Consolidated Construction Marketplace Database Schema

This document provides a consolidated view of the database schema across all phases of the Construction Marketplace platform.

Phase 1: Materials Liquidity Engine (Core Marketplace & Payments)

Payment Model

```
class Payment:
    order: ForeignKey
    provider: str  # 'MODERN_CHECKOUT', 'MPESA', 'STRIPE'
    amount: Decimal
    status: UNPAID | PENDING | PAID | FAILED
    transaction_reference: str
    paid_at: DateTime
```

Dispute Model

```
class Dispute:
    opened_by: User
    order: Order
    status: OPENED | UNDER_REVIEW | RESOLVED_RELEASE | RESOLVED_REFUND | CLOSED
    reason: TextField
    created_at: DateTime
```

Vendor Performance & Trust Signals (Part of Vendor Profile)

```
class Vendor:
    fulfillment_rate: Float  # % of completed orders
    cancellation_rate: Float  # % of cancelled orders
    delivery_timeliness: Float  # % on-time deliveries
    average_rating: Float  # Average buyer rating (1-5)
    total_reviews: Integer  # Number of ratings
```

Phase 2: Contractor + Contracts Execution Layer

Contractor Profile (`contractors_contractor`)

Fields: * id * user_id (FK → accounts_user) * company_name * service_categories * operating_region * verified_status * rating_avg * created_at

Contractor Certifications (`contractors_certification`)

Fields: * id * contractor_id * document_type * document_url * verified

Contract (`contracts_contract`)

Fields: * id * owner_id (FK → accounts_user) * title * description_scope * location * budget_min * budget_max * status (POSTED/BIDDING/AWARDED/IN_PROGRESS/COMPLET * created_at

Bid (`contracts_bid`)

Fields: * id * contract_id * contractor_id * proposed_cost * proposed_timeline_days * message * status (SUBMITTED/SHORTLISTED/REJECTED/AWARDED) * created_at

Milestone (`contracts_milestone`)

Fields: * id * contract_id * title * description * amount * due_date * status (PENDING/APPROVED/PAID)

Milestone Payment (`payments_milestone_payment`)

Fields: * id * milestone_id * payment_id (FK → payments_payment) * release_status

Contractor Review (`reviews_contractor_rating`)

Fields: * id * contract_id * owner_id * contractor_id * score * comment * created_at

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Phase 3: Escrow + Embedded Finance Layer

Escrow Account (`escrow_account`)

Represents held funds for a contract/order. Fields: * id * contract_id (FK) * buyer_id (FK) * total_amount_held * currency * status (ACTIVE/RELEASED/CLOSED) * created_at

Escrow Transaction (`escrow_transaction`)

Tracks all movements in escrow. Fields: * id * escrow_account_id * type (DEPOSIT/RELEASE/REFUND) * amount * milestone_id (nullable) * payment_reference * created_at

Escrow Release (`escrow_release`)

Approval-based release record. Fields: * id * milestone_id * approved_by (owner/admin) * released_amount * release_status (PENDING/COMPLETED) * released_at

Escrow Dispute Hold (`escrow_hold`)

Freeze funds during disputes. Fields: * id * escrow_account_id * dispute_id * reason * status

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Phase 4: Projects + Property + Capital Pipeline

Project (`projects_project`)

Fields: * id * owner_id (FK → accounts_user) * title * description * location * estimated_budget * funding_required (boolean) * status (LISTED/FUNDING_OPEN/EXECUTION_STARTED/COMPLETED) * created_at

Project Requirement (`projects_requirement`)

Defines required inputs. Fields: * id * project_id * type (MATERIAL/CONTRACTOR/SERVICE) * description * quantity

Investment Commitment (`projects_investment_commitment`)

Fields: * id * project_id * investor_id (FK → accounts_user) * amount_committed * status (PLEDGED/CONFIRMED/CANCELLED) * created_at

Project Contract Link (`projects_project_contract`)

Connects projects to awarded contracts. Fields: * id * project_id * contract_id

Project Update (`projects_update`)

Fields: * id * project_id * update_text * posted_by * created_at

Property Listing (`property_listing`)

Fields: * id * owner_id (FK → accounts_user) * title * description * location * asset_type (LAND/RESIDENTIAL/COMMERCIAL/RENOVATION) * price_estimate * status (ACTIVE/SOLD/INACTIVE) * created_at

Development Metadata (`property_development`)

Fields: * id * property_id * zoning_info * build_ready (boolean) * utilities_available

Property Project Link (`property_project_link`)

Fields: * id * property_id * project_id

Phase 5: Regulated Investment + Enterprise + Government Layer

Investor (`investor_profile`)

Fields: * id * user_id (FK → accounts_user) * kyc_status (PENDING/VERIFIED/REJECTED) * accreditation_status * jurisdiction * created_at

Investment Agreement (`investment_agreement`)

Fields: * id * project_id * investor_id * amount * agreement_terms_url * status (SIGNED/FUNDED/CANCELLED) * signed_at

Investment Transaction (`investment_transaction`)

Fields: * id * agreement_id * escrow_account_id * type (FUNDING/RELEASE/RETURN) * amount * created_at

Investor Report (`investor_report`)

Fields: * id * project_id * investor_id * report_period * performance_summary * created_at