

KINGDOM OF SAUDI ARABIA

MINISTRY OF MUNICIPAL AND RURAL AFFAIRS

AL-RIYADH DEVELOPMENT AUTHORITY

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INVITATION TO BID

CONSTRUCTION OF AL-NAKHEEL MIXED-USE DEVELOPMENT

PROJECT NO: RDA-2024-MUD-018

BID REFERENCE: IFB/RDA/2024/C/0892

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SECTION 1: PROJECT OVERVIEW

1.1 PROJECT IDENTIFICATION

- Project Name:** Al-Nakheel Mixed-Use Development
- Location:** King Fahd Road, Al-Olaya District, Riyadh
- Client:** Al-Riyadh Development Authority
- Project Value:** SAR 450,000,000 (Four Hundred Fifty Million Saudi Riyals)
- Contract Duration:** 36 Months
- Completion Date:** December 31, 2027

1.2 PROJECT DESCRIPTION

The Al-Nakheel Mixed-Use Development is a comprehensive urban development project comprising:

- Two residential towers (25 floors each) with 480 luxury apartments
- One commercial tower (30 floors) with office spaces and retail outlets
- Underground parking facility (4 levels) for 1,200 vehicles
- Landscaped plaza and recreational facilities
- Integrated MEP systems and smart building technologies
- Total built-up area: 285,000 square meters
- Plot area: 25,000 square meters

1.3 SITE CONDITIONS

- Coordinates:** 24°41'15.2"N 46°40'28.8"E

- **Soil Type:** Dense sand with rock formation at 15m depth
  - **Groundwater Level:** 22 meters below ground level
  - **Site Access:** Three access points from King Fahd Road and Al-Olaya Street
  - **Utilities:** All municipal services available at site boundary
  - **Environmental Considerations:** Green building certification (LEED Gold equivalent) required
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## SECTION 2: SCOPE OF WORK

### 2.1 GENERAL SCOPE

The contractor shall provide all labor, materials, equipment, and services necessary for the complete construction of the Al-Nakheel Mixed-Use Development in accordance with:

- Approved architectural and engineering drawings
- Technical specifications
- Saudi Building Code (SBC) requirements
- Local municipal regulations
- International standards as specified

### 2.2 DETAILED SCOPE OF WORK

#### 2.2.1 SITE PREPARATION AND EARTHWORK

- **Site clearance and demolition** of existing structures (warehouse building 2,500 sqm)
- **Excavation** for basement levels to maximum depth of 18 meters
- **Soil improvement** using stone columns for areas with bearing capacity below 300 kN/m<sup>2</sup>
- **Dewatering system** installation and operation throughout construction period
- **Shoring and support systems** for excavation using secant pile walls
- **Backfilling and compaction** around foundations using approved materials
- **Site grading and leveling** to achieve design elevations ±25mm tolerance

#### 2.2.2 STRUCTURAL WORK

##### Foundation System:

- **Deep foundations** using bored piles, diameter 1.2m, depth 25-30m
- Total 420 piles with load capacity 8,000 kN each

- **Pile caps** reinforced concrete grade C40 with minimum 1.5m thickness
- **Foundation beams** connecting pile caps as per structural drawings
- **Waterproofing system** complete membrane and protection layers

#### Superstructure:

- **Structural frame** reinforced concrete with post-tensioned slabs
- **Concrete grade:** C40 for vertical elements, C35 for horizontal elements
- **Steel reinforcement:** Grade 60 (420 MPa) ribbed bars
- **Structural steel** for long spans, Grade S355 with fire protection
- **Precast elements** for facade panels and architectural features
- **Core walls and shear walls** for lateral stability
- **Floor systems** post-tensioned flat slabs, 250mm thickness typical

### 2.2.3 ARCHITECTURAL WORK

#### Exterior Envelope:

- **Curtain wall system** double-glazed, thermal break aluminum frames
- **Natural stone cladding** Saudi beige limestone, 30mm thickness
- **Composite panels** for accent areas, fire-rated aluminum composite
- **Roof system** modified bitumen membrane with insulation
- **Waterproofing** complete system for all exposed areas

#### Interior Finishes:

- **Floor finishes:** Imported marble in lobbies, ceramic tiles in residential units
- **Wall finishes:** Gypsum plaster with paint, ceramic tiles in wet areas
- **Ceiling systems:** Suspended acoustic ceiling tiles, gypsum board
- **Doors and windows:** Aluminum frames with double glazing, wooden doors for residential
- **Built-in furniture** kitchen cabinets, wardrobes, bathroom vanities

### 2.2.4 MECHANICAL, ELECTRICAL & PLUMBING (MEP)

#### HVAC Systems:

- **Central chilled water system** with 3 × 1,500 RT chillers
- **Air handling units** with heat recovery, efficiency ≥85%
- **Variable air volume (VAV)** systems for office areas

- **Split unit systems** for residential apartments, minimum SEER 16
- **Exhaust systems** for parking garage and kitchen areas
- **Building Management System (BMS)** for centralized control
- **Ductwork** galvanized steel, insulated with 25mm fiber glass

#### **Electrical Systems:**

- **Main electrical supply** 11kV from SEC utility connection
- **Transformers** 3 × 2,500 kVA, oil-filled, outdoor type
- **Emergency generators** 2 × 2,000 kVA diesel generators with automatic transfer
- **Distribution panels** IP54 rated, with digital metering
- **Lighting systems** LED throughout, daylight sensors in common areas
- **Fire alarm system** addressable type, compliance with NFPA 72
- **Security systems** CCTV, access control, intrusion detection
- **Telecommunications** structured cabling, fiber optic backbone

#### **Plumbing Systems:**

- **Water supply** from municipal connection with booster pumps
- **Hot water system** central gas-fired boilers, 85% efficiency minimum
- **Sanitary drainage** PVC pipes with proper venting system
- **Storm water drainage** separate system with retention tanks
- **Fire protection** wet sprinkler system throughout, compliance with NFPA 13
- **Water features** circulation pumps and filtration for plaza fountain

#### **2.2.5 SPECIAL SYSTEMS**

- **Elevators:** 8 passenger elevators (1,600 kg capacity each), 2 service elevators
- **Escalators:** 4 units for commercial areas, 800mm width
- **Building automation** integrated control system
- **Renewable energy** 500 kW solar PV system on rooftop
- **Waste management** pneumatic waste collection system
- **Landscaping** native drought-resistant plants, drip irrigation system

#### **2.3 TEMPORARY WORKS**

- **Site accommodation** offices, storage, workshops for construction team

- **Temporary utilities** power, water, telecommunications during construction
  - **Construction elevators** 2 units for material and personnel transport
  - **Safety systems** perimeter fencing, warning systems, emergency procedures
  - **Environmental protection** dust control, noise mitigation measures
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## SECTION 3: TECHNICAL SPECIFICATIONS

### 3.1 COMPLIANCE REQUIREMENTS

All work shall comply with the latest versions of:

- **Saudi Building Code (SBC)** 201, 301, 302, 303, 304, 401, 501, 601, 701, 801, 901
- **Saudi Electrical Code (SEC)**
- **Saudi Plumbing Code**
- **ASHRAE Standards** for HVAC design
- **NFPA Codes** for fire protection systems
- **ASTM, BS, EN Standards** as specified in drawings
- **Riyadh Municipality Building Regulations**
- **Saudi Standards Organization (SASO)** requirements

### 3.2 MATERIAL SPECIFICATIONS

#### 3.2.1 Concrete and Masonry

- **Ready-mix concrete:** Minimum compressive strength as specified
  - C25 for non-structural elements
  - C35 for structural slabs and beams
  - C40 for columns and foundations
  - C45 for high-rise core walls
- **Cement:** Type I Portland cement, SASO 2571
- **Aggregates:** Washed and graded, compliance with ASTM C33
- **Admixtures:** Super plasticizers, retarders as approved by engineer
- **Reinforcement:** Ribbed steel bars, Grade 60, ASTM A615
- **Masonry blocks:** Lightweight concrete blocks, minimum 7 N/mm<sup>2</sup> strength

#### 3.2.2 Structural Steel

- **Structural steel:** Grade S355, EN 10025-2
- **Welding:** Certified welders, AWS D1.1 procedures
- **Bolts:** High-strength bolts, Grade 8.8 minimum
- **Fire protection:** Intumescent coating, 2-hour rating minimum
- **Galvanizing:** Hot-dip galvanized finish for exposed steel

### 3.2.3 Architectural Materials

- **Natural stone:** Saudi beige limestone, density  $\geq 2,400 \text{ kg/m}^3$
- **Curtain wall:** Thermal break aluminum, powder-coated finish
- **Glass:** Double-glazed low-E, U-value  $\leq 2.0 \text{ W/m}^2\text{K}$
- **Insulation:** Rigid foam boards, minimum R-30 for walls
- **Waterproofing:** Modified bitumen, torch-applied system
- **Ceramic tiles:** Porcelain tiles, water absorption  $\leq 0.5\%$

### 3.2.4 MEP Materials

- **Piping:** PVC for drainage, copper for hot water, PPR for cold water
- **Electrical cables:** XLPE insulated, fire-retardant, low smoke
- **Conduits:** Galvanized steel for exposed, PVC for concealed
- **HVAC equipment:** Minimum AHRI certified, 10-year warranty
- **Pumps:** Stainless steel impellers, variable frequency drives

## 3.3 WORKMANSHIP STANDARDS

- **Concrete placement:** Vibration compaction, proper curing procedures
- **Formwork:** Plywood or steel forms, alignment tolerance  $\pm 10\text{mm}$
- **Reinforcement:** Proper cover, spacing, and lap lengths per SBC 304
- **Welding:** Certified procedures, 100% visual inspection, random NDT
- **Masonry:** Level and plumb within 6mm per 3m height
- **Finishes:** Smooth surfaces, uniform color and texture

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## SECTION 4: QUALITY CONTROL AND TESTING

### 4.1 QUALITY ASSURANCE PROGRAM

- **Quality Management System:** ISO 9001:2015 certification required

- **Site quality control:** Full-time quality control engineer
- **Material testing:** Accredited laboratories, minimum frequency specified
- **Third-party inspection:** For structural elements and MEP systems
- **Documentation:** Complete test certificates and inspection reports

## 4.2 TESTING REQUIREMENTS

### 4.2.1 Concrete Testing

- **Compressive strength:** 4 cylinders per 100 m<sup>3</sup> or per day
- **Slump test:** Each truck delivery
- **Core testing:** If cylinder results below specification
- **Non-destructive testing:** Ultrasonic pulse velocity, rebound hammer

### 4.2.2 Soil and Foundation Testing

- **Standard penetration test:** Every 30m and 1.5m depth intervals
- **Pile load testing:** 2% of total piles, maintained load test
- **Pile integrity testing:** 100% of piles using sonic echo method
- **Settlement monitoring:** Throughout construction period

### 4.2.3 Materials Testing

- **Steel reinforcement:** Tensile and bend tests, mill certificates
- **Structural steel:** Mill certificates, welding procedure qualification
- **Masonry blocks:** Compressive strength, absorption tests
- **Waterproofing:** Bond strength, puncture resistance tests
- **MEP systems:** Pressure testing, performance verification

## 4.3 INSPECTION SCHEDULE

- **Foundation inspection:** Before concrete placement
- **Structural inspection:** At reinforcement stage and before concreting
- **MEP rough-in:** Before covering/concealing work
- **Final inspection:** Before system commissioning and handover

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## SECTION 5: HEALTH, SAFETY & ENVIRONMENT

### 5.1 SAFETY REQUIREMENTS

- **Safety Management System:** OHSAS 18001 or ISO 45001 certification
- **Site safety officer:** Full-time certified safety professional
- **Safety equipment:** Personal protective equipment for all workers
- **Safety training:** Mandatory safety orientation and regular toolbox talks
- **Emergency procedures:** Evacuation plans, first aid facilities
- **Incident reporting:** Zero tolerance for safety violations

## 5.2 ENVIRONMENTAL REQUIREMENTS

- **Environmental Management:** ISO 14001 certification preferred
- **Waste management:** Segregation, recycling, approved disposal methods
- **Dust control:** Water spraying, barriers around dusty operations
- **Noise control:** Restricted hours for noisy operations (7 AM - 6 PM)
- **Water management:** Treatment of construction runoff
- **Air quality:** Monitoring during demolition and excavation

## 5.3 PERMIT REQUIREMENTS

- **Building permit:** Municipal approval before commencement
- **Excavation permit:** For deep excavations and utility connections
- **Environmental clearance:** Impact assessment and mitigation measures
- **Traffic management:** Plan for construction vehicle movements
- **Crane permits:** For tower crane installations

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# SECTION 6: PROJECT SCHEDULE AND MILESTONES

## 6.1 MAJOR MILESTONES

1. **Mobilization and site setup:** Month 1-2
2. **Excavation and shoring completion:** Month 3-6
3. **Foundation work completion:** Month 7-10
4. **Structural work to ground level:** Month 11-14
5. **Structural work to roof level (Tower A):** Month 15-22
6. **Structural work to roof level (Tower B):** Month 16-24
7. **Structural work to roof level (Tower C):** Month 18-26



8. **MEP rough-in completion:** Month 20-28
9. **Architectural finishes completion:** Month 24-32
10. **MEP commissioning and testing:** Month 30-34
11. **Final inspections and handover:** Month 35-36

## 6.2 CRITICAL PATH ACTIVITIES

- Deep excavation and dewatering system
- Pile installation and load testing
- Core wall construction
- MEP vertical risers installation
- Curtain wall installation
- Elevator installation and testing

## 6.3 WEATHER CONSIDERATIONS

- **Summer months (June-September):** Limited working hours during peak heat
  - **Concrete placement:** Early morning hours preferred in summer
  - **Ramadan period:** Adjusted working hours as per labor law
  - **Sandstorm season:** Protection measures for materials and equipment
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## SECTION 7: CONTRACT CONDITIONS

### 7.1 CONTRACT TYPE

- **Lump Sum Contract** based on complete drawings and specifications
- **Fixed price** with adjustment only for approved change orders
- **Performance bond** required: 10% of contract value
- **Advance payment bond** if advance payment requested
- **Warranty period:** 2 years from substantial completion

### 7.2 PAYMENT TERMS

- **Advance payment:** Up to 15% upon bank guarantee
- **Progress payments:** Monthly based on work completed
- **Retention:** 10% of each payment, released after warranty period
- **Final payment:** Within 30 days of final acceptance

- **Currency:** Saudi Riyal (SAR)

### 7.3 LIQUIDATED DAMAGES

- **Delay penalties:** 0.1% of contract value per day, maximum 10%
- **Performance failures:** Additional penalties as specified
- **Quality defects:** Correction at contractor's cost

### 7.4 VARIATION ORDERS

- **Written approval:** Required before executing any changes
  - **Cost impact:** Detailed breakdown and justification required
  - **Time extension:** Evaluated case by case
  - **Documentation:** Complete records of all variations
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## SECTION 8: BIDDING REQUIREMENTS

### 8.1 PRE-QUALIFICATION CRITERIA

#### Technical Capacity:

- Minimum 15 years experience in high-rise construction
- Previously completed minimum 3 projects of similar scope and value
- Current ongoing projects not exceeding 300% of annual capacity
- Qualified technical staff: minimum 50 engineers and supervisors

#### Financial Capacity:

- Minimum annual turnover: SAR 200 million (last 3 years average)
- Current ratio: minimum 1.2
- Bank guarantee facility: minimum SAR 100 million
- Audited financial statements for last 3 years

#### Legal Standing:

- Valid Saudi commercial registration
- Grade 1 classification with Ministry of Municipal Affairs
- ISO certifications: 9001, 14001, 45001
- No major legal disputes or blacklisting

### 8.2 BID SUBMISSION REQUIREMENTS

**Technical Proposal:**

- Project understanding and approach
- Construction methodology and sequence
- Quality control and safety plans
- Project organization chart and CVs of key personnel
- Equipment list and deployment schedule
- Detailed project schedule (Primavera P6 format)

**Commercial Proposal:**

- Bid form with total contract price
- Price breakdown by major work categories
- List of provisional sums and allowances
- Alternative proposals (if any)
- Bid validity: 90 days from bid opening

**Supporting Documents:**

- Pre-qualification documents
- Valid licenses and certifications
- Bank guarantee for bid security (2% of bid value)
- Power of attorney for signing person
- Joint venture agreement (if applicable)

**8.3 BID EVALUATION CRITERIA**

- **Technical capability:** 30%
- **Financial proposal:** 50%
- **Previous experience:** 15%
- **Local content:** 5%

**Award:** Lowest evaluated substantially responsive bid

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**SECTION 9: DRAWINGS AND SPECIFICATIONS****9.1 DRAWING LIST**

**Architectural Drawings:** (50 sheets)

- Site plan and location map
- Ground floor and typical floor plans
- Elevations and sections
- Detail drawings and specifications
- Landscape and external works

**Structural Drawings:** (75 sheets)

- Foundation plan and details
- Structural framing plans (all levels)
- Column and beam schedules
- Reinforcement details
- Connection details for steel elements

**MEP Drawings:** (120 sheets)

- HVAC plans and sections
- Electrical layouts and single line diagrams
- Plumbing and drainage plans
- Fire protection system layouts
- Telecommunications and security systems

**9.2 SPECIFICATION SECTIONS**

1. General Requirements
2. Site Preparation
3. Concrete Work
4. Masonry Work
5. Structural Steel
6. Carpentry and Millwork
7. Thermal and Moisture Protection
8. Doors and Windows
9. Finishes
10. Specialties
11. Equipment

- 12. Furnishings
- 13. Special Construction
- 14. Conveying Systems
- 15. Mechanical Systems
- 16. Electrical Systems

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## SECTION 10: APPENDICES

**Appendix A: Site Survey and Geotechnical Report**

**Appendix B: Environmental Impact Assessment**

**Appendix C: Traffic Management Plan**

**Appendix D: Utility Connection Requirements**

**Appendix E: Material Approval Procedures**

**Appendix F: Testing and Inspection Protocols**

**Appendix G: Health and Safety Procedures**

**Appendix H: Quality Control Checklists**

**Appendix I: Standard Forms and Certificates**

**Appendix J: Local Supplier and Subcontractor Lists**

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## DOCUMENT CONTROL

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## END OF DOCUMENT

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