acceptable noise levels in the occupied space causes smaller zones and higher associated first costs.

AHRI has developed an application standard, AHRI 885, which includes the primary sound paths for most

commercial office spaces and has established a set of required default values which can be used for comparing different manufacturer's data on an equivalent basis, identified in Appendix E of the standard. The AHRI default radiated sound path includes an acoustical tile ceiling.

When there is no acoustical tile ceiling, however, AHRI does not provide much guidance, stating only "For spaces with no acoustical ceiling, the sound attenuation of radiated sound should be calculated using the equation for Table D16...", which does not specify enough input parameters to approximate a universal table. Manufacturers are, therefore, free to create their own "transfer functions". **Appendix E was created 30 years ago to avoid this situation.** Testing in the acoustical mock-up at the Houston Energistics Research Laboratory has shown that measured sound was much higher than predicted by the table. In some cases, the measured reduction from sound power has been less than 5dB in mid and high frequencies, rather than the predicted 15dB.

Extensive testing at Energistics, as well as tests in actual facilities conducted by acoustical consultants, has led Nailor to develop a new Series Fan Terminal product, the 35SXC, which has an optimally tuned radiated sound frequency spectrum that provides greatly reduced space sound levels in an exposed ceiling plenum environment. As an added benefit the measured frequency spectrum of an installed unit is found to closely follow the ASHRAE RC curves for a neutral spectrum.

Based on these tests, a quick selection chart has been developed. This chart is based on the performance of the 35SXC with typical operating conditions including downstream static pressures of 0.10", upstream static pressures of 0.5", and hard duct on the inlet and lined discharge duct. This data is an average (from matched flow to a reduced primary up to 80% of fan airflow) of the sound measured throughout the Energistics mock-up space, and it should be representative of most locations in open office spaces that do not have a suspended acoustical tile ceiling.

35SXC SERIES • QUICK SELECTION MATRIX

| RADIATED • NC 45 | | | | | | | | | |
|------------------|------------|-----------|----------|-------------|-----------|----------|-------------|-----------|----------|
| UNIT SIZE | 1-8" INLET | | | 3-10" INLET | | | 5-14" INLET | | |
| | NO HEAT | HOT WATER | ELECTRIC | NO HEAT | HOT WATER | ELECTRIC | NO HEAT | HOT WATER | ELECTRIC |
| CFM MIN. | 100 | 100 | 100 | 200 | 200 | 200 | 500 | 500 | 500 |
| CFM MAX. | 500 | 500 | 500 | 1100 | 950 | 1100 | 2000 | 1750 | 2000 |

| RADIATED • NC 40 | | | | | | | | | |
|------------------|------------|-----------|----------|-------------|-----------|----------|-------------|-----------|----------|
| UNIT SIZE | 1-8" INLET | | | 3-10" INLET | | | 5-14" INLET | | |
| | NO HEAT | HOT WATER | ELECTRIC | NO HEAT | HOT WATER | ELECTRIC | NO HEAT | HOT WATER | ELECTRIC |
| CFM MIN. | 100 | 100 | 100 | 200 | 200 | 200 | 500 | 500 | 500 |
| CFM MAX. | 500 | 500 | 500 | 1100 | 950 | 1100 | 1825 | 1750 | 1825 |

| RADIATED • NC 35 | | | | | | | | | |
|------------------|------------|-----------|----------|-------------|-----------|----------|-------------|-----------|----------|
| UNIT SIZE | 1-8" INLET | | | 3-10" INLET | | | 5-14" INLET | | |
| | NO HEAT | HOT WATER | ELECTRIC | NO HEAT | HOT WATER | ELECTRIC | NO HEAT | HOT WATER | ELECTRIC |
| CFM MIN. | 100 | 100 | 100 | 200 | 200 | 200 | 500 | 500 | 500 |
| CFM MAX. | 475 | 440 | 475 | 1100 | 950 | 1100 | 1150 | 900 | 1150 |

| RADIATED • NC 30 | | | | | | | | | |
|------------------|------------|-----------|----------|-------------|-----------|----------|-------------|-----------|----------|
| UNIT SIZE | 1-8" INLET | | | 3-10" INLET | | | 5-14" INLET | | |
| | NO HEAT | HOT WATER | ELECTRIC | NO HEAT | HOT WATER | ELECTRIC | NO HEAT | HOT WATER | ELECTRIC |
| CFM MIN. | 100 | 100 | 100 | 200 | 200 | 200 | 500 | 500 | 500 |
| CFM MAX. | 300 | 260 | 300 | 850 | 775 | 850 | 750 | 670 | 750 |