Alstom Project Documentation Analysis

**Executive Summary**

This report contains summaries of the most important documents from the Alstom project. These documents have been selected based on their relevance to key project aspects such as specifications, technical requirements, plans, and critical correspondence.

# Document Summaries

## Specifications

**1. 01 Architecture - Structure - Roads Specifications.pdf**  
Location: 03- Specification

**Summary:** The document titled "01 Architecture - Structure - Roads Specifications.pdf" is a detailed specification report for the construction of a new cabling factory by Alstom. The document, dated 23rd February 2025, outlines the general requirements for the project, including the summary of work, unit price measurement and payment, project coordination, meetings, pre-construction conferences, progress meetings and schedules, survey and layout data, construction photographs, submittals, shop drawings, product data, samples, security, applicable standards, testing laboratory services, quality control, temporary utilities (electricity, lighting, water, telephone, internet), field offices, supervision personnel, personnel transport, temporary sanitary facilities, barriers and enclosures, project identification and signs, and product options and substitutions. Each of these sections provides specific guidelines and requirements for the respective aspects of the project. The document is a crucial resource for the project manager to understand the project's scope, requirements, and standards.

**2. 02 Plumbing Specification.pdf**  
Location: 03- Specification

**Summary:** The document titled "02 Plumbing Specification.pdf" is a detailed specification report for the plumbing system of Alstom's new cabling factory. It includes the specifications for toilet, bath, and laundry accessories, as well as the requirements for the installation of expansion fittings, loops, sleeves, and sleeve seals for plumbing piping. The document is divided into three main parts: General, Products, and Execution. The General section includes related documents, a summary, submittals, quality assurance, coordination, and warranty. The Products section details the materials, public-use washroom accessories, and fabrication. The Execution section covers installation, adjusting, and cleaning. The document also outlines the specifications for packless expansion joints, grooved-joint expansion joints, and alignment guides and anchors. It is crucial for the project manager to understand these specifications to ensure the plumbing system meets the required standards and quality.

**3. 03 HVAC and Compressed Air Specification.pdf**  
Location: 03- Specification

**Summary:** The document titled "03 HVAC and Compressed Air Specification.pdf" is a detailed guide for the HVAC (Heating, Ventilation, and Air Conditioning) specifications for the new Alstom cabling factory. The document, dated 23 February 2025, outlines the basic mechanical requirements, including general descriptions, submittals, protection measures, job conditions, extra stock and spare parts, operation and maintenance manuals, inspections, test reports, certificates, and guarantees. It also provides information on products, including general information, materials, motors, and controls. The execution section includes details on general execution, cutting and patching, excavating and backfilling, installation of equipment, welding, protection, and field quality control. The document is crucial for understanding the HVAC requirements and standards for the factory construction project.

**4. 04 Mechanical Specification.pdf**  
Location: 03- Specification

**Summary:** The document titled "04 Mechanical Specification.pdf" is an updated mechanical specification for Alstom's new cabling factory. It outlines the requirements for the fire suppression system, specifically focusing on fire pumps. The document details the general responsibilities of the contractor, including providing all labor, materials, tools, and equipment, coordinating with other trades, and installing all necessary items for a complete installation.   
  
The work must comply with several codes and standards, including ANSI, ASME, ASTM, NFPA, FM, UL, ISO, and IEC. Quality assurance measures include inspection and testing services by qualified personnel, and the manufacturer must have at least 10 years of documented experience.   
  
The document also outlines requirements for submittals, such as certified pump curves, final required pump horsepower, manufacturers' literature, and minimum controls on pump installations.   
  
The contractor is responsible for delivering all hardware in the manufacturer's original packaging, supplying special tools required for maintenance and repair, and providing specified spare parts. All equipment and machinery must be manufactured by reputable manufacturers with local agents for after-sale services.

**5. 05 Firefighting Specification.pdf**  
Location: 03- Specification

**Summary:** This document, titled "Firefighting Specification" for the new Alstom cabling factory, provides detailed specifications for the installation and quality assurance of fire-suppression systems. The document outlines the requirements for sleeves and sleeve seals for fire-suppression piping, including the types of sleeves, stack-sleeve fittings, sleeve-seal systems, sleeve-seal fittings, and grout. It also provides instructions for the installation of these components. Additionally, the document provides specifications for escutcheons for fire-suppression piping. The new project manager should familiarize themselves with these specifications to ensure compliance with fire safety standards and quality assurance procedures.

**6. 06 Electrical Specification.pdf**  
Location: 03- Specification

**Summary:** The document titled "06 Electrical Specification.pdf" is a detailed guide for the electrical specifications of the new Alstom cabling factory. The document outlines the basic electrical materials and methods, regulations and standards, power supply, telephone public exchange lines, motors and other electrically operated equipment, and equipment. It also provides information on climatic conditions, drawings, submittals, quality assurance, coordination, and equipment and materials. The document further specifies the products to be used, including supporting devices, electrical identification, covers for trenches, brackets, supports, rails and tracks, concrete bases, equipment for electricity metering, anti-condensation heaters and ventilators, and electrical control locations. The execution part of the document details the installation of electrical equipment, supporting device application, support installation, identification materials and devices, and fire stopping. The document is critical for understanding the electrical requirements and standards for the new manufacturing cabling site.

**7. 07 Low Current Specification.pdf**  
Location: 03- Specification

**Summary:** The document titled "07 Low Current Specification.pdf" is a detailed specification report for a new manufacturing cabling site under Alstom. It was issued on 23 February 2025 and contains comprehensive information about the low current specifications for the project. The document is divided into several sections, including general information, products, and execution.   
  
Key areas of focus include structured cabling, related documents, summary, reference standards, definitions and abbreviations, scope of work, products and work by others, confidentiality, system description, submittals, quality assurance, delivery, storage and handling, project/site conditions, warranty, maintenance and support, spare parts and extra material.   
  
The execution section details the examination, measurement procedures, preparation, installation, field quality control, cleaning, and demonstration and training. Another significant section is the identification for communication systems.   
  
The document is crucial for understanding the technical requirements, standards to follow, and procedures for the project. It also outlines the responsibilities for various tasks, ensuring quality assurance, and maintaining confidentiality.

**8. Sandwich Panel Specifications.pdf**  
Location: 06- CRs\03- CR#03 Sandwitch panels

**Summary:** The document provides specifications for the construction of metal standard sandwich panels at a new manufacturing cabling site. The panels, to be manufactured by experienced specialists, must meet certain thermal, structural, and seismic performance standards. The maximum thermal U value should not exceed 0.4 w/m²k and the panels should be corrosion resistant, waterproof, and allow for light panel installation. Panels must comply with BS EN 14509 and withstand wind loads, deflection limits, and seismic performance as per the Egyptian code of practice (Ministerial Decree 367/2003). The panels should also accommodate thermal movements and maintain thermal performance as per ASTM C 236 or ASTM C 518. Submissions should include product data, installer certificates, installer experience, shop drawings, and coordination drawings. European standards are accepted as equivalent to American standards.

## Drawings

**9. Alston Factory - Borg El Arab - IFC List of Drawings 10-4-2025.pdf**  
Location: 01- IFC drawings

**Summary:** The document, "Alston Factory - Borg El Arab - IFC List of Drawings 10-4-2025.pdf", is a detailed list of architectural drawings for the new manufacturing cabling site. The document includes drawings for various parts of the factory such as the Administration and Lockers building, Canteen Building, Fence, Guard Post, Main Workshop, Master Plan, Prayer Buildings, and Security Building. Each drawing is labeled with a unique number, revision, title, and scale. The drawings cover a wide range of details including floor plans, elevations, sections, openings details (doors and windows), wet areas details, stairs, external boundary fence, general plan, doors, windows & finishing schedule, master plan (setting-out, hardscape, softscape, planting area boundaries), and specific details for bathrooms. The scales of the drawings vary, with the smallest being 1:10 and the largest 1:400. This list of drawings provides a comprehensive overview of the architectural design of the new manufacturing cabling site.

**10. Alstom Factory - Borg el Arab - Architectural IFC Drawings 10-4-2025.pdf**  
Location: 01- IFC drawings\1- Architectural Drawings

**Summary:** 1. The document appears to be a set of architectural drawings for a building project, with details about room dimensions, materials, finishes, and door/window schedules.  
  
2. The project is located at 5 EL-GOMHOUREYA EL-MOTTAHEDA SQ., Cairo, Egypt.  
  
3. The document contains two floor plans: a ground floor plan (Level 1) and a first floor plan (Level 2 - St. Floor).  
  
4. There are several rooms labeled on the plans, including Lobby, Men's WC, Ladies' WC, Office, HR DB, Financial DB, Technical room, Elevator, Lockers, Showers, HR Manager, Financial Manager, Secretary, Manager, and a few unlabeled rooms.  
  
5. Materials used in the construction include beige porcelain, light beige HDF Flooring tile, ceramic tile, terrazo tile, brickwork, WPC strips, and various types of aluminum frames (TGL ALUM ES).  
  
6. Finishes for floors, skirting, walls, ceilings, and suspended ceilings are not explicitly specified in the given data.  
  
7. The document mentions two revisions: A IFC PACKAGE 03/2025 and BB IFC PACKAGE 04/2025.  
  
8. The document is property of Arab Consulting Engineers (ACE) and should not be reproduced without their written permission.

**11. Alstom Factory - Borg el Arab - Structural IFC Drawings 10-4-2025.pdf**  
Location: 01- IFC drawings\2- Structural Drawings

**Summary:** Error: Document 'Alstom Factory - Borg el Arab - Structural IFC Drawings 10-4-2025.pdf' has insufficient text content for summarization.

**12. Alstom Factory - Borg el Arab - Steel Structural IFC Drawings 27-3-2025.pdf**  
Location: 01- IFC drawings\3- Steel Drawings

**Summary:**  Title: Alstom Factory - Borg el Arab - Steel Structural IFC Drawings (27-3-2025)  
  
Summary: This document outlines the structural design and construction details for a factory in Borg el Arab, focusing on steel elements. The dead load includes the members' own weight and additional loads like sandwich panels and collateral loads. Super dead load consists of these along with lighting and firefighting network. Live loads are 54.44Kg/m2 for inaccessible roofs and 100kg (concentrated load) for fabrication and maintenance.  
  
Temperature ranges from uniform change (+/-30oC) to a temperature gradient between top and bottom flanges (+/-20oC). Wind speed is 36m/s, leading to a pressure of 81kg/m2 with varying coefficients (K=1.15, 1.4, and 1.6). Earthquake load factors include soil type B, importance factor 1.2, behavior factor 5, live load share factor in mass source as 1, and crane loads (3 ton capacity, 0.5 ton for trolley, and 0.15 ton/m for bridge).  
  
The structural design complies with ECP-ASD-205 Grade Standards, and steel elements must conform to Egyptian Code Standards. High strength bolts (Grade 10.9, 8.8), nuts, and washers are specified in the document. Only tested materials should be used unless written authority is granted for untested materials for certain parts.  
  
Allowable deflections and drifts are defined according to ECP-ASD-205 standards. Welding standards require shielded metal arc welding (MMAW) of mild steel to conform to Egyptian or AWS equivalents, with electrodes, flux/filler materials, and the grade of weld metal adhering to relevant Egyptian or AWS standards.  
  
The document also includes design & detailing notes, shop construction notes, site construction notes, and fire protection notes that outline various codes, standards, and quality levels for welded connections, gas-cut faces, holes for bolts, lamination tests, machined surfaces, pre-approved third-party testing of welded connections, and more.  
  
Overall, the document provides guidelines for designing, detailing, constructing, and testing steel structural elements according to specific codes and standards for the Alstom Factory in Borg el Arab.

**13. Alstom Factory - Borg el Arab - Electrical IFC Drawings 10-4-2025.pdf**  
Location: 01- IFC drawings\4- Electrical Drawings

**Summary:**  This document is a building drawing for the first and upper floors of a project with the code name "North". The document contains information about the electrical, mechanical, and architectural design.  
  
The first floor (1st St-Floor) has an administration and lockers area, which includes spaces like offices, storage rooms, and restrooms. The upper roof floor is used for mechanical equipment.  
  
The lighting system on the first floor uses various types of lights such as uplights, downlights, spotlights, wall lights, bidirectional appliques, and side emitters. The specifications for these lights include their wattage, color temperature (3000k), and IP ratings (IP65 or IP66).  
  
There are also details about the materials used, such as white cement board and tinted grey double glass, and their dimensions.  
  
The document is marked as a draft and should not be reproduced without permission from Arab Consulting Engineers (ACE), who own the rights to this confidential information. The project's final drawing package can be found in the specified directory.

**14. Alstom Factory - Borg el Arab - HVAC & CA IFC Drawings 10-4-2025.pdf**  
Location: 01- IFC drawings\5- HVAC & CA Drawings

**Summary:**  This document appears to be a detailed equipment list for an HVAC system in a building, specifically for the Admin and Locker Building in Dokki, Cairo. The equipment includes various types of fans such as wall-mounted supply fans (WMSF), wall-mounted exhaust fans (WMEF), high wall split units, and air curtains. Here is a summary:  
  
1. Wall-Mounted Supply Fans (WMSF): There are 7 units with 0.3 kW each, and one unit with 1 kW. Their external static pressure should be verified by the contractor.  
  
2. Wall-Mounted Exhaust Fans (WMEF): There are multiple wall-mounted exhaust fans as per drawings. Their power supply is 220/50/1, and their CFM (cubic feet per minute) ranges from 3200 to 620.  
  
3. High Wall Split Units: There are two units - HI WALL UNIT-01 and HI WALL UNIT-02. The former has a capacity of 1.5 TR (Total Heating or Cooling Capacity) at an ambient temperature of 40°C, while the latter's power supply is to be verified by the contractor.  
  
4. Air Curtains: There is one air curtain with a length of 1200 mm, powered by a 0.4 kW motor and connected to doors opening according to the drawing’s and specifications.  
  
The document also includes notes about verifying the external static pressure and ambient temperature for some equipment. The power supply in the table is for reference, and the contractor should verify the actual power supply.

**15. Alstom Factory - Borg el Arab - Fire Fighting IFC Drawings 10-4-2025.pdf**  
Location: 01- IFC drawings\6- Fire Fighting Drawings

**Summary:**  This appears to be a floor plan for a building, possibly a commercial kitchen or restaurant, with firefighting equipment details. The document contains two separate floor plans, one for the ground floor (Admin/Locker Building) and another for the first floor (likely a kitchen area).  
  
The ground floor includes spaces such as an admin area, lockers, a meal area (Buffet and Bakery), VIP area, merchandise storage, men's and women's restrooms, a preparation area, hot section, chef's room, washing area, and additional rooms. The floor has cement board cladding, and firefighting equipment like automatic air vents, fire department valves, portable fire extinguishers (ABC and CO2), fire hose cabinets, and a fire riser landing valve are present.  
  
The first floor includes spaces such as the meals area, preparation area, hot section, chef's room, wash areas, cold section, trays, VIP area, decorative partitions, women's restroom, men's restroom, and additional rooms. The floor has a steel ladder with cage and door, freezers, ovens, and ramps to the service road. Similar firefighting equipment can be found on this floor as well.  
  
The document also contains notes about the provision of a wet chemical fire extinguish system for hood kitchens provided by kitchen equipment suppliers and specifications for the firefighting equipment, such as pipe diameters and locations. The document is marked as confidential property of Arab Consulting Engineers (ACE) and should not be reproduced without their written permission.

**16. Alstom Factory - Borg el Arab - Sanitary IFC Drawings 10-4-2025.pdf**  
Location: 01- IFC drawings\7- Sanitary Drawings

**Summary:**  The provided text appears to be a series of building drawings or architectural plans, divided into several sheets (DR-01, DR-02, A/ST20, etc.). Each drawing shows different sections of the same building, such as floors, roofs, and utility systems.  
  
Key features and materials mentioned include:  
  
\* Brickworks, steel, mortar, coping, ladders, and various pipes (SUS, R, W, V) for utilities like sewage, water supply, and drainage.  
\* Rooms such as Lobby, HR Manager, Financial Manager, Office, Secretary, Men's WC, Ladies' WC, Showers, Technical room, Elevator, and others.  
\* Sizes of rooms, pipes, and other elements like R.S. Ø75mm (radius of 75 mm for a sewage pipe), F.F.L.+ (Finished Floor Level) with varying values like 1.78, 3.70, or 6.95 (meters).  
\* Free Discharge (suggesting some sort of waste outlet).  
\* The use of CAD software for creating the drawings, as evidenced by markings like S.A.DRAINAGE SYSTEM and S.A.ROOF.  
  
It's important to note that this summary only touches upon some prominent aspects in the text. The actual plans contain much more detailed information about the building design, including dimensions, materials, room functions, and connections between different parts of the structure.

**17. Alstom Factory - Borg el Arab - Mechanical IFC Drawings 27-3-2025.pdf**  
Location: 01- IFC drawings\8- Mechanical Drawings

**Summary:** Error: Document 'Alstom Factory - Borg el Arab - Mechanical IFC Drawings 27-3-2025.pdf' has insufficient text content for summarization.

**18. Alstom Factory - Borg el Arab - Roads IFC Drawings 27-3-2025.pdf**  
Location: 01- IFC drawings\9- Roads Drawings

**Summary:**  The provided documents are a series of drawings for a road project, specifically for Alstom New Cabling Factory in Egypt. These drawings include the layout plans and typical cross-sections for the main roads (DWG-RDS-MA-00-0105-B) and typical cross-sections & pavement details (DWG-RDS-MA-00-0103).  
  
The road project includes various elements such as carriageways, parking lanes, side walks, curbs, and other infrastructure like drainage systems. The drawings provide detailed dimensions for each of these components in meters. It is noted that the contractor should carry out their own topographic survey and geotechnical investigation to cover all aspects of the project.  
  
The documents emphasize the importance of referring to Egyptian codes, project specifications, and other related drawings and documents from different disciplines for accurate understanding and execution of the project. The contractor is also advised to confirm the provided pavement section using their own geotechnical investigation results. The drawings are marked as confidential and should not be reproduced without prior written permission.

## Reports

**19. Getechnical Report - Alstom Cabling plant - Borg Al-Arab, Alexandria - Sep 2024 - R2.pdf**  
Location: 02- GEOtechnical report

**Summary:** The document is a report on exploratory geotechnical investigations and foundation recommendations for the Alstom Cabling Plant in Borg Al-Arab, Alexandria, Egypt. The report was prepared by ARDAMAN-ACE, a consulting firm specializing in soil mechanics, foundations, and material testing. The report includes a detailed account of the site location, topography, and project description. It outlines the methodology and equipment used for borehole execution and standard penetration tests. The report also includes the installation of standpipe piezometers and a comprehensive laboratory testing program. The subsurface conditions were analyzed, identifying the presence of silty clay, sand, and groundwater. The report concludes with an analysis of field and laboratory test results, including standard penetration tests and Atterberg limits. This information is crucial for the project manager to understand the geotechnical conditions of the site and make informed decisions about the construction process.

## Plans

**20. Lifting Plan.pdf**  
Location: 11- HSE

**Summary:**  The 'Lifting Plan' document is a safety and environmental plan for the Alstom New Cabling Factory project at Borg El Arab, Egypt. The plan is effective from May 8, 2025, with revisions numbered as Rev. No.: 2025 A.  
  
The main scope of this plan is to position caravans and site units delivered by flatbeds in the Site Mobilization Zone of the factory. To achieve this, various pieces of lifting equipment are specified, including a 50-ton mobile crane, flatbed trucks (12–18 m long), an adjustable spreader beam, and polyester slings/shackles.  
  
The lifting area layout is detailed in the document, including crane positions, truck routes, and exclusion zones. The execution procedure outlines four steps: preparation, delivery, lifting, and final positioning of caravans. During preparation, ground compaction may be necessary, and the crane will be positioned based on the lift radius. Safety barriers are installed around the lift area during this phase. In the delivery stage, trucks enter via the Main Gate, park at the Loading & Unloading Zone beside the crane, receive guidance from a spotter and HSE personnel.  
  
During lifting, a spreader beam with a 4-point sling will be used to hoist caravans from trailers slowly, and a banksman will guide the operator to place them on their foundations. Once the caravans are in position, they will be set on blocks/footings, and their alignment and stability will be verified.  
  
Throughout this plan, safety and environmental concerns are emphasized, with clear procedures for vehicle delivery, lifting operations, and final positioning of equipment.