

INDUSTRIAL PATTERNS

Reference Editions

Industry Structure Reference

A census-anchored reference series

Module 2 · First Edition

HVAC & Plumbing

Services and Distribution

United States · Peer set of 3 NAICS codes · 238220 + 423720 + 423730

2022 Edition

First Edition · current across the 2022-2027 census cycle

Edition lock date: 10 June 2026

Structural anchor: U.S. Economic Census 2022

SOURCES

U.S. Economic Census · Statistics of U.S. Businesses · County Business Patterns
Nonemployer Statistics · Business Dynamics Statistics · BLS OEWS

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SAMPLE · FREE PREVIEW

About this sample

This document is a free preview of HVAC & Plumbing Industry Structure Reference — First Edition, the inaugural Industry Structure Reference edition for the US plumbing, heating, and air-conditioning services-and-distribution complex. It contains the front matter, the methodology summary, one headline section (§5 Concentration — the fragmented-trade and concentrated-channel diagnosis that organizes the rest of the reference), and the limitations section. The full edition runs approximately 23 pages and covers ten structural dimensions across the three core NAICS codes — contractors (238220), hydronics wholesale (423720), and warm-air wholesale (423730).

Industry Structure Reference editions follow the five-year Economic Census cycle. This First Edition is current across the 2022–2027 cycle; the next edition publishes with the 2027 Economic Census (approximately late 2028). Faster-publishing sources — Nonemployer Statistics, Business Dynamics Statistics, BLS OEWS — enter at their own vintages, stated at every exhibit.

Edition

HVAC & Plumbing Industry Structure Reference · First Edition
Industrial Patterns Module 2

Structural anchor

U.S. Economic Census 2022
Current across the 2022–2027 census cycle.

Edition lock date

10 June 2026

Peer set

3 six-digit NAICS codes · 238220 + 423720 + 423730
Contractor + hydronics wholesale + warm-air wholesale.

Publisher

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INDUSTRY STRUCTURE REFERENCE · FIRST EDITION

Industry Structure Reference is a census-anchored description of the structural condition of US industries — how many firms there are, how they are sized, owned, organized, and located; how concentrated each industry is; and how the population is turning over. The reference is designed for private-equity diligence teams evaluating buy-and-build settings, and for operators and advisors who need a defensible structural baseline. Industry Structure Reference describes the population of firms in an industry. It does not report performance, score firms, characterize the structure as attractive, or recommend action.

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How to Read This Reference

This is a reference on the structural condition of the US HVAC and plumbing services-and-distribution complex: how many firms there are, how they are sized, owned, organized, and located, how concentrated each industry is, and how the population is turning over. Each section presents its dimension three ways — a chart, a data table, and written narration — carrying the same figures, so readers who think in pictures, tables, or prose each have an entry point and can verify one against another.

Counts follow the firm-primary convention: employer firms from the U.S. Census Bureau's Statistics of U.S. Businesses lead; establishments are the secondary cut. One standing caveat applies throughout: federal data counts legal entities, and acquired companies often retain separate tax identities, so consolidation is undercounted by source design. Every firm count in this reference therefore overstates independence, particularly at the top of the size curve. The caveat is stated at every dimension where it bears on the reading.

The edition model

Industry Structure Reference editions follow the U.S. Economic Census, which publishes every five years. This First Edition is anchored to the 2022 Economic Census and is the saleable reference across its five-year cycle. The next edition publishes with the 2027 Economic Census release (approximately late 2028). Faster-publishing sources — Statistics of U.S. Businesses, County Business Patterns, Nonemployer Statistics, Business Dynamics Statistics, and BLS Occupational Employment and Wage Statistics — enter at their own vintages within this First Edition and are stated at every exhibit.

What this reference does not say, by design

No performance, margin, or productivity figures (those live in the companion Operating Benchmarks edition). No rankings, scores, or composite indices. No judgment of attractiveness. No deal, transaction, or ownership data. No site-selection framing. No synthesis with any non-federal proprietary dataset. Where federal data publishes at brackets coarser than the three core codes — Nonemployer Statistics and Business Dynamics Statistics at 4-digit brackets — the exhibit labels the bracket and treats it as bounding the core rather than measuring it. Where a source withholds a cell — the Herfindahl-Hirschman concentration index is withheld for all three codes — the gap is shown rather than imputed.

Scope, doctrine, and the edition model

Scope

The reference describes the three NAICS codes that comprise the named complex: plumbing, heating, and air-conditioning contractors (NAICS 238220); plumbing and heating equipment and supplies wholesalers, the hydronics side (423720); and warm-air heating and air-conditioning equipment and supplies wholesalers (423730). The contractor and distribution sides report different dollar concepts — value of construction work for contractors, sales for distributors — and are shown side by side throughout, never summed. Adjacent industries (HVAC equipment manufacturing, household appliance repair, refrigeration equipment wholesale, building-cleaning services) are excluded by design.

Doctrine

Industry Structure Reference operates under a doctrine of restraint. The reference reports the population of firms in an industry — the structural fact base that other analyses are typically built on top of. It does not claim performance, predict outcomes, or rank industries. Interpretive observations identify where the structure bears on commonly underwritten theses; they are descriptions of the data, not recommendations to act. The doctrine is the reference's commitment to its readers: every figure can be audited, every observation can be questioned, and every interpretation has a stated limit.

The edition model

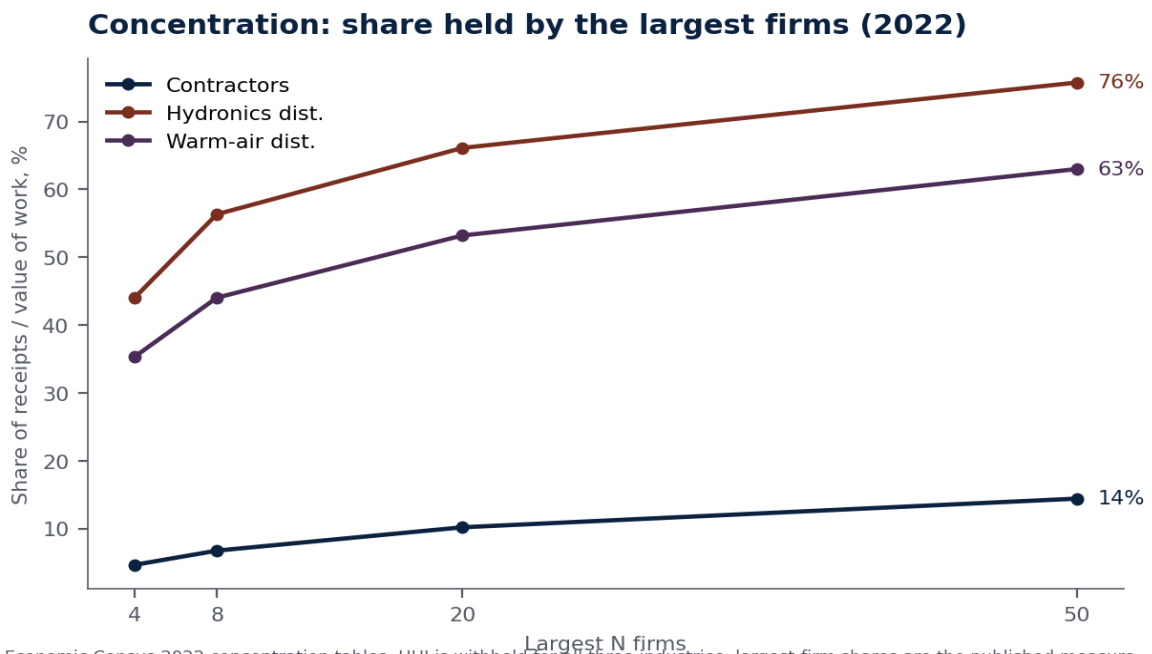
Editions follow the Economic Census: each edition is current across its five-year cycle. The structural picture of an industry — its population, size structure, concentration, and dynamics — moves slowly enough that a five-year cycle is the appropriate observation window. Annual sources enter at their own vintages within the cycle. Figures are fixed at the edition lock date; corrections, if ever needed, appear in the next edition. Locked edition files are never altered; errata, if any, are published at industrialpatterns.com/errata.

5 · Concentration

A fragmented trade buys from a concentrated channel

This dimension answers: how concentrated is each of the three industries in the complex? The standard concentration measure — the Herfindahl-Hirschman index — is withheld by the U.S. Census Bureau for all three of these codes in the 2022 Economic Census release. The published measures are largest-firm shares (the share of receipts or value of work held by the four, eight, twenty, and fifty largest firms), and those shares are reported here as the published measure. No estimates of the suppressed HHI are computed, and none are inferred from the largest-firm shares; the suppression is shown rather than imputed.

Share of receipts or value of work held by the largest N firms, 2022, by industry. The contractor industry is one of the least concentrated three-hundred-billion-dollar industries the Economic Census measures; the two distribution industries are notably concentrated at the top.



Source: Economic Census 2022 concentration tables. HHI is withheld for all three industries; largest-firm shares are the published measure.

Observations

- The contractor industry is one of the least concentrated \$300B industries the Economic Census measures: the four largest firms hold 4.7% of value of work; the

fifty largest hold 14.4%. The structural condition is fragmentation, top to bottom.

- The channel is the opposite. The four largest hydronics distributors hold 44.1% of sales; the four largest warm-air distributors hold 35.4%; the fifty largest hold 76% and 63% respectively. A fragmented trade buys from a concentrated channel — the structural signature of the complex.

- The channel's concentrated top coexists with a fragmented base. While the four largest hydronics distributors hold 44% of sales, three-quarters of distributor firms still have fewer than twenty employees — concentrated top, fragmented base, in one industry. The structure is not a single number; it is the shape of the distribution.

- Published shares reflect census enterprise definitions at a 2022 snapshot. Platform-held firms that retain separate legal identities are counted as independent, so true ownership concentration is higher than printed — the gap is the subject of the forthcoming companion Add-On Density Atlas module.

Interpretation boundary

Concentration shape is structural to industry mix and channel architecture, not a quality signal. A fragmented contractor base is the precondition for buy-and-build consolidation; a concentrated distribution channel is a fact about who the contractor base buys from. The reference reports the shares as the source publishes them, and identifies where the pattern bears on commonly underwritten theses. It does not claim that any particular pattern is attractive, nor that fragmented industries are necessarily good consolidation targets — that is a separate underwriting question for which the structure is one input.

Methodology appendix (excerpt)

§11.1 Edition model and source vintages

Edition lock date: 10 June 2026. Structural anchor: U.S. Economic Census 2022 (the most recent Economic Census release, published 2024). Statistics of U.S. Businesses and County Business Patterns at 2022 vintage. Nonemployer Statistics at 2022–2023 vintages. Business Dynamics Statistics at the 1978–2023 full-history release. BLS Occupational Employment and Wage Statistics at the May 2024 release. Figures are fixed at the lock date and are not revised within an edition. Editions follow the five-year Economic Census cycle.

§11.2 Suppression and grain

The Herfindahl-Hirschman index is withheld for all three of the codes covered by this reference; the published largest-firm shares are used as the concentration measure and are reported as such, without supplementation by computed estimates. Business Dynamics Statistics and Nonemployer Statistics publish at 4-digit brackets that include adjacent trades (the contractor bracket includes electrical and other building-equipment trades; the wholesale bracket includes hardware and refrigeration). These dimensions are labeled as bracket-published throughout and treated as bounding the core industries rather than measuring them exactly. Where the Economic Census noise-infuses a table for disclosure protection, the published values are reported as released; nothing is rescaled to force the components to sum to the headline total.

§11.3 Firm-primary convention and the consolidation caveat

Counts in this reference follow the firm-primary convention: employer firms from the U.S. Census Bureau's Statistics of U.S. Businesses lead; establishments are the secondary cut. Federal data counts legal entities, and acquired companies often retain separate tax identities. Every firm count in this reference therefore overstates independence to the extent that platform consolidation has occurred without rolling subsidiaries into the parent's tax ID — particularly at the top of the size curve, where platform activity is concentrated. The caveat is stated at every dimension where it bears on the reading.

Methodology appendix (continued)

§11.4 Cross-source reconciliation

Two independent census programs — Statistics of U.S. Businesses and County Business Patterns — publish establishment counts for these three industries in 2022. They report identical counts in all three codes, a rare exact cross-source tie that is noted at §1 because this reference uses both. Where source counts differ across program — for example, the Economic Census all-firms count versus the SUSB employer-firm count — both figures are reported and the source convention used for any derived statistic is disclosed at the point of use.

§11.5 Reproducibility

This edition is produced from a single parameterized pipeline and frozen at ship as a tagged code state, so the published figures can be regenerated from the corresponding code and source vintages. A machine-readable Data Companion (workbook and CSV bundle) ships with the edition, generated from the same frozen build with a recorded checksum. The companion carries the complete code-by-code detail behind every chart and table in the reference, including the multi-unit firm-size tables, the full state-by-size tables, the all-counties geographic table, and the forty-five-year business-dynamics series.

§11.6 What this reference does and does not synthesize

No figure in this reference is interpolated or allocated across industries. No external or proprietary dataset is layered onto the federal source stack. Where the source carries a structural fact at a granularity finer than this reference reports it, the finer granularity is in the Data Companion; nothing is computed by the reference itself. The reference describes the structure of the industry as the federal data describes it — with the suppression treatments, bracket treatments, and reconciliation conventions all documented above.

Limitations and closing

This reference is an industry-level document. It describes the structural condition of three industries, not the performance of individual firms, and a single firm's figures should be read against the relevant side of the industry rather than treated as a target.

Federal data counts legal entities: platform acquisitions that retain separate tax identities appear here as independent firms. Every firm count in this reference therefore overstates independence, particularly at the top of the size curve. Bracket-published dimensions (dynamics, nonemployers) include adjacent trades; they bound the core industries rather than measure them exactly, and are labeled at every use. Concentration reflects the census's enterprise definitions at a 2022 snapshot; it does not capture ownership links, franchise networks, or buying groups.

This reference is descriptive structure. Performance benchmarks live in the companion Operating Benchmarks edition; this document neither contains nor implies them. The next edition follows the 2027 Economic Census. Locked edition files are never altered; errata, if any, are published at industrialpatterns.com/errata.

THE FULL EDITION

HVAC & Plumbing Industry Structure Reference

First Edition (2022) · Approximately 23 pages · 10 structural dimensions · 3 NAICS codes

The full edition contains all ten structural dimensions — population and composition, size structure, multi-unit structure, revenue-class structure, concentration, entry and exit dynamics, geographic structure (states, fragmentation, counties), legal form of organization, labour composition, and the nonemployer tail — with the complete methodology appendix and terms of sale and licensing. A machine-readable Data Companion (workbook and CSV bundle) ships with the edition, carrying the complete

code-by-code detail and the forty-five-year business-dynamics series.

Edition	Anchor	Lock date	Price
First Edition (current)	Economic Census 2022	10 June 2026	\$3,950

Visit industrialpatterns.com/editions to purchase.

Each edition is delivered as a PDF together with a machine-readable Data Companion (workbook and CSV bundle). Same edition is provided to every reader; no customization is offered. The next edition publishes with the 2027 Economic Census release.