

The key differences between Conceptual ERD and Logical ERD, in the form of brief points and covering all the visible differences:

Primary Keys and Surrogate Keys

Conceptual ERD uses descriptive primary keys (e.g., ResidentID, LeaseID).

Logical ERD utilizes surrogate keys, i.e., UUIDs or INTs, as primary keys for all primary entities.

Explicit Data Types

Conceptual ERD lacks data types for attributes.

Logical ERD mentions explicit data types (VARCHAR, DECIMAL, DATE, TIMESTAMP) for all attributes.

Normalization of Data

Conceptual ERD uses a simpler structure, sometimes including related data.

Logical ERD fully normalizes the data, creating additional tables to avoid duplication and independent updating (e.g., UNIT_AMENITY, BUILDING_AMENITY).

Intersection/Join Tables

Conceptual ERD implies some many-to-many relationships.

Logical ERD creates intersection tables (like WORKER_ASSIGNMENT, LEASE_OCCUPANT, BUILDING_MANAGER_ASSIGNMENT) for many-to-many relationships.

Attribute Decomposition

Conceptual ERD sometimes includes composite attributes in a single entity.

Logical ERD splits those out into multiple fields or relationships to other entities (e.g., contact_info break-up, addresses and assignment info break-out).

Specialization Handling

Conceptual ERD uses subtype tables (MAINTENANCE STAFF, CONTRACTOR).

Logical ERD portrays both together in a separate table WORKER with clear foreign key references to the main VENDOR entity and adds type field, and further links it to WORK_ORDER entity via WORKER_ASSIGNMENT entity..

Foreign Key Relationships

Conceptual ERD uses simple lines connecting.

Logical ERD explicitly defines foreign key constraints and visually notates them as FK.

Operational/Transactional Tables

Logical ERD introduces additional operational process tables (PAYMENT_TRANSACTION, AMENITY) not seen in the conceptual figure.

Support for Multiple Roles and Assignments

Logical ERD allows entities (workers, managers) to have multiple roles and assignments at the same time, using assignment tables.

History and Auditability

Logical ERD adds timestamp fields (createdAt, updatedAt) across tables for auditing and history of changes.

Enhanced Relationship Tracking

Logical ERD captures more detailed flows for escalation, requests, orders, and work progress through foreign keys and additional columns.

These differences prepare the logical model for real-world database application and address all data integrity, normalization, and operational requirements in a property management workflow.