RISE | Retrofit information, support & expertise

Archetype analysis with RdSAP10

Supply chain advice pack

May, 2026

Funded by:

Department for Energy Security & Net Zero

www.riseretrofit.org.uk

Introduction and Purpose

Archetype analysis is a foundational tool for delivering retrofit programmes at scale. When undertaken using **RdSAP 10**, it allows housing providers and delivery partners to understand housing stock characteristics, anticipate technical risks, and develop repeatable, PAS-compliant retrofit solutions.[1]

This advice pack outlines how **RdSAP 10 data** can be used to support robust archetype analysis for domestic retrofit programmes, particularly those delivered under Warm Homes funding and PAS 2035:2023. It is aimed at retrofit professionals across the supply chain, including asset teams, retrofit assessors, coordinators, designers and contractors.

The pack focuses on how RdSAP 10 supports stock-level analysis and programme planning, as well as individual property compliance or EPC production.[2]

What is archetype analysis?

An archetype is a group of dwellings that share characteristics which materially affect how they perform from technical and energy efficiency perspectives, and how they respond to retrofit measures. These characteristics typically include:

- Construction age and built form (i.e., the physical shape, structure and configuration of the dwelling), including:
    - **Structure type**: detached, semi-detached, end-terrace, mid-terrace, bungalow, or flat.
    - **Geometry (form factor)**: the relationship between heat-loss surfaces and internal volume, influencing heat demand.
    - **Construction era (age band)**: e.g., pre-1919, interwar, post-war, 1990s, new build – indicating likely materials and insulation standards.
    - **Layout**: number of storeys, room arrangement, and circulation, which can impact retrofit fasibility.
- Wall, roof and floor construction
- Insulation status
- Heating and hot water systems
- Ventilation approach
- Known constraints or risks

Archetype analysis groups properties with shared characteristics to identify common retrofit risks, design strategies, and delivery approaches at an early stage. This

[1] UK Government, RdSAP 10 Standard Assessment Procedure - GOV.UK
[2] BSI (2023), Retrofitting dwellings for improved energy efficiency

supports consistent and repeatable decision-making, while still allowing for property-specific professional judgement in line with PAS 2035.

Archetypes are not fixed building "types" but analytical tools that should evolve as better data and learning emerge.

RdSAP 10 and archetype analysis

RdSAP 10 is the current domestic energy assessment methodology used for existing dwellings. It introduces expanded field options and improved alignment with modern retrofit measures, making it more suitable for stock-level analysis than earlier versions.

Although RdSAP 10 is primarily designed for energy modelling and EPC generation, its data can also be used to support archetype development when applied appropriately.

Common RdSAP 10 data fields used for archetype analysis include:

- Property age band and built form
- Wall construction type and insulation presence
- Roof type and insulation level
- Floor type
- Heating system type, fuel and controls
- Hot water system
- Glazing type
- Assumed ventilation and air tightness parameters

When collected consistently and subject to quality assurance, RdSAP 10 produces a comparable dataset across large housing portfolios, enabling the identification of patterns and clusters.

Why archetype analysis matters for retrofit programmes

Using RdSAP 10 data to inform archetype analysis supports retrofit delivery in several key ways:

Programme planning

Understanding the distribution of archetypes across a portfolio allows more accurate forecasting of costs, sequencing of works and engagement, risks and delivery timeframes.

Risk identification

Archetype-level analysis highlights where enhanced assessment, intrusive surveys or specialist design input are more likely to be required.

Consistency and quality

Repeatable archetypes support the development of standardised design assumptions, technical details, and installation methods, improving build quality and reducing the need for rework on site.

Supply chain efficiency

Grouped delivery allows installers and suppliers to plan labour, training and ordering and delivery of materials more effectively, supporting economies of scale. [3]

PAS 2035 alignment

PAS 2035 emphasises the need for appropriate investigation and professional judgement. Archetype analysis supports this by indicating where simpler, standardised approaches may be suitable and where more detailed, in-depth retrofit assessment is required.

Developing archetypes using RdSAP 10 data

A typical RdSAP-led archetype development process includes:

1. Data quality assessment

- Review RdSAP 10 records for completeness and consistency
- Identify gaps or unusually inconsistent assumptions
- Validate high-risk entries against asset data or sample surveys

2. Initial grouping

Properties are grouped using primary drivers such as:

- Age band
- Built form
- Wall construction

This usually produces a manageable number of broad archetypes.

3. Refinement

Groups are refined using secondary drivers, including:

- Insulation levels
- Heating system type

[3] UK Green Building Council (UKGBC), The Retrofit Playbook | UKGBC

- Known constraints (e.g. flats, shared services)

4. Sense-checking

Archetypes should be reviewed against:

- Local stock knowledge
- Site experience
- Known failure modes or delivery challenges

RdSAP data should inform, not override, professional judgement.

Archetypes within the PAS 2035 process

RdSAP-based archetypes support PAS roles:

- **Retrofit Assessors** use archetypes to inform survey focus and evidence requirements
- **Retrofit Coordinators** use archetypes to manage programme-level risk and decide appropriate assessment
- **Retrofit Designers** use archetype data to develop repeatable, yet property-specfic solutions
- **Installers** benefit from clearer scopes and predictable working conditions

Each dwelling earmarked for retrofit works must still be assessed individually and documented in line with PAS 2035:2023.

Limitations of RdSAP 10 in archetype analysis

While RdSAP 10 represents an improvement on earlier versions, its limitations remain important:

- It is a model-based methodology reliant on assumptions
- It may not capture construction complexity or defects
- It does not replace intrusive or specialist surveys
- Data quality depends on assessor skill and consistency

Risk area	Description	Implication for archetypes
Occupant behaviour	RdSAP does not capture how residents use spaces or heat their homes	Archetypes may not reflect real energy demand or measure suitability

Room usage	Rooms may be used differently to their assumed function	Misalignment in heat demand, ventilation and zoning assumptions
Undocumented internal changes	Layout alterations (e.g. removed walls, subdivided rooms) may not be recorded	Archetypes may group properties incorrectly
Extensions and additions	Conservatories, extensions or loft conversions may be missing or simplified	Underestimation of heat loss and retrofit scope
Informal retrofit works	Previous upgrades may not be recorded consistently	Inaccurate baseline and inappropriate measure selection
Building condition	RdSAP does not fully capture defects or degradation	Risk of specifying measures without addressing underlying issues
Ventilation and airthightness	Relies on assumptions rather than measured performance	Potential moisture and indoor air quality risks
Data quality variability	Outputs depend on assessor judgement and access	Inconsistent archetype grouping across a portfolio

Research and guidance highlight that modelled data alone cannot fully capture real-world building performance or condition risks. [4]

Higher-risk archetypes - such as solid wall homes, complex flats or non-traditional construction - often require additional investigation beyond what RdSAP can provide.

Archetype analysis should therefore be treated as a **risk-screening and planning tool**, not a substitute for technical due diligence.

Common challenges

Organisations commonly encounter the following challenges:

- Inconsistent RdSAP data collection and records
- Over-simplified archetypes, which can mask risks
- Excessively granular archetypes that are hard to manage
- Misalignment between RdSAP assumptions and site reality
- Treating archetypes as static rather than evolving

[4] UK Government, Resistance to moisture in buildings - GOV.UK

Addressing these challenges requires continuous review, effective feedback loops, and close collaboration between PAS roles.

Practical outputs from archetype analysis

Effective RdSAP-led archetype analysis typically produces:

- Archetype libraries or stock profiles
- Archetype-specific risk registers
- Suites of Retrofit measures packages
- Assumed constraints and dependencies
- Design principles or standard details
- Delivery sequencing templates

These outputs support clearer communication across the supply chain and more consistent delivery outcomes.

Key success factors

Successful archetype analysis using RdSAP 10 requires:

- Good-quality, consistent RdSAP assessments and data storage
- Early involvement of coordinators and designers
- Integration with asset and stock condition data
- Clear documentation of assumptions and limitations
- Willingness to refine archetypes over time

Archetypes should mature alongside programmes, rather than being fixed at inception.

Summary

Archetype analysis informed by RdSAP 10 provides a robust foundation for planning and delivering retrofit at scale. By grouping homes with similar characteristics, organisations can reduce risk, improve consistency and support more efficient PAS-compliant delivery.

When combined with sound professional judgement and relevant, proportionate investigation, RdSAP-led archetypes enable retrofit programmes which balance scalability with technical robustness to deliver high-quality outcomes for residents and funders alike.

Resources

Podcast: All RISE podcasts are available here.

Podcast: "Tackling Hard to Decarbonise Properties" available here.

Masterclass: All RISE masterclasses are available here.

Masterclass "Navigating RdSAP10" available here.

Advice pack: All RISE advice packs available here.

Advice pack: "Property data" available here).