

# Engr. Usman Bin Wilayat

Mechanical Engineer

Riyadh, Saudi Arabia Phone

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Iqama: Valid & Transferable

Driving License: KSA Valid License

## CAREER SUMMARY

Mechanical Engineer with strong experience supporting large-scale infrastructure and transportation projects, including metro and associated civil works. Skilled in BIM-based design coordination, utility integration, and infrastructure support systems for road corridors, stations, depots, and associated facilities. Experienced in working within BIM Level 2 environments, coordinating mechanical and utility services with civil, structural, and road design teams. Proficient in Autodesk Civil 3D, Revit, Navisworks, and AutoCAD for developing coordinated models, profiles, corridors, and clash-free design solutions. Strong understanding of infrastructure standards, constructability, and multidisciplinary coordination to support efficient project delivery.

Following are my credentials:

- Bachelor's degree in Mechanical Engineering from NUST Islamabad, Pakistan.
- Lean Six Sigma Black Belt & Green Belt Certified. (LSSBB & LSSGB)
- Recognized Professional Engineer by Pakistan Engineering Council (PEC).
- Globally recognized Professional Engineer (PE) by Washington Accord (USA).



## CAREER OBJECTIVE

To secure a challenging role in infrastructure and road development projects where I can contribute my expertise in BIM coordination, utility design integration, and multidisciplinary collaboration. Seeking to leverage hands-on experience with Civil 3D, BIM workflows, and large transportation projects to support the planning, design, and execution of sustainable and high-quality infrastructure works.

## EDUCATION

Bachelor's degree in Mechanical

Engineering

National University of Sciences and Technology (NUST) Islamabad,  
Pakistan

CGPA 3.16/4.0



## WORK EXPERIENCE

### 1. Mechanical Design Engineer

Company: 357 Design and Supervision Consultant

Duration: Sep 2024 to until

Responsibilities:



- Supported mechanical and utility design coordination for infrastructure and road-related developments, including service buildings, utility corridors, and associated facilities.
- Worked within a BIM-based project environment, coordinating mechanical systems with civil alignments, road profiles, drainage networks, and structural elements.
- Utilized Autodesk Civil 3D for reviewing and coordinating utility layouts, pipe networks, profiles, and interfaces with road corridors and site grading.
- Developed and reviewed BIM models, shop drawings, and IFC deliverables using Revit and AutoCAD, ensuring alignment with civil and infrastructure design intent.
- Coordinated underground and above-ground utilities with road cross-sections, right-of-way constraints, and infrastructure clearances.
- Performed technical reviews to ensure constructability and clash-free integration between mechanical services, roadworks, and civil infrastructure using Navisworks.
- Assisted in preparing BOQs, technical submittals, and material documentation relevant to infrastructure support systems.
- Participated in multidisciplinary coordination meetings with civil, road, structural, and electrical teams to resolve design conflicts and maintain project schedules.
- Supervised site activities related to mechanical and utility installations, ensuring compliance with approved drawings, specifications, and infrastructure standards.

## 2. Mechanical Engineer

Project: Sindalah Road & Highway 392  
Company: Arail Construction & Industrial Co  
Client: NEOM  
Consultant: AECOM  
Duration: Sep 2022 to Aug 2024  
Responsibilities:



- Contributed to the design and coordination of mechanical and utility systems for a major transportation infrastructure project, supporting metro station and associated civil works.
- Worked in a BIM Level 2 environment, developing and coordinating models across mechanical, civil, structural, and architectural disciplines.
- Coordinated mechanical services with civil infrastructure elements, including road interfaces, station access roads, utility corridors, and underground services.
- Utilized Autodesk Civil 3D to review utility alignments, profiles, and interfaces with road geometry, levels, and drainage systems.
- Developed coordinated 3D BIM models using Revit and conducted clash detection using Navisworks to ensure conflict-free integration with road and civil structures.
- Reviewed and prepared IFC, shop drawings, and as-built documentation aligned with infrastructure project requirements.
- Supported coordination of underground utilities considering road cross-sections, levels, traffic load considerations, and constructability constraints.
- Liaised with consultants and stakeholders for RFIs, technical submissions, and approvals related to infrastructure and transportation systems.
- Conducted site inspections and supported supervision activities to ensure installation works complied with approved BIM models and civil design constraints.
- Maintained document control and coordination workflows using ACONEX and BIM 360, ensuring compliance with QA/QC and infrastructure project standards.

### 3. Mughal Group of Industries



Position: Mechanical Engineer  
Duration: 2020 to 2022  
Company: Mughal Iron and Steel Industries Limited (MISIL)

#### Responsibilities:

- Developed detailed mechanical designs for HVAC, plumbing, and firefighting systems for residential and commercial buildings.
- Conducted heat load calculations and system sizing to ensure optimal performance and energy efficiency.
- Coordinated with architects and civil engineers to integrate mechanical designs seamlessly into overall project plans.
- Prepared technical specifications, drawings, and bill of materials for mechanical systems.
- Ensured compliance with relevant building codes, safety regulations, and environmental standards.
- Supervised on-site installation and commissioning of mechanical systems, ensuring quality and adherence to design specifications.
- Provided technical support and troubleshooting for mechanical systems during and after project completion.

### 4. Innovative Construction Solutions



Position: Junior Engineer  
Duration: 2018 to 2020  
Company: Innovative Construction Solutions

#### Responsibilities:

- Assisted in developing detailed mechanical designs for HVAC, plumbing, and firefighting systems under the guidance of senior engineers.
- Performed preliminary heat load calculations and supported system sizing to achieve energy-efficient solutions.
- Collaborated with architects and multidisciplinary teams to incorporate mechanical design requirements into project layouts.
- Prepared and updated technical drawings, schematics, and documentation for mechanical systems.
- Reviewed designs to help ensure compliance with building codes, safety regulations, and sustainability standards.
- Monitored on-site work during installation phases to verify alignment with design intent and quality standards.
- Supported senior engineers in resolving technical issues and provided assistance during system testing and commissioning.

## PROJECTS

### 1- Qaseem Region Road Development Projects

Mechanical Engineer

357 Engineering Design and Supervision Consultant

- Contributed to the design and coordination of road infrastructure projects in the Qaseem Region, including highways, arterial roads, and associated utility corridors.
- Developed and reviewed utility layouts for potable water, firefighting networks, drainage, and service ducts integrated within road right-of-way limits.
- Coordinated mechanical and utility systems with road alignments, profiles, cross-sections, and grading plans using AutoCAD and Civil 3D.
- Reviewed pipe networks, longitudinal profiles, and utility crossings to ensure compatibility with pavement layers, culverts, and structural elements.
- Prepared and reviewed IFC drawings, shop drawings, and as-built documentation in coordination with BIM models and civil design packages.
- Performed clash detection and multidisciplinary coordination using BIM and Navisworks, ensuring conflict-free integration between utilities, roadworks, and structures.
- Participated in coordination meetings with civil, structural, electrical, and traffic teams to resolve design interfaces and construction constraints.
- Supervised site execution of utility installations, including underground piping, chambers, valve pits, and service connections, ensuring compliance with project specifications and QA/QC procedures.

### 2- Sindalah Road & Highway 392 Project

Mechanical Engineer

Arail Construction & Industrial Co. Ltd. | Contractor

- Supported construction and coordination activities for a major highway infrastructure project connecting Riyadh and Qassim, including road widening and associated utility works.
- Coordinated utility relocation and protection works for water supply lines, firefighting networks, drainage systems, and service ducts within the highway corridor.
- Reviewed and coordinated utility designs with road geometry, longitudinal profiles, cross-sections, and earthworks using AutoCAD and Civil 3D.
- Developed and reviewed shop drawings, IFC drawings, and as-built records for underground services integrated with road and pavement structures.
- Ensured clash-free coordination between utilities, pavement layers, culverts, retaining walls, and other civil infrastructure elements through BIM workflows.
- Supervised on-site installation of underground utilities, chambers, manholes, and associated mechanical components in accordance with approved drawings and project specifications.
- Coordinated with consultants and client representatives for RFIs, technical submissions, and approvals related to infrastructure utilities.
- Reviewed material submittals, method statements, and ITPs to ensure compliance with project standards and construction sequencing requirements.
- Assisted in inspection, testing, commissioning, and handover of utility systems forming part of the highway infrastructure works.
- Maintained documentation, progress reporting, and coordination records in line with QA/QC and project control procedures.

3- Residential Tower – Jeddah  
Mechanical Design & Supervision Engineer  
357 Engineering Design and Supervision Consultant

- Developed full MEP design deliverables for HVAC systems, domestic water supply, drainage, and firefighting systems in accordance with SBC (Saudi Building Code), ASHRAE, NFPA, and civil defense requirements.
- Performed detailed heat load calculations using HAP, equipment sizing, and static pressure analysis to ensure occupant comfort and energy-efficient system operation.
- Designed central ventilation systems, exhaust systems for kitchens and bathrooms, and stairwell pressurization systems to meet safety and ventilation standards.
- Produced coordinated IFC drawings, schematic diagrams, and equipment schedules in Revit MEP, ensuring seamless integration with architectural and structural models.
- Prepared technical specifications, BOQs (Bills of Quantities), and material submittal requirements, supporting tender documentation and bid evaluation processes.
- Participated in multidisciplinary design coordination meetings to resolve spatial constraints and MEP clashes identified in BIM.
- Supported the preparation of shop drawing reviews, design clarifications, and responded to contractor RFIs (Requests for Information) to maintain design intent during construction.
- Conducted design reviews for compliance with client requirements, sustainability considerations, and optimized system layouts for ease of maintenance and future expansion.

## COMPUTER AND TECHNICAL SKILLS

Design & Drafting Software: AutoCAD, AutoCAD Civil 3D, Revit (BIM), Navisworks Manage

BIM & Coordination Tools: BIM 360, Navisworks (clash detection, model coordination), IFC model review

Utility & Infrastructure Design: Pipe networks, utility corridors, profiles, cross-sections, and service coordination within road right-of-way

Calculation & Analysis Tools: Pipe Flow Expert, hydraulic calculations for water supply, firefighting, and utility networks

Quantity Surveying & Estimation: Plan Swift, MS Excel (advanced formulas, pivot tables, VBA)

Project Planning & Controls: Primavera P6, MS Project (infrastructure scheduling and progress tracking)

Documentation & Collaboration: ACONEX, technical submittals, RFIs, method statements, ITPs

Other Tools: MS Office Suite (Word, Excel, PowerPoint), Adobe Acrobat Pro

## CORE COMPETENCIES

- Infrastructure utility design and coordination for road and highway projects
- Underground utility networks (water supply, firefighting, drainage, service ducts)
- AutoCAD, Civil 3D, Revit (BIM) and Navisworks proficiency
- BIM-based multidisciplinary coordination and clash detection
- Road corridor utility integration, profiles, and cross-sections
- Material selection and technical specification development for infrastructure works
- Compliance with infrastructure standards and project specifications
- Constructability reviews and interface management with civil and roadworks
- Quantity take-offs, BOQs, and technical documentation
- Quality assurance, inspections, and compliance with QA/QC procedures

## CERTIFICATIONS

- Certified Lean 6 Sigma Green Belt (LSSGB)
- Certified Lean 6 Sigma Black Belt (LSSBB)
- Google Project Management Professional Certified (PMP)
- IBM Project Manager Certified
- Certified Mechanical Engineer (PEC)

## PROFESSIONAL AFFILIATIONS

- American Society of Mechanical Engineers (ASME)
- Project Management Institute (PMI)
- Recognized Professional Engineer (PE) by Pakistan Engineering Council (PEC)
- Globally recognized Professional Engineer (PE) by Washington Accord, USA
- Alumni Mechanical Engineering Department at National University of Sciences & Technology Islamabad, Pakistan

## ADDITIONAL INFORMATION

- Languages: Fluent in Arabic and English
- Willing to relocate and travel as required
- Transferable iqama
- Valid KSA Driving License
- Available to join upon notice period and committed to making immediate contributions from day one.

## EXPERIENCE CERTIFICATES



Date: 02-October-2024

**Subject: EXPERIENCE CERTIFICATE**

Arail construction & industrial co. ltd. at Riyadh, Saudi Arabia hereby certifies that **Mr. Usman Bin Wilayat**, with Iqama ID **2581777238** was employed by Arail during the period from September 2022 to August 2024 as a **Mechanical Engineer**.

Throughout above period his performance was satisfactory and cooperative with his colleagues and superiors.

This Certificate is issued upon his request, without any obligation on our part.



**شركة الأريل للمقاولات والصناعة المحدودة**

**مدير الموارد البشرية**



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Ref: HR/ 2022/8/05

August 09, 2022

**To Whom It May Concern**

This is to confirm that **Mr. Usman Bin Wilayat S/O Mr. Muhammad Wilayat** having CNIC# **34403-0386981-9** working with us as “**Engineer**” from **Sep 14, 2020** to **August 08, 2022**

We always found him hard working, devoted, honest and dedicated person to his work as well as to the organization.

Wish him best of luck for the future endeavors.

Regards



**Human Resource Department**

**Mughal Iron & Steel Industries Limited**



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