

## Major Expense Categories

- **Materials (Baumaterialien):** Insulation, windows, roofing, heating systems, paint, flooring, plumbing, electrical components.
- **Labor (Handwerkerkosten):** Costs for skilled tradespeople. Contractors, electricians, plumbers, architects, engineers, project managers.
- **Permits & Documentation (Genehmigungen & Gebühren):** Building permits (*Baugenehmigung*), energy compliance reports (*GEG/EnEV*), inspection fees.
- **Waste Disposal & Logistics:** Rubble containers, waste separation.
- **Site Setup & Logistics (Baustelleneinrichtung):** Costs to prepare and manage the construction site. Scaffolding (Gerüst), site fencing, portable toilet, construction hoist, temporary utilities, site security.
- **Administrative & Financing Costs:** Loan processing fees, insurance adjustments, appraisal fees.

## Hidden/Unexpected Expenses

- **Structural issues:** Discovered during demolition (e.g., mold, rot, unsafe electrical wiring, structural beam damage).
- **Utility upgrades** (e.g., outdated wiring or plumbing).
- **Permit delays** or regulatory changes.
- **Project Overruns:** General budget overruns due to optimistic initial estimates or price increases. Price fluctuations for materials (especially insulation, timber, or copper).
- **Incidental repairs** (e.g., damage caused during installation).
- **Increased waste disposal** costs or neighbor-related legal issues.

## Cost Estimation & Control Methods

- **AI-based cost prediction:** Use historical renovation data and user inputs (building type, region, renovation scope).
- **Benchmark databases:** Integrate cost databases and contractor offers to estimate price ranges.

