

Slope Requirements – Field-Welded vs. VaughanAir Pre-Fabricated Grease Duct

Background:

NFPA 96 establishes minimum slope requirements for horizontal grease duct runs to promote drainage and reduce grease buildup. Section 7.1.4 and 7.1.4.1 state that:

Section 7.1.4:

“All ducts shall be installed with a minimum 2 percent slope on horizontal runs up to 22.86 m (75 ft) and a minimum 8 percent slope on horizontal runs greater than 22.86 m (75 ft).”

Section 7.1.4.1:

“Factory-built grease ducts shall be permitted to be installed at a lesser slope in accordance with the listing and the manufacturer’s instructions.”

In simpler terms:

- **Field-welded grease duct:**
 - Up to 75 ft → ¼" per ft (= 2 %) slope or 1.2°
 - Over 75 ft → 1" per ft (= 8 %) slope or 4.8°
- **Factory-built (listed) systems:** Allowed to use a **reduced slope** if proven in testing and defined in the manufacturer’s listing.

VaughanAir Reduced-Slope Listing

VaughanAir’s DuraDuct SED (single-wall) and DuraDuct KEX (double-wall) systems are ETL-listed to UL 1978 and ASTM E2336, allowing reduced slope configurations that are fully compliant with NFPA 96.

System	Horizontal Run	Required Slope	Equivalent %	Equivalent °
Field-Welded	≤ 75 ft	¼" per ft	2 %	1.2°
Field-Welded	> 75 ft	1" per ft	8 %	4.8°
DuraDuct SED/KEX	≤ 75 ft	1/8" per ft	1 %	0.6°
DuraDuct SED/KEX	> 75 ft	½" per ft	4 %	2.4°

This represents up to a **50% reduction in slope** compared with traditional welded systems.

Drainage Considerations and Factory-Engineered Design Advantages:

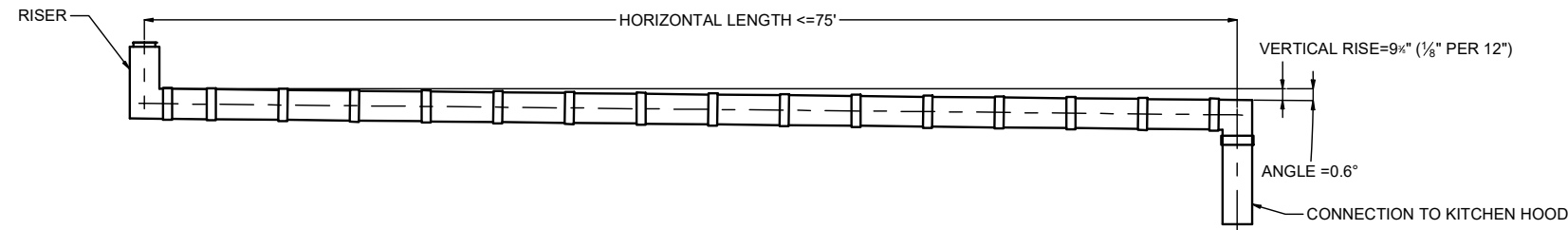
A common challenge for engineers and contractors is maintaining proper slope on long or complex horizontal runs, whether field welded or reduced. NFPA 96 notes that *“for horizontal ducts greater than 75 ft, low points are difficult to avoid. Where low points cannot be avoided, access and drains should be considered.”* This is where a factory engineered system becomes an advantage, as it ensures drain locations and clean out access are properly designed and integrated, allowing for effective grease removal without dips or pooling and meeting NFPA 96 7.1.4.3, which requires drains to be provided at low points in accordance with the listing.

Why Reduced Slope Matters:

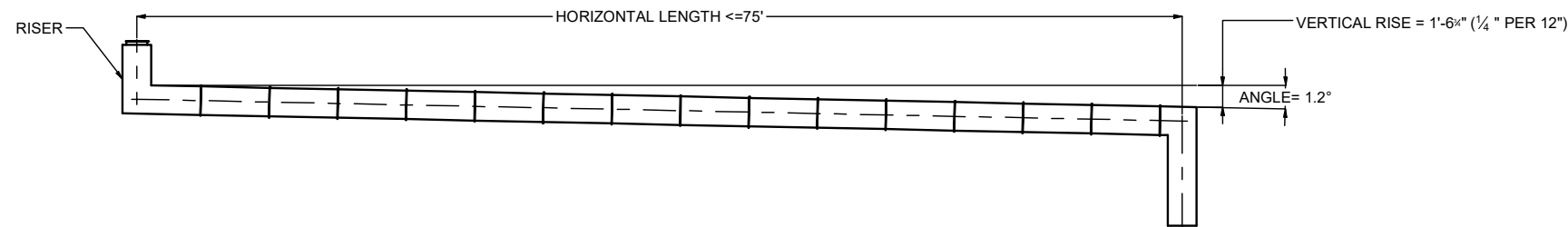
- **Space Efficiency:** Lower slopes preserve ceiling and shaft height, easing coordination with structure, mechanical, and sprinkler systems.
- **Fewer Trade Clashes:** A flatter run helps avoid interference with beams, conduits, and other services, simplifying layout and installation.
- **Improved Design Flexibility:** The reduced elevation drop allows longer horizontal runs or multiple hood tie-ins without complex offsets.
- **Code Compliance and Listing Integrity:** Both SED and KEX are tested and listed as complete assemblies. When installed per the manufacturer’s instructions, these reduced slopes are explicitly recognized under NFPA 96, 7.1.4.1 for factory-built grease ducts.

Summary

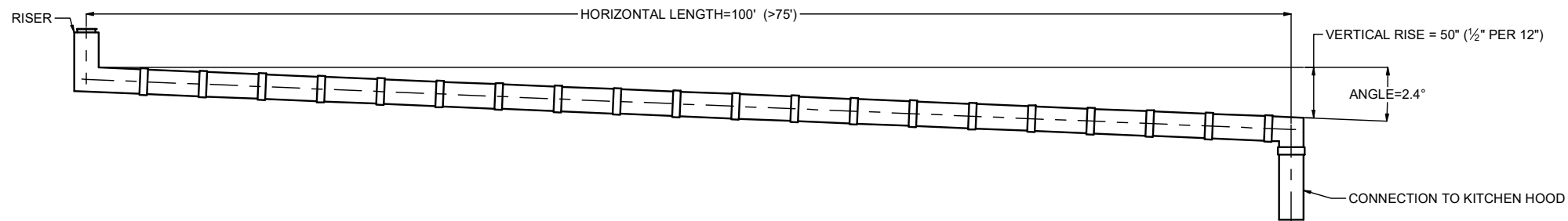
Traditional field welded grease ducts require steep slopes, often ¼ inch and 1 inch per foot, to maintain proper drainage. This adds coordination challenges and consumes valuable shaft space. VaughanAir’s listed DuraDuct SED and KEX systems meet all NFPA 96 requirements at up to 50% less slope, providing the same drainage performance while saving space and simplifying installation. By using a listed factory-built system, engineers and contractors gain a safer, more efficient, and fully code compliant solution that reduces on site labor and coordination issues.



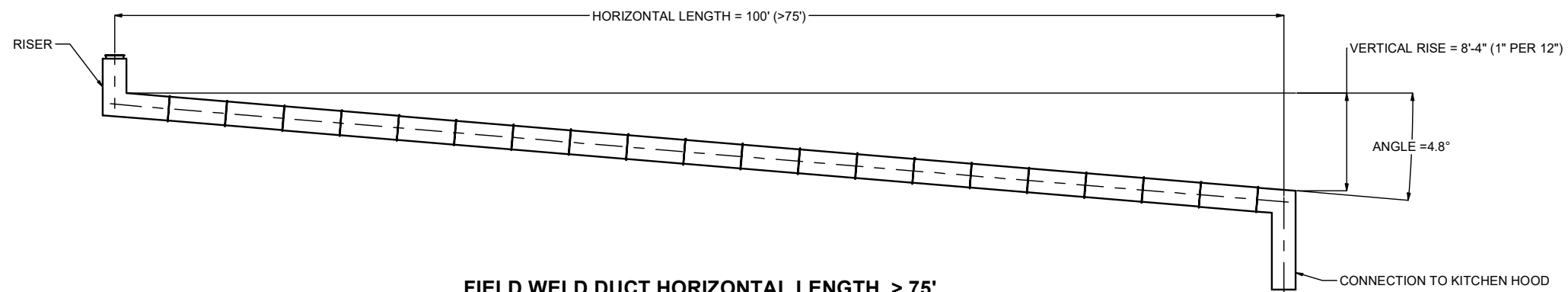
KEX/SED DUCT HORIZONTAL LENGTH <=75'



FIELD WELD DUCT HORIZONTAL LENGTH <=75'



KEX/SED DUCT HORIZONTAL LENGTH >75'



FIELD WELD DUCT HORIZONTAL LENGTH > 75'

NOTES:

SLOPE FOR SED/KEX DUCT

Horizontal Length	Vertical Rise per Run
Less than 75'	1/8" per 12" (0.6 degree)
Greater than 75'	1/2" per 12" (2.4 degree)

REFERENCE DRAWINGS:

VaughanAir

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PROJECT:

CLIENT:

TITLE:
**KEX EXHAUST DUCT
SLOPE COMPARISON**

SCALE: NTS

SIZE: B

DRAWN BY: A.N.

DATE: 21/10/2025

CHECKED BY:

DATE: 21/10/2025

APPROVED BY: --

DATE: --

DRWG. No.

REV.

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REVISION

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