INTERNSHIP DIARY

Daily Work Log & Progress Report

Student Name: [TO BE FILLED]

Student ID: [TO BE FILLED]

Company: [TO BE FILLED]

Department: [TO BE FILLED]

Supervisor: [TO BE FILLED]

Duration: [TO BE FILLED]

AUTHORIZED ENGINEER

Chamber Registration No: _____

Signature & Stamp:

_____

Monday 8th September, 2025

Izmir Institute of Technology — Engineering Faculty — Civil Engineering Department

Izmir Institute of Technology — Engineering Faculty — Civil Engineering Department

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INTERNSHIP EVALUATION FORM

Student Information	Details
Student Name	
Student ID	
University	
Department	
Academic Year	

Company Information	Details
Company Name	
Department	
Supervisor	
Internship Duration	From: _____ To: _____

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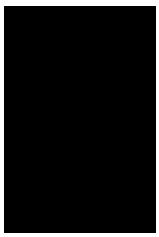
Photo	Evaluation
 (Attach Student Photo)	**Student Performance:** Excellent ☐ Good ☐ Average ☐ Below Average ☐ **Technical Skills:** Excellent ☐ Good ☐ Average ☐ Below Average ☐ **Communication Skills:** Excellent ☐ Good ☐ Average ☐ Below Average ☐ **Additional Comments:** _____ _____ _____

AUTHORIZED ENGINEER APPROVAL

Name: _____

Chamber Registration No: _____

Date: _____

Signature & Stamp:

_____

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IMPORTANT NOTICE

This diary documents daily internship activities
and serves as an official record of work completed.

Each entry must be approved by the designated supervisor
and maintained according to company standards.

Note: This template can be duplicated as needed for extended internships.

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Preface

This internship diary serves as a comprehensive record of daily activities, learning experiences, and professional development during the internship period. Each entry includes:

- **Weather conditions** - Environmental context for the work day
- **Work content** - Detailed description of tasks and activities performed
- **Skills learned** - New competencies and knowledge acquired
- **Challenges faced** - Obstacles encountered and problem-solving approaches
- **Supervisor approval** - Official verification of completed work
- **Additional notes** - Reflections, observations, and future planning

The diary is structured to provide both immediate documentation and long-term reference value for career development and academic assessment.

"The expert in anything was once a beginner."
— Helen Hayes

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Part I

Daily Entries

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Izmir Institute of Technology — Engineering Faculty — Civil Engineering Department

Chapter 1

Day 1

Date: Monday, August 25, 2025
Weather: ☼[regular] Sunny
Temperature: 36℃

WORK CONTENT

Morning Activities (09:00 - 12:00): The day began with my arrival at the ES Denizcilik Izmir branch office located at Cumhuriyet, Çanakkale Asfaltı Cd. No:35, 35672 Menemen/İzmir. Upon arrival, I was warmly welcomed by Ms. Ayşe Kaya from the HR department, who conducted my initial orientation session and assisted with the necessary documentation process. During the orientation, I received a comprehensive overview of ES Denizcilik's impressive 25+ year history in marine construction industry, learning about the company's evolution and current market position. The morning continued with introductions to key office staff members, including Mr. Mehmet Öztürk who serves as Project Manager and Ms. Elif Demir in her role as Engineering Coordinator. The final part of the morning was dedicated to a detailed tour of the office facilities, where I familiarized myself with the workplace layout, emergency exits, safety protocols, and general office procedures.

Afternoon Activities (13:00 - 17:00): The afternoon session commenced with an in-depth presentation about the company's core business

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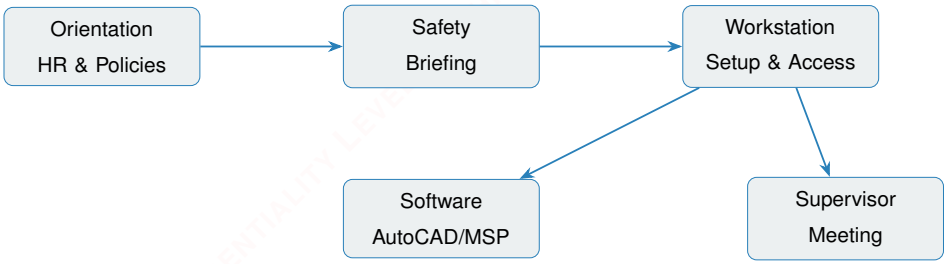
Company Orientation	Monday, August 25, 2025	

areas, focusing primarily on Marine and Industrial Construction sectors and their interconnected operations. This was followed by a fascinating overview of ES Denizcilik's specialized fleet, which includes sophisticated equipment such as dredging ships for underwater excavation, pile driving barges for foundation work, floating cranes for heavy lifting operations, and various support vessels. The presentation then shifted to current and upcoming projects, providing insight into major ongoing initiatives including port construction and marine terminal development across Turkey and the region. Subsequently, I was assigned a dedicated workstation and received access credentials for essential software platforms including AutoCAD for technical drawings, Microsoft Project for project management, and the company's proprietary project management systems. The day concluded with an extensive review of significant completed projects, with particular focus on case studies of the Petkim Container Port and Star Refinery Terminal, which demonstrated the company's capabilities in large-scale marine infrastructure development.



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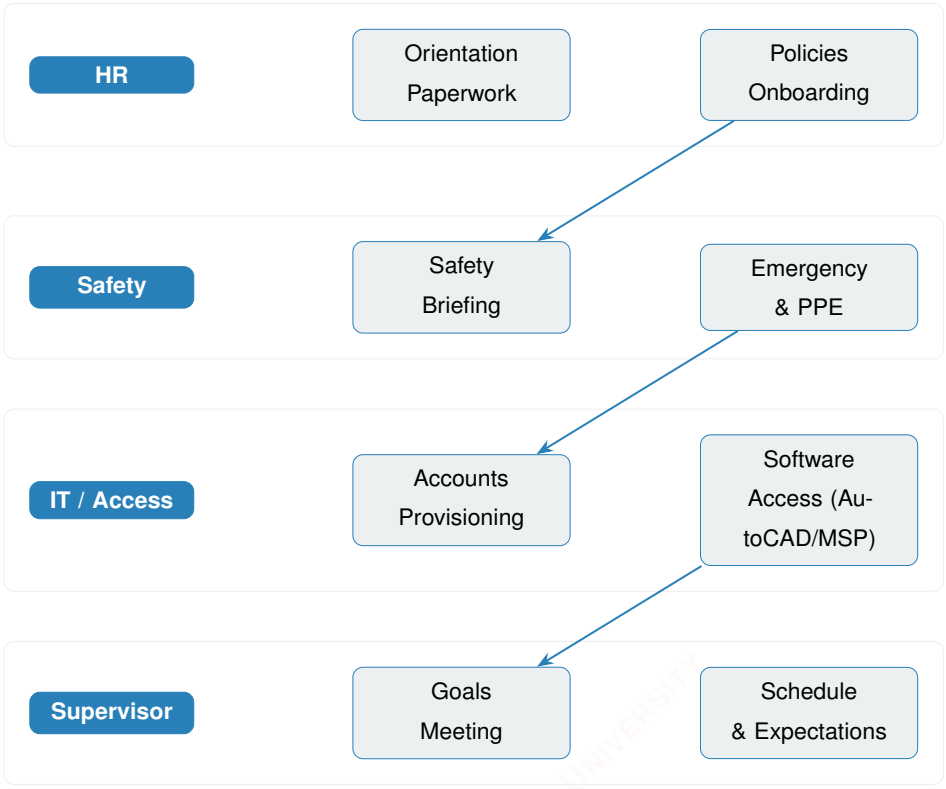

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Key Tasks Completed: Throughout the day, I successfully completed the mandatory maritime safety orientation program, which covered emergency procedures, personal protective equipment usage, and workplace safety protocols specific to marine construction environments. The workstation configuration process was completed successfully, granting me access to all necessary engineering software and secure company network resources. I also received comprehensive project documentation templates and the company's technical standards manual, which will serve as essential reference materials throughout my internship. Finally, I had an important meeting with my designated supervisor, Mr. Can Yılmaz, during which we discussed my internship objectives, learning goals, weekly schedule expectations, and the structured approach that will be followed throughout my time at ES Denizcilik.

Skills & Knowledge Gained

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I gained comprehensive understanding of the marine construction industry and ES Denizcilik's market position through detailed orientation sessions. I developed knowledge of specialized maritime equipment including dredging ships, pile driving barges, and floating cranes, while receiving introduction to maritime project management principles and timeline coordination. I achieved familiarity with AutoCAD for marine engineering drawings and technical documentation, and gained understanding of port construction processes and marine terminal development. I learned professional communication protocols in engineering consultation environments and maritime safety regulations and emergency procedures for both office and field environments.

Challenges Faced

Learning extensive maritime terminology and technical specifications for marine construction presented significant challenges, compounded by information overload about complex fleet operations and multiple ongoing projects. Adjusting to the engineering office environment and professional maritime industry standards required adaptation, while understanding technical drawings and marine engineering specifications in AutoCAD demanded focused attention. Grasping the scale and complexity of port construction and marine terminal projects proved challenging given the sophisticated nature of marine infrastructure development.

Additional Notes

First day at ES Denizcilik was incredibly informative and welcoming. The office atmosphere at the Menemen branch is professional yet friendly. Ms. Ayşe Kaya from HR was extremely helpful during orientation, and the engineering team members were patient in explaining the complex nature of marine construction projects.

The scale of ES Denizcilik's operations is impressive - over 1,000 professionals and 25+ years of experience in the industry. Learning about their specialized fleet and major projects like Petkim Container Port gives insight into the sophisticated engineering required for maritime infrastructure.

The hot İzmir weather (36°C) made me appreciate the comfortable office environment in Menemen. Need to study maritime engineering principles

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and familiarize myself with AutoCAD's marine construction applications. Plan to review the technical standards manual and project case studies provided today.

Looking forward to potentially visiting project sites around the İzmir region and seeing the fleet operations firsthand during the internship. The proximity to İzmir's major port facilities will provide excellent learning opportunities.

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SUPERVISOR APPROVAL

Supervisor Name **Date & Signature**

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Chapter 2

Day 2

Date: Tuesday, August 26, 2025
Weather: ☼[regular] Sunny
Temperature: 28℃

WORK CONTENT

Today, on my second internship day, I was introduced in depth to one of the fundamental pillars of civil engineering: quantity surveying (metraj). When I arrived at the office early in the morning, my supervisor began the day by explaining what quantity surveying is and why it holds such critical importance. I learned that quantity surveying is not merely a simple measurement process, but actually forms the economic backbone of the entire construction project.

Before noon, I tried to understand the differences between rough and finishing works. I learned in detail that rough works encompass reinforced concrete elements that form the structural skeleton of the building such as foundations, columns, beams, and slabs, while finishing works include completion tasks such as plastering, painting, cladding, and installations. My supervisor emphasized that this distinction is not merely theoretical, but plays a critical role at every stage from work programming to cost calculations.

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Quantity Surveying and Cost Estimation for Construction Projects	Tuesday, August 26, 2025	

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I had the opportunity to learn about the tenders our company has recently won. The Hatay Metropolitan Municipality Arsuz District Solid Waste Storage Facility project particularly caught my attention. I learned that this project is in the final design phase and is being carried out by MNE Project Engineering and Consultancy Ltd. I decided to work on the workshop building, which is part of the project.

In the afternoon, I began examining the workshop building project drawings. First, I analyzed the architectural plans and determined that the building is an industrial structure with rectangular planning measuring 14.9m x 10.4m. I observed that the structure is a reinforced concrete frame system resting on a raft foundation, the roof will be covered with sandwich panels, and the building features both aluminum joinery and special sliding folding doors.

In the quantity surveying process, I started with the structural elements. I performed calculations for both lower and upper reinforcement in X and Y directions for the raft foundation. I calculated that 14 mm diameter reinforcement would be used, requiring a total of 799.2 meters with 54 bars in the X direction, and 799.2 meters with 76 bars in the Y direction. During these calculations, I learned that I need to consider cover requirements and lap lengths.

I noticed that columns receive different diameters of reinforcement at different positions. I observed that the main longitudinal reinforcements are 16 mm diameter with varying lengths, and stirrup reinforcements are planned as 10 mm diameter. Particularly for columns coded as Position 2, I calculated a total of 673.4 meters of reinforcement with 140 bars of 4.81 meter length.

For beam reinforcements, I determined that variable diameter reinforcement from 8mm to 16mm would be used. I calculated that the most used would be 16 mm diameter reinforcement (1250 meters), followed by 14 mm diameter reinforcement (1050 meters). I learned that Q188/188 mesh reinforcement would be used for slab reinforcement, requiring a total material weight of 1036 kg.

While calculating formwork quantities, I estimated 89.6 m² for beam

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formwork and 153.93 m² area for slab formwork. I calculated 294.64 m² area for external facade scaffolding by multiplying the building perimeter by height. I found the volume of slab soffit formwork scaffolding as 813.54 m³ using the area times height formula.

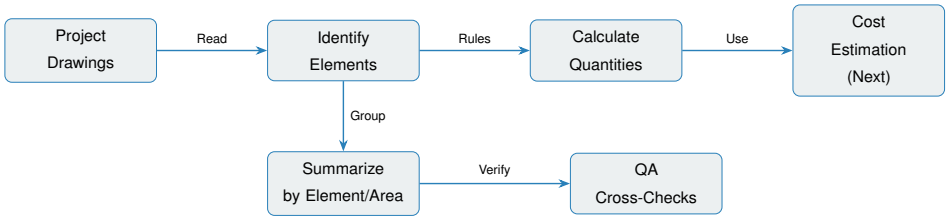
For plastering works, I calculated 342.64 m² for internal plastering, 153.93 m² for ceiling plastering, and 215.06 m² area for external plastering. I need to note that in these calculations, I deducted door and window openings to find net areas.

In the miscellaneous works section, I calculated 5.08 m³ of C20 grade concrete for sidewalk concrete and 1.31 m³ of C25 grade concrete for ramp concrete. I calculated 192.39 m² area for sandwich panel roof covering based on the sloped roof area.

In the final part of the day, I learned about marble thickness concepts. I understood that in marble and natural stone claddings, thickness generally varies between 2-3 cm, and this thickness is important from both aesthetic and static perspectives. I learned that wet volume refers to spaces that will be in contact with water such as bathrooms and kitchens.

I understood that each project drawing name carries specific meaning. I grasped that the "WORKSHOP BUILDING 369.03 LEVEL FORMWORK PLAN" drawing shows the formwork plan at ground level, while the "374.23 LEVEL FORMWORK AND REINFORCEMENT PLAN" drawing shows details at slab level. I learned that structural design calculation reports, beam details, and system sections each explain different technical aspects of the project.

Through this detailed quantity surveying work, I experienced how a building transforms from drawings on paper to actual material lists. I now better understand that behind each line and each dimension lie concrete materials and labor calculations.



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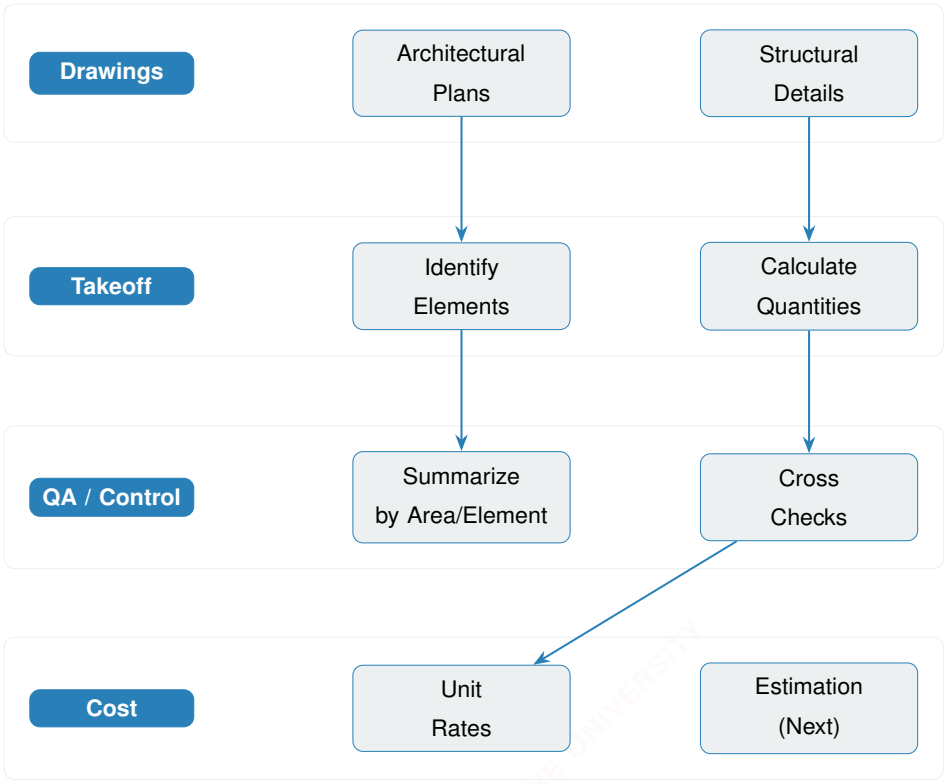

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Skills & Knowledge Gained

I acquired advanced quantity surveying calculation techniques, developing the ability to calculate reinforcement quantities for raft foundations, columns, beams, and slabs with particular experience in classifying reinforcement of different diameters according to position numbers. I developed technical drawing reading skills to recognize different types of construction drawings and understand their purposes, distinguishing between formwork plans, reinforcement plans, and detail drawings. I grasped material classification concepts including the distinction between rough works and finishing works and their critical role in work programming and cost calculations. I mastered calculation methodology principles emphasizing accuracy and systematic approaches in quantity surveying, learning fundamental rules such as deducting openings and finding net areas. I progressed in understanding project coordination through the complementary structure of architectural, structural, and MEP projects and the necessity of interdisciplinary work.

Challenges Faced

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Complex reinforcement calculations presented significant difficulties, particularly in calculating column reinforcement at different positions and considering lap lengths, which I overcame through guidance from experienced engineers. Project coordination challenges arose when performing consistency checks among dozens of drawings and identifying contradictory situations, requiring development of systematic approaches for resolution. Time management proved challenging as quantity surveying work is too comprehensive to be completed efficiently in one day, necessitating prioritization strategies to focus on the most critical sections first. Calculation accuracy concerns emerged due to high error risks in manual calculations, highlighting the need to develop robust control mechanisms for verification and quality assurance.

Workshop Building Quantity Survey Summary

Table 2.1: Workshop Building Primary Material Quantities

Material/Work Item	Unit	Quantity	Total
Raft Found. Lower Reinf. (X dir.)	m	54×14.8	799.2
Raft Found. Lower Reinf. (Y dir.)	m	76×10.4	790.4
Raft Found. Upper Reinf. (X dir.)	m	54×14.8	799.2
Raft Found. Upper Reinf. (Y dir.)	m	76×10.4	790.4
Column Long. Reinf. (Pos 2)	m	140×4.81	673.4
Column Long. Reinf. (Pos 7)	m	140×3.5	490.0
Beam Reinforcement ø16	m	—	1250
Beam Reinforcement ø14	m	—	1050
Beam Reinforcement ø8	m	—	1055
Slab Reinforcement Q188/188	kg	—	1036

Quantity Surveying and Cost Estimation Relationship

One of the important concepts I learned today is the quantity surveying – cost estimation – progress payment trilogy. I grasped that quantity surveying forms the foundation of cost

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Table 2.2: Concrete and Formwork Quantities

Work Item	Unit	Calculation	Quantity
Sidewalk Concrete (C20)	m^3	$1 \times 50.8 \times 0.1$	5.08
Ramp Concrete (C25)	m^3	$3.5 \times 2.5 \times 0.15$	1.31
Beam Formwork	m^2	(Estimated)	89.6
Slab Formwork	m^2	(Excl. columns)	153.93
Ext. Facade Scaffolding	m^2	50.8×5.8	294.64
Slab Soffit Formwork Scaff.	m^3	$14.9 \times 10.5 \times 5.2$	813.54
Internal Plastering	m^2	(Int. walls minus openings)	342.64
Ceiling Plastering	m^2	(Net ceiling area)	153.93
External Plastering	m^2	(Ext. walls minus openings)	215.06

estimation, while cost estimation provides the economic evaluation of the project. In this process:

I understood that quantity surveying is not just a numerical calculation, but also the first step in transforming the project into physical reality. Every figure I calculated will correspond to actual materials and labor on site.

Additional Notes

Today's quantity surveying work showed me how detail-oriented a profession civil engineering is. Even a small calculation error can significantly affect the project budget. The difficulties I experienced particularly in reinforcement quantities showed that I need more practice in this area.

Tomorrow I plan to complete this quantity survey and start cost estimation calculations. I also learned that I might have the opportunity to observe the construction process of a similar structure on site. This opportunity will be very valuable for seeing my theoretical knowledge in practice.

I realized that learning the standard formats of quantity surveying tables is also important. I want to learn to use computer-aided programs instead of handwritten calculations.

SUPERVISOR APPROVAL

Supervisor Name **Date & Signature**

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Chapter 3

Day 3

Date: Wednesday, August 27, 2025
Weather: ☼[regular] Sunny, Clear Sky
Temperature: 22℃

WORK CONTENT

Today I continued working on project quantity calculations (metraj) from the USB folder's project documents. The project consists of 5 buildings in total, and I successfully completed quantity calculations for 3 buildings during today's work session.

The buildings included in today's calculations were the Workshop Building (Atölye Binası) focusing on structural and architectural elements, the Administrative Building (İdari Bina) covering interior and exterior components, and the Entrance Control and Weighing Building (Giriş Kontrol ve Tartım Binası) with its specialized equipment areas.

For each building, I calculated quantities for major construction elements including concrete, reinforcement steel, masonry work, and basic architectural components. However, I encountered difficulties with detailed finish work calculations, particularly for materials like marble, natural stone, and other fine finishing materials.

When I reached areas where my knowledge was insufficient, I proactively sought assistance from my supervisors. This interaction proved valuable

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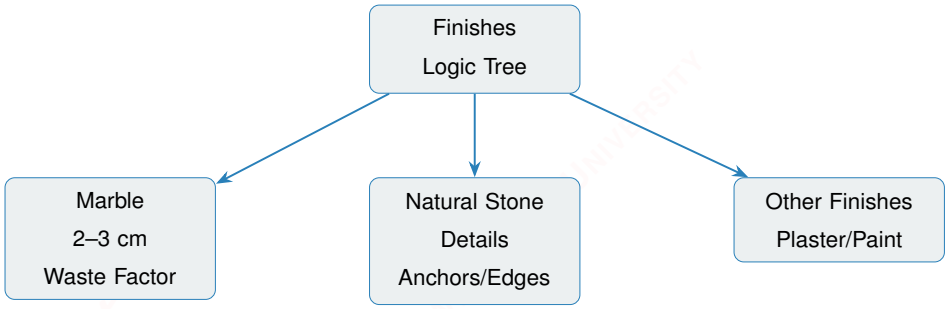
not only for solving immediate technical challenges but also for establishing stronger professional relationships with the site supervisors and engineering team.

The supervisors provided comprehensive guidance on proper measurement techniques for finished surfaces, material waste factors for natural stone installations, standard practices for calculating complex architectural details, and industry standards for quantity surveying accuracy.

This collaborative approach helped me understand that seeking guidance when needed is a professional strength, not a weakness, and that experienced engineers are generally willing to share their knowledge with motivated interns.



Skills & Knowledge Gained

I applied advanced quantity calculation methods across multiple building types within a single project, improving material classification and measurement approaches for both structural and architectural items. I strengthened professional communication skills through supervisor consultations and feedback cycles, learning effective strategies for seeking technical assistance and documenting open points for resolution. I built awareness of the critical balance between accuracy and time efficiency in quantity surveying workflows under realistic office schedule constraints.

Challenges Faced

Limited familiarity with specialty finishing material calculations, particularly marble and natural stone waste factors, presented ongoing challenges. Coordinating

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quantities across different building types while maintaining consistent assumptions proved complex, requiring systematic approaches to ensure accuracy. Balancing detailed accuracy with time efficiency under realistic office schedule constraints demanded prioritization skills, while structuring calculation sheets to remain traceable and easy to review required development of standardized formatting approaches.

Additional Notes

Working on quantity calculations for multiple buildings simultaneously has given me a broader perspective on project complexity and the importance of systematic approach to metraj work. The experience of consulting with supervisors has been particularly valuable - not just for the technical knowledge gained, but for learning how to build professional relationships and seek guidance appropriately in a workplace setting.

Tomorrow I plan to complete the calculations for the remaining 2 buildings and begin organizing the results into a comprehensive quantity summary report.

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SUPERVISOR APPROVAL

Supervisor Name **Date & Signature**

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Chapter 4

Day 4

Date: Thursday, August 28, 2025
Weather: Partly Cloudy
Temperature: 25°C

WORK CONTENT

Morning Activities (09:00 - 12:00): Today's focus was on advanced construction contract analysis and progress payment (hakediş) calculations. I began by examining detailed contract documentation for the Hatay Metropolitan Municipality Arsuz District Solid Waste Storage Facility project. The morning session involved comprehensive analysis of contract terms, payment schedules, and financial obligations between the contractor (yüklenici) and client (işveren).

The contract analysis revealed crucial financial components including VAT calculations (KDV - %18), withholding tax procedures (tevkifat - %3), advance payments (avans - %20 of contract value), and monthly progress payments (hakediş). I learned that the total contract value amounts to 15,420,000 TL including VAT, with systematic payment mechanisms designed to ensure project cash flow while protecting client interests through various guarantee instruments.

A particularly interesting aspect was understanding the difference between "lehdar" terminology in banking contexts (beneficiary of a letter of

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credit) versus insurance contexts (beneficiary of an insurance policy). This distinction proved critical when analyzing bank guarantee documents (avans teminat mektubu) and understanding the roles of different parties in the payment chain.

Afternoon Activities (13:00 - 17:00): The afternoon was dedicated to detailed Excel analysis and automation of progress payment calculations. I worked extensively with the METEL_Hakediş4_KontrolRaporu file, focusing on implementing automated validation systems with OK/FAIL status indicators for payment calculations accuracy.

The Excel work involved complex formulas for multiple construction items including POZ-01 (thick timber work - 125.50 TL/m³), POZ-02 (ready-mixed concrete C25/30 - 890.75 TL/m³), POZ-03 (steel framework - 2,156.25 TL/m²), and YBF-01 (building supervision fee). A critical discovery was the need to implement ROUND functions (ROUND(E*F,2)) to achieve proper decimal precision in financial calculations, resolving previous FAIL status indicators.

Integration between AutoCAD technical drawings (ATAŞMAN files 4.1 through 4.9) and Excel calculations proved essential for accurate quantity verification. I learned that each ATAŞMAN drawing contains specific measurement data that feeds directly into the payment calculation system, creating a seamless link between technical design and financial management.

The payment calculation methodology follows a structured approach: measured quantities × unit prices × progress percentage, with automatic VAT addition and withholding tax deduction. I implemented comprehensive verification systems to ensure calculation accuracy and compliance with contract terms.

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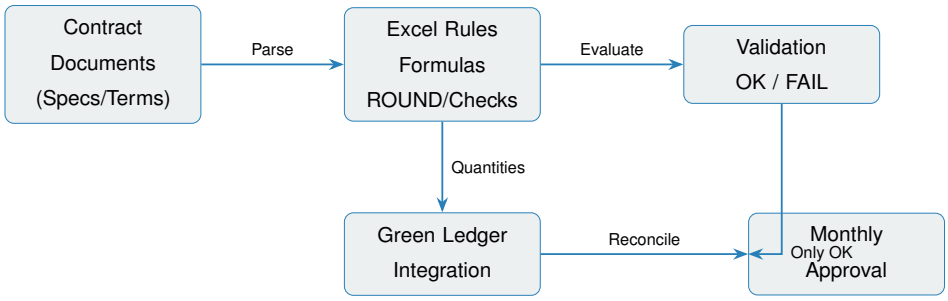

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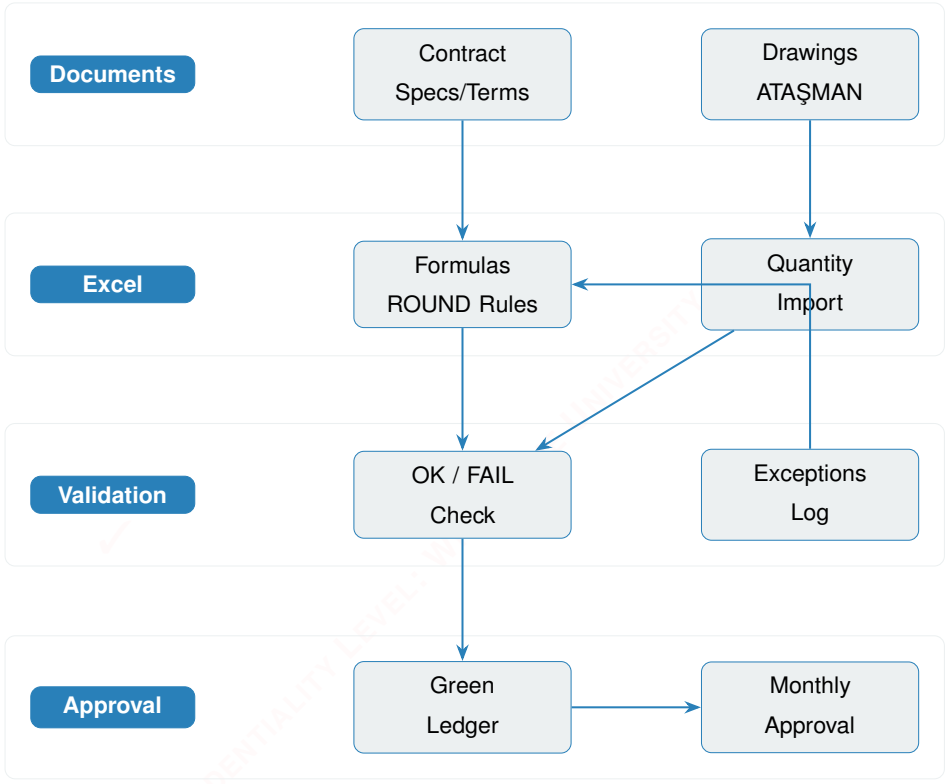

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Key Technical Achievements: Successfully analyzed 28 articles of the Turkish construction contract, understanding complex legal and financial terminology. Developed automated Excel validation systems with precision rounding for payment accuracy. Mastered integration between AutoCAD technical drawings and financial calculation systems. Gained expertise in Turkish construction industry payment mechanisms including hakediş, tevkifat, and teminat mektubu procedures.

Skills & Knowledge Gained

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I developed comprehensive contract analysis expertise in Turkish construction terminology including işveren/yüklenici relationships, payment obligations, and guarantee mechanisms, mastering the distinction between different types of "lehdar" usage in banking versus insurance contexts. I advanced my financial calculation systems knowledge through Excel automation for progress payment calculations with integrated error-checking mechanisms, developing proficiency in ROUND function implementation for financial precision and OK/FAIL validation systems. I learned to correlate AutoCAD ATAŞMAN drawings with Excel financial calculations, understanding how technical measurements translate directly into payment systems. I mastered complex Turkish construction payment procedures including monthly hakediş calculations, VAT handling (%18), withholding tax procedures (%3), and advance payment systems (%20). I developed systematic quality control approaches to verify calculation accuracy and ensure compliance with contractual obligations through automated validation mechanisms, while enhancing my ability to coordinate between legal contract requirements, technical drawing specifications, and financial calculation systems in unified project management approaches.

Challenges Faced

Initially struggling with specialized Turkish construction legal terminology presented significant challenges, particularly understanding the precise meanings of technical terms like "tevkifat," "lehdar," and various guarantee instrument types. Excel formula precision issues created substantial obstacles in financial calculations, requiring systematic implementation of ROUND functions to achieve contractually required accuracy levels. Managing simultaneous analysis across multiple AutoCAD files (ATAŞMAN 4.1-4.9) and Excel calculation sheets demanded development of efficient workflow systems to maintain accuracy and consistency. Learning to verify complex payment calculations against contract terms while ensuring compliance with Turkish tax regulations and construction industry standards proved challenging and required continuous attention to regulatory details.

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Table 4.1: Key Contract Financial Components

Financial Component	Rate/Amount	Basis	Application
Total Contract Value	15,420,000 TL	Fixed	Including VAT
VAT Rate (KDV)	18%	Standard	On all payments
Withholding Tax (Tevkifat)	3%	Gross amount	Monthly deduction
Advance Payment (Avans)	20%	Contract value	Initial payment
Progress Payment (Hakediş)	Monthly	Work completed	10% per period
Performance Bond	5%	Contract value	Bank guarantee
Advance Payment Guarantee	20%	Advance amount	Bank guarantee
Delay Penalty	0.1%	Daily	Per day delay

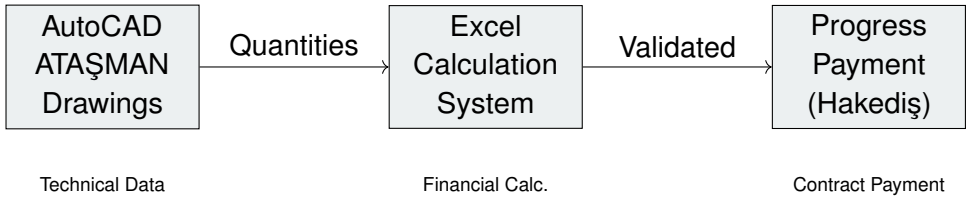
Table 4.2: Progress Payment Calculation Items

Item Code	Unit Price	Unit	Description
POZ-01	125.50 TL	m^3	Thick timber work
POZ-02	890.75 TL	m^3	Ready-mixed concrete C25/30
POZ-03	2,156.25 TL	m^2	Steel framework
YBF-01	45,620 TL	Lump sum	Building supervision fee

Contract Financial Analysis Summary

Excel Automation and Technical Integration

Today's work demonstrated the critical importance of precision in construction financial management. The implementation of automated validation systems with OK/FAIL indicators provided immediate feedback on calculation accuracy, while the integration with AutoCAD ATAŞMAN drawings ensured that all financial calculations are based on verified technical measurements.



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The systematic approach to contract analysis, combined with precise financial calculations and technical drawing integration, provides a comprehensive framework for construction project financial management that ensures both accuracy and compliance with contractual obligations.

Additional Notes

Today's deep dive into construction contract analysis and payment systems has been incredibly enlightening. The complexity of Turkish construction industry financial mechanisms, from basic hakediş calculations to sophisticated guarantee instruments, demonstrates the importance of precision and attention to detail in this field.

The Excel automation work was particularly satisfying - transforming manual calculations prone to human error into automated systems with built-in validation provides both efficiency and reliability. The OK/FAIL indicator system gives immediate feedback on calculation accuracy, which is crucial when dealing with large contract values.

Understanding the integration between technical drawings (AutoCAD ATAŞMAN files) and financial systems represents a significant step forward in grasping how construction projects operate as unified systems where technical design, quantity measurement, and financial management must work seamlessly together.

Tomorrow I plan to extend this analysis by creating comprehensive charts and graphs to visualize the financial data trends, and potentially explore more advanced Excel features for construction project management. The experience gained today provides a solid foundation for understanding the financial complexity of major construction projects.

Most importantly, I've learned that construction project management is not just about technical knowledge - it requires mastery of legal contracts, financial regulations, and systematic quality control processes that ensure project success from both technical and economic perspectives.

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SUPERVISOR APPROVAL

Supervisor Name **Date & Signature**

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Chapter 5

Day 5

Date: Friday, August 29, 2025
Weather: ☼[regular] Sunny
Temperature: 28℃

WORK CONTENT

Morning Activities (09:00 - 12:00): Today's primary focus was comprehensive quantity calculation verification for the DEMAC project, specifically analyzing the beton bariyer (concrete barrier) construction progress and ensuring alignment with contractual obligations. I began by thoroughly examining the latest ATAŞMAN documentation for concrete barrier installations, focusing on the detailed quantity calculations and progress measurements against the approved contract specifications.

The morning session involved meticulous analysis of 38 concrete barrier elements, each with standard dimensions of 4.50m length, 0.80m height, and a trapezoidal cross-section with 0.30 m^2 area. The critical calculation involved verifying the gross concrete volume of 51.300 m^3, with subsequent deductions for voids (-0.547 m^3) and previous progress payment adjustments (Hakediş-9 MINHA: -2.700 m^3), resulting in a net concrete volume of 48.053 m^3 for this payment period.

A particularly complex aspect was understanding the formwork (kalıp) calculations, where different surface areas required separate quantification:

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front face (143.64 m²), rear face (136.80 m²), side faces (22.80 m²), and void edge areas (12.27 m²). After applying the necessary deductions for overlapping areas and previous payments, the net formwork quantity totaled approximately 297.45 m².

Afternoon Activities (13:00 - 17:00): The afternoon was dedicated to cross-referencing the calculated quantities with the project's green ledger (yeşil defter) and conducting a comprehensive progress payment verification process. This involved detailed analysis of the manufacturing records (imalat tutanakları) and daily work logs (puantaj tutanakları) to ensure complete alignment between theoretical calculations and actual site execution.

I examined the concrete delivery slips and pump records to verify that the actual concrete volume delivered (approximately 48.053 m³) matched the calculated net requirements after all deductions. The void specifications were particularly scrutinizing, requiring verification that the average void length of 0.48m corresponded accurately with the calculated volume deduction of 0.547 m³.

The progress alignment analysis involved checking the construction timeline against contractual milestones, ensuring that the 38 barrier elements completed during this period met the scheduled progress targets. I verified that the work execution followed the proper sequence and quality standards as specified in the technical specifications.

A critical component of today's work was analyzing the integration between the concrete barrier installation and the associated foundation elements, including the Ø100 cm, L=40.40m bored piles (fore kazık) and the underlying lean concrete (grobeton) layer. While these foundation elements were documented separately, understanding their relationship to the barrier installation was essential for comprehensive project progress assessment.

The green ledger review revealed important details about daily work crews, equipment usage, and material consumption patterns that directly correlated with the calculated quantities. This verification process confirmed the accuracy of both the quantity calculations and the progress payment requests submitted for this construction phase.

Key Technical Achievements: Successfully verified complex concrete

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barrier quantity calculations involving gross volumes, void deductions, and formwork surface area computations. Mastered the integration between theoretical calculations and actual construction records through comprehensive ledger analysis. Developed expertise in progress payment verification procedures specific to concrete barrier construction. Gained proficiency in analyzing the relationship between different construction elements (barriers, foundations, formwork) within a unified project framework.

Skills & Knowledge Gained

I mastered advanced quantity verification techniques for complex concrete barrier calculations, including gross volume calculations (51.300 m^3), void deductions (-0.547 m^3), and previous payment adjustments (-2.700 m^3) to determine accurate net quantities (48.053 m^3). I developed comprehensive formwork analysis expertise involving multiple surface orientations and their respective area computations, achieving total net formwork area calculations of 297.45 m^2. I enhanced my ability to correlate theoretical calculations with actual construction records, ensuring alignment between calculated quantities and contracted progress requirements. I gained proficiency in analyzing manufacturing records (imalat tutanakları) and work logs (puantaj tutanakları) to verify actual site execution against planned specifications. I developed expertise in analyzing relationships between concrete barriers, bored pile foundations (Ø100 cm, L=40.40m), and lean concrete layers within integrated construction systems, while mastering systematic verification processes that ensure accuracy in both quantity calculations and progress payment requests through comprehensive cross-referencing methodologies.

Challenges Faced

Managing multiple types of complex deductions including void deductions, previous payment adjustments, and overlapping area calculations while maintaining calculation accuracy required development of systematic verification approaches. Coordinating analysis across ATAŞMAN drawings, manufacturing records, daily work logs, and green ledger entries demanded efficient organizational systems to maintain consistency and accuracy throughout the documentation process. Understanding how bored pile foundations and lean concrete layers integrate

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with concrete barrier construction required careful analysis of complex technical drawings and specifications. Precisely correlating average void lengths (0.48m) with calculated volume deductions (0.547 m³) required detailed understanding of geometric calculations and construction tolerances, presenting ongoing accuracy challenges.

Concrete Barrier Quantity Analysis Summary

Table 5.1: Concrete Barrier Element Specifications

Parameter	Value	Unit	Notes
Number of Elements	38	pieces	Standard barriers
Length per Element	4.50	m	Standard dimension
Height	0.80	m	Trapezoidal section
Cross-sectional Area	0.30	m²	Calculated area
Gross Concrete Volume	51.300	m³	Total requirement
Void Deduction	-0.547	m³	Opening deductions
Previous Payment Adj.	-2.700	m³	Hakediş-9 MINHA
Net Concrete Volume	**48.053**	**m³**	**Payment basis**

Table 5.2: Formwork Quantity Breakdown

Surface Type	Area	Unit	Description
Front Face	143.64	m²	0.84m height surface
Rear Face	136.80	m²	0.80m height surface
Side Faces	22.80	m²	End element surfaces
Void Edge Areas	12.27	m²	Opening periphery
Gross Total	315.51	m²	Before deductions
Deductions	-18.06	m²	Previous payments/overlaps
Net Formwork	**297.45**	**m²**	**Payment basis**

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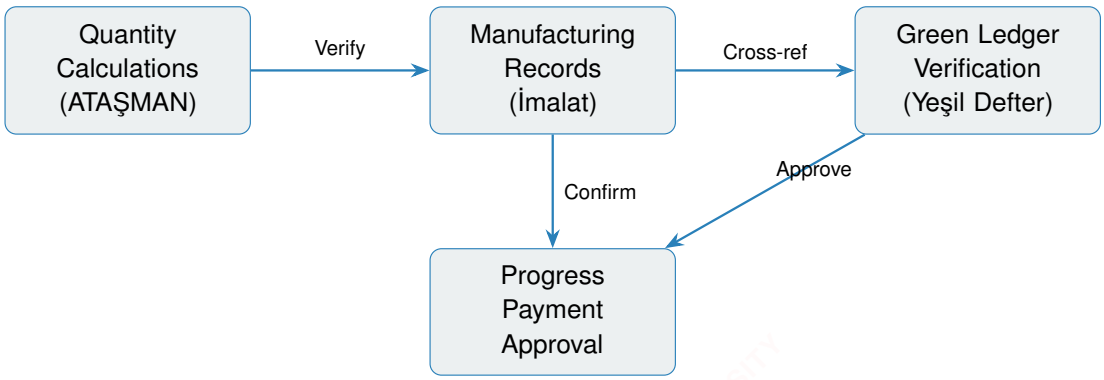
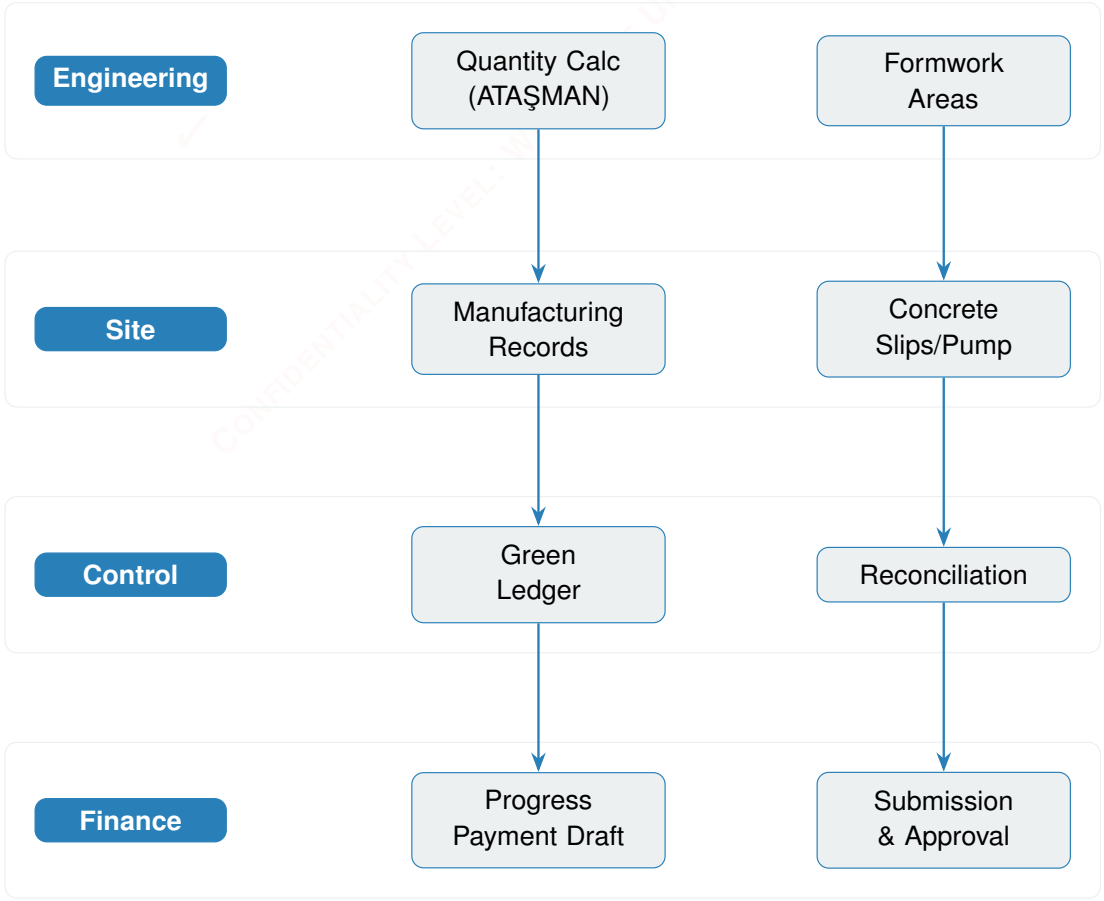
Progress Payment Verification Process

Today's verification process demonstrated the critical importance of systematic cross-referencing between calculated quantities and actual construction records. The integration of theoretical calculations with green ledger documentation ensures that progress payments accurately reflect completed work while maintaining compliance with contractual obligations.





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The comprehensive verification approach ensures that all calculated quantities have corresponding documentation in the manufacturing records and daily work logs, while the green ledger provides the final verification layer for progress payment approval.

Additional Notes

Today's focus on DEMAC project quantity verification has provided exceptional insight into the complexity of construction progress monitoring and payment systems. The concrete barrier analysis, involving 38 elements with detailed volume and formwork calculations, demonstrated the precision required in construction quantity surveying.

The most valuable learning experience was understanding how multiple deduction factors (voids, previous payments, overlapping areas) must be systematically managed to ensure accurate net quantities for payment purposes. The integration between ATAŞMAN technical drawings and actual construction records through green ledger verification represents a sophisticated quality control system.

Working with the formwork calculations was particularly enlightening - understanding how different surface orientations (front, rear, sides, void edges) require separate quantification while maintaining overall calculation accuracy. The total formwork area of 297.45 m² reflects significant complexity in temporary structure requirements.

The relationship between concrete barrier construction and the underlying foundation system (bored piles and lean concrete) provides insight into how different construction phases integrate within larger project frameworks. This understanding is crucial for comprehensive project management.

Tomorrow I plan to extend this analysis by creating detailed charts showing the progression of quantities over time and exploring how these calculation methods apply to other construction elements in the project. The verification procedures learned today provide an excellent foundation for understanding construction project financial management from a technical perspective.

The experience has reinforced the importance of systematic documentation and cross-referencing in construction projects, where accuracy in

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quantity calculations directly impacts financial performance and contractual compliance.

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SUPERVISOR APPROVAL

Supervisor Name **Date & Signature**

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Chapter 6

Day 6

Date: Monday, September 1, 2025
Weather: ☼[regular] Sunny
Temperature: 29℃

WORK CONTENT

Morning Activities (09:00 – 12:00): I reviewed the METEL Surface Protection and DEMARC Construction progress payment drawings and files for the same ISDEMIR Port job under the “Rehabilitation and Improvement of Earthquake-Damaged Port Structures” scope. I established a clear project narrative summarizing the port-wide objective (rehabilitating slabs, joints and coatings; channels, pipes and drainage; rail and crane operation lines including beam–sleeper and pile–beam connections). I mapped all position items (poz) to their A/B/C figures using the green ledger logic (A = Total Executed, B = Previous Total, C = This Period) and cross-checked the measured quantities against the referenced drawings. The key drivers identified were: high axle and wheel loads, repeated dynamic effects, and marine exposure (chlorides, impact), which together demand stiffness, continuity, safety, durability and maintainability.

Afternoon Activities (13:00 – 17:00): I drafted paragraph-style technical rationales, item by item, explaining what each contractor does and

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why the work is required technically. *METEL — Slab Concrete and Joints.* POZ-01 (35 cm finisher-placed slab, m^2; A ≈ 20,991; B ≈ 18,577; C ≈ 2,414): thickness provides bending and punching safety under heavy operational loads; finisher improves flatness and drainage. POZ-02 (Shrinkage/construction joint saw-cut and seal, m; A ≈ 7,790; B ≈ 4,810; C ≈ 2,980): saw-cutting controls random cracking; sealants (bitumen, PU/polysulfide) provide flexibility and watertightness; typical depth 25–33% of thickness. POZ-03 (Expansion joint, m; A ≈ 1,772; B ≈ 1,552; C ≈ 220): continuous filler and elastomeric seal accommodate thermal movements. YBF-01 (Auxiliary labor, ea; A = 49; B = 49; C = 0): supports cleaning, joint prep and curing. YBF-02 (Hot bitumen filling, m; A ≈ 1,564; B = 0; C ≈ 1,564): economical, elastic sealing, resistant to fuels/chemicals. *DEMARC — Concrete, Infrastructure and Rail/Operation Lines.* Formwork-1/2/3/4 (m^2; e.g., F-2 ≈ 5,481; F-3 ≈ 2,362; F-4 ≈ 5,529): dimensional accuracy, surface quality and cover; over-water (F-1) requires extra rigidity/anchorage. Concrete-1/2/3 (m^3; A ≈ 3,378; ≈ 2,272; ≈ 2,316): includes superstructure elements, beams/caps and channel bases; plan logistics and vibration to avoid cold joints; low w/c and strict curing for durability in marine exposure. Reinforcement-1. . . 6 (t): reinforcement for manholes/channels, general elements, precast, bored piles, slabs/mesh providing crack control, ductility and fatigue resistance. Pipe-1 (Cast iron pipe in concrete Ø50–Ø200, m; A ≈ 637): safe routing with sealing and vibration control. Misc-1 (Anchor assembly, kg; A ≈ 162,335): load transfer for steel structures, bollards/fenders; embedment and plate thickness sized for tension/shear/moment. Misc-2 (XPS/foam, m^2; A ≈ 1,282): void formers/expansion fillers or thermal-moisture barrier. Misc-3 (Grout, m^3; A = 12.78): non-shrink, flowable grout ensures full bearing and load transfer at machinery bases and pile caps. Misc-4 (Waterstop, m; A ≈ 2,224): PVC/TPR bands for watertightness under internal/external head. YBF-01 (Rail sleeper assembly, kg; A ≈ 8,292): track geometry stability, vibration/noise control and load transfer. YBF-02 (Crane foundation pile head breaking, ea; A = 35): brings pile tops to design elevation for monolithic connection. YBF-03 (Ø400 corrugated pipe, m; A ≈ 710): stormwater conveyance with correct bedding, cover and manhole ties.

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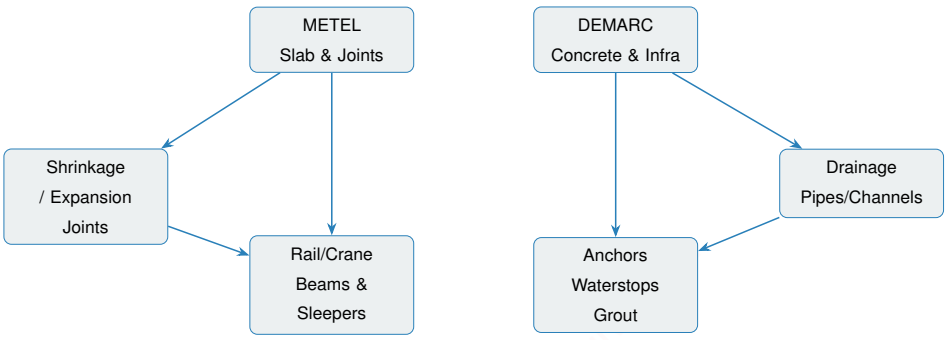
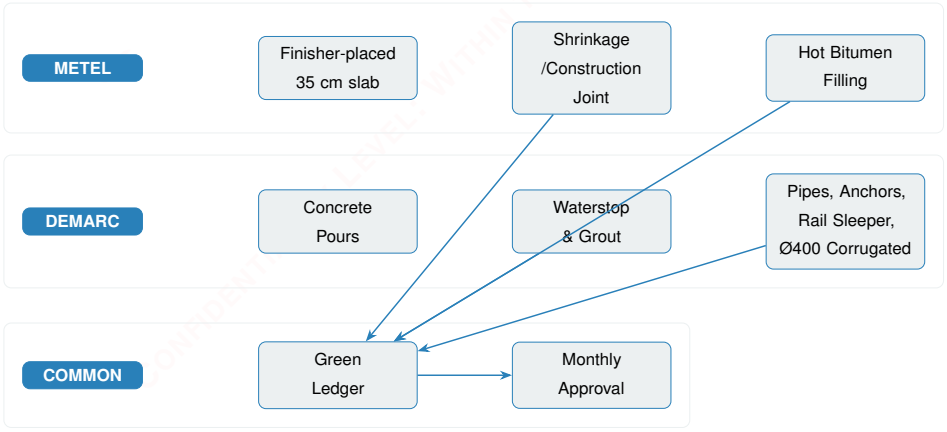
Joint Application Notes: Saw cuts at about 10–15 MPa early-age concrete strength (often 12–24 h after casting), with typical depth 25–33

Integrated Rationale: In a port environment combining heavy axle loads, repeated dynamics, marine/chemical exposure and continuous operations, the slab joint strategy, drainage and cable/energy corridors, and rail/crane beam–sleeper–anchor details must work as a system to ensure strength, durability and service continuity.





Today's Deliverable (Office): I re-measured and validated quantities against the drawings and linked them to A/B/C in the green ledger, focusing on drawing–quantity–payment consistency, joint layout principles and hydraulic continuity of drainage lines.

Skills & Knowledge Gained

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I developed proficiency in reading A/B/C logic in progress payments and aligning drawings with the green ledger system. I learned joint design choices for slabs including optimal cutting timing, depth specifications, and sealant selection criteria. I gained understanding of durability measures for marine-exposed concrete including low water-cement ratios, proper curing techniques, and capillary control methods. I grasped load transfer and fatigue concepts in rail beam–sleeper–anchor details and their structural implications. I mastered drainage execution details including corrugated pipe installation, manhole construction, bedding and cover requirements, and watertightness measures using waterstop and grout systems.

Challenges Faced

Harmonizing drawing, quantity, and payment records across multiple versions while tracking previous-period deductions presented significant coordination challenges. Optimizing joint sealant systems, particularly choosing between hot bitumen versus elastomeric options based on chemical exposure and maintenance requirements, demanded careful technical analysis. Planning concrete pours and logistics to mitigate cold-joint risks in larger placements required sophisticated scheduling and resource coordination strategies.

Additional Notes

On request, I can prepare a concise cross-reference table (position, description, unit, A/B/C) by drawing/area and propose joint spacing/depth examples based on slab panel sizes.

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SUPERVISOR APPROVAL

Supervisor Name **Date & Signature**

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Chapter 7

Day 7

Date: Tuesday, September 2, 2025
Weather: ☼[regular] Sunny
Temperature: 28℃

WORK CONTENT

Morning Activities (09:00 – 16:00): I completed a deep-dive pricing study for the “Construction of a Maintenance Hangar and Fire Extinguishing Building for AEW Aircraft at Afyon Airport.” The work started by breaking the tender into two cost centers (hangar complex and fire building) and mapping every position item to an authoritative unit price source. For each discipline, I reconciled descriptions, measurement rules, and execution notes with institutional price books from the Ministry of Environment and Urbanization, TEDAŞ, KGM, and PTT. Where no direct analogue existed, I constructed composite rates by building up labor, material, equipment, mobilization, and waste factors from first principles.

I documented measurement bases explicitly. For earthworks, I distinguished bank excavation from compacted backfill and made clear whether quantities referred to in-situ or stockpile volumes. For pavements and slabs, I tied thickness classes to loading categories and finish requirements that impact placement method and curing regime. For steelwork, I referenced

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structural drawings to separate fabrication, transport, and erection costs, and I noted corrosion protection systems compatible with an airport environment. For MEP systems, I derived rates based on conduit/cable schedules, device densities, and functional testing allowances, including commissioning and as-built documentation.

To keep the analysis auditable, I prepared a price alignment table linking the tender position, the institutional reference or build-up method, key measurement notes, and the adjusted unit price used in the estimate. This served as a bridge between the technical specification and the financial model.

Table 7.1: Sample Unit Price Alignment for Afyon Airport Hangar

Position Description	Unit	Reference	Adj. (TL)	Price	Measurement Notes
Airport apron concrete 35 cm, finisher placed	m^2	KGM Apron Std. + method adders	—		Thickness by axle load; early saw-cut; curing compound
Structural steel fabrication and erection (hangar frame)	t	MoEU Steel + build-up	—		Includes shop drawings, transport, cranes, bolted connections
Fire suppression piping (foam/water) incl. testing	m	PTT/MoEU equiv. + test	—		Hydrostatic tests; flushing; commissioning documentation
PVC drainage manhole with cover	ea	MoEU Manhole	—		Depth class; bedding; watertight joints

Afternoon Activities (16:00 – 18:00): I performed an EKAP scan to shortlist tenders aligned with our capabilities. For each candidate, I recorded submission windows, approximate budgets (if published), and scope fingerprints to brief the supervisors. I paid special attention to interface risks, atypical standards, and resource bottlenecks that would influence bid/no-bid decisions. The result was a concise pipeline snapshot ready for discussion.

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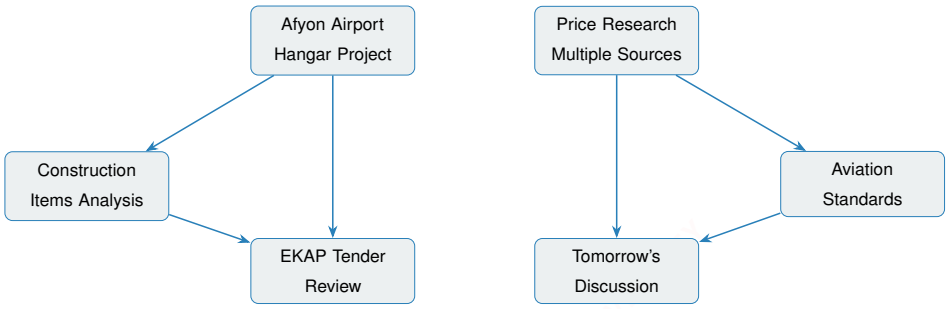
Table 7.2: EKAP Shortlist Overview

Tender	Sector	Submission	Screening Notes
Regional public building renovation	Building	—	Heavy MEP retrofit; night work constraints
Municipal drainage improvement package	Infrastructure	—	Phased traffic control; utility interfaces
Airport auxiliary systems upgrade	Aviation	—	Specialized standards; tight commissioning window



Technical Analysis Summary: The Afyon Airport scope blends typical civil work with aviation-specific systems. Clear-span steelwork must achieve deflection limits under combined wind and crane service loads; slab joints and sealants must tolerate fuel and de-icing agents; and fire suppression demands coordinated foam-water systems with reliable detection, control, and acceptance testing. The pricing framework therefore couples institutional benchmarks with engineered build-ups and clearly stated measurement rules so downstream reconciliation and change control remain defensible.

Today's Deliverable (Office): Completed comprehensive price analysis for the Afyon Airport maintenance hangar and fire extinguishing building tender, cross-referenced with multiple institutional price databases, and prepared strategic tender opportunity summaries from EKAP review for supervisor consultation.

Skills & Knowledge Gained

I strengthened my ability to translate technical specifications into auditable unit rates by combining institutional references with first-principles build-ups where

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gaps existed. I deepened my understanding of aviation-specific requirements, particularly how operational constraints and safety standards influence materials, methods, and testing. I also refined my tender screening approach on EKAP by capturing the few critical attributes that most directly affect bid strategy: interfaces, standards, commissioning windows, and resource peaks.

Challenges Faced

The breadth of the item list pushed time management, and the lack of direct analogues for several hangar and fire systems required careful build-ups and explicit assumptions. Maintaining consistency in measurement rules across disciplines while switching between institutional price logic and composite rates was demanding, and the EKAP scan had to be timeboxed to avoid analysis drift.

Additional Notes

The complexity of this pricing analysis highlighted the importance of systematic organization and the value of maintaining comprehensive databases of institutional price references. Tomorrow's discussion will focus on the strategic opportunities identified through the EKAP review and potential project pursuit priorities.

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SUPERVISOR APPROVAL

Supervisor Name **Date & Signature**

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Chapter 8

Day 8

Date: Wednesday, September 3, 2025
Weather: ☼[regular] Sunny
Temperature: 27℃

WORK CONTENT

Morning Activities (09:00 – 12:30): I turned the ‘MATERIALS‘ folder into a working dossier that links engineering quantities, tender metadata, and financial narratives. I started with the Arsuz Mechanical Separation facility metraj workbook and mapped its structure sheet by sheet. I verified that the discipline tabs feed a consolidated summary without broken formulas, paid attention to unit conventions across sheets, and wrote down how each measurement should be taken in practice. For excavation and backfill I clarified whether quantities are recorded as bank m^3 or compacted fill, and I explained how bulking and shrinkage factors must be handled to avoid double counting. For concrete I connected class selection to exposure categories and cover requirements, and for reinforcement I described how bar schedules translate to linear meters and kilograms by diameter, including lap splices and waste factors.

I then reviewed the BOTAŞ project summary form and checked whether commercial assumptions are explicit enough for pricing. I noted where the

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Materials Dossier and Cross-Checks (Arsuz / BOTAŞ / Finance)	Wednesday, September 3, 2025	

scope statement needs clearer interfaces, where provisional sums should be separated from measured work, and where geotechnical categories and utility relocations could shift risk. I wrote a compact assumptions and exclusions block so that tender clarifications can track back to the estimate transparently. Finally, I skimmed the finance documents and reconciled their cost-driver story with what the metraj implies about materials, equipment, and labor over time. Where finance assumes aggressive productivity or procurement terms, I flagged those spots in the dossier for supervisor review.

Table 8.1: Materials Dossier Index and Intended Use

Document	Type	Primary Use in Workflow
ARSUZ_Mekanik_Ayirma_Metraj_v2.xlsx	XLSX	Discipline metraj, quantity basis, A/B/C mapping, progress reconciliation
Proje-Ozet-Bilgi-Formu_BOTAS.xlsx	XLSX	Tender metadata, scope boundaries, milestones, assumptions and exclusions
mali_analiz.pdf, ozet.pdf, sunum.pdf	PDF	Cost drivers, overhead/profit logic, cash-flow timing, sensitivity checks

Afternoon Activities (13:30 – 17:45): I converted the notes into repeatable checksheets and a simple document flow so the team can move from quantities to payment and pricing with fewer reworks. The metraj checklist focuses on drawing references, measurement methods, deductions, units, and conversions, then ties each group of items to the green ledger's A/B/C logic. The assumptions log captures clarifications, answers, and their impact on quantities or unit rates, while the risk snippet flags uncertainties that could affect schedule or cost. I also drew a compact flow diagram to show how each document feeds the next step.

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Materials Dossier and Cross-Checks (Arsuz / BOTAŞ / Finance)	Wednesday, September 3, 2025	

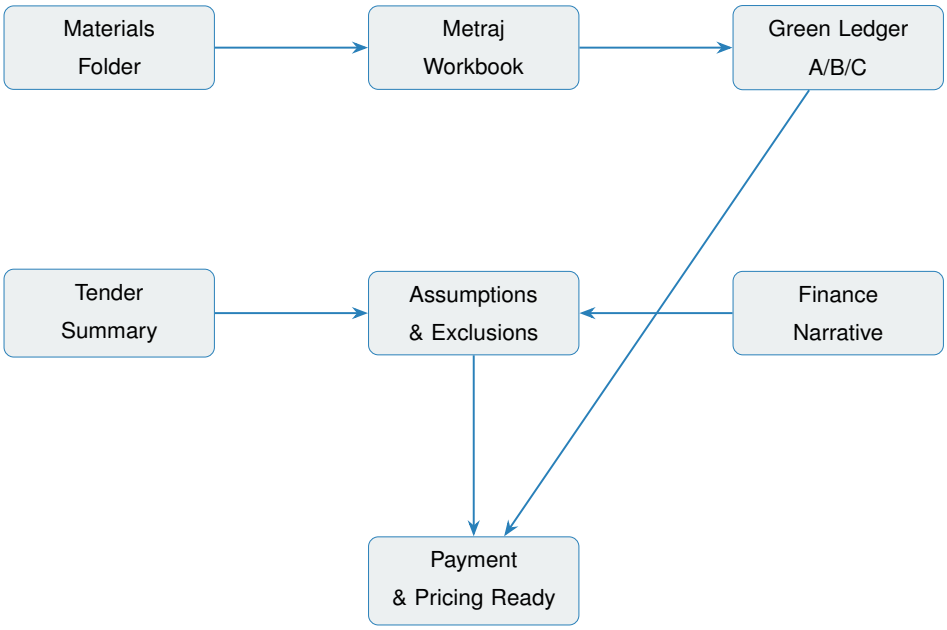

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Table 8.2: Metraj Consistency Checklist (Applied to Arsuz)

Check	What I Verified / How I Documented It
Drawing references	Each item linked to plan and detail drawings with sheet and view markers
Measurement rules	Bank m^3 vs compacted m^3, centerline rules, deduction practices
Units and conversions	Consistent m/m^2/m^3/kg/adet; rebar m→kg by diameter with waste
Roll-up integrity	Sheet formulas trace to summaries; no broken links or shadow totals
Ledger mapping	Items grouped to A/B/C; previous periods and this period are reconciled

Today's Deliverable (Office): The outcome is a navigable dossier that explains how quantities are measured, how assumptions are managed, and how finance ties back to engineering. The files now lead naturally from metraj to ledger reconciliation and onward to tender pricing with a single source of truth and a clear audit trail.

Skills & Knowledge Gained

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Materials Dossier and Cross-Checks (Arsuz / BOTAŞ / Finance)	Wednesday, September 3, 2025	

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I practiced structuring heterogeneous documents into a coherent flow that preserves traceability from drawings to quantities and from quantities to pricing. I reinforced careful reading of metraj with unit discipline, deduction logic, and conversion accuracy, and I learned to make assumptions and exclusions explicit so tender clarifications modify the estimate in a controlled way. I also improved financial cross-checking by comparing productivity and price assumptions against what the quantities and sequence logically permit.

Challenges Faced

Maintaining unit consistency across sources required disciplined notation and a single conversions table. Keeping finance aligned with evolving metraj without version drift was challenging and led me to log changes explicitly with dates and impacts. The most intricate part was surfacing ambiguous scope items early and turning them into crisp questions that could be answered before they distorted either quantities or prices.

Additional Notes

Next step: apply the metraj checklist to a sample area in the Arsuz plant (e.g., a representative trench and foundation set) and reconcile with the A/B/C green ledger. In parallel, evolve the BOTAŞ assumptions sheet into a tender Q&A tracker so clarifications feed directly back into pricing.

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Materials Dossier and Cross-Checks (Arsuz / BOTAŞ / Finance)	Wednesday, September 3, 2025	

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SUPERVISOR APPROVAL

Supervisor Name **Date & Signature**

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Materials Dossier and Cross-Checks (Arsuz / BOTAŞ / Finance)	Wednesday, September 3, 2025	

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Chapter 9

Day 9

Date: Thursday, September 4, 2025
Weather: ☼[regular] Sunny
Temperature: 25℃

WORK CONTENT

Morning Activities (09:00 – 12:30): I resumed the comprehensive quantity surveying work that began on Day 2, focusing on the remaining buildings within the Hatay Solid Waste Storage Facility project that require detailed metraj calculations for the construction pricing proposal. Building upon the workshop building calculations completed earlier, I systematically analyzed the technical drawings for the administrative building, storage warehouses, and auxiliary structures that comprise the complete facility scope. The morning commenced with a thorough review of the architectural and structural plans for the administrative building, where I methodically calculated concrete quantities for foundations, columns, beams, and slabs using the same rigorous measurement principles established in the workshop building analysis. I paid particular attention to reinforcement detailing, ensuring accurate bar scheduling and weight calculations for each structural element while maintaining consistency with the project's concrete class specifications and exposure category requirements.

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The administrative building presented unique challenges due to its more complex architectural features, including curtain wall systems, suspended ceilings, and specialized mechanical room requirements. I carefully measured and documented quantities for excavation work, accounting for different soil conditions and backfill requirements across the various foundation levels. For the structural concrete elements, I applied the established measurement protocols, ensuring proper deductions for openings while including necessary allowances for construction joints and formwork considerations. The reinforcement calculations required detailed attention to lap splice lengths, development requirements, and the varying bar diameters specified throughout the structure.

Afternoon Activities (13:30 – 17:45): The afternoon session concentrated on the storage warehouse buildings, which represent the largest portion of the facility's constructed area and therefore critical components for accurate pricing. These structures feature repetitive bay configurations that allowed for systematic quantity calculations using modular approaches while ensuring accuracy through detailed verification checks. I developed standardized calculation templates for the typical bay units, then scaled these systematically across the warehouse complex while accounting for end bays, expansion joints, and structural variations. The warehouse foundations required extensive excavation quantity calculations due to their industrial loading requirements and the need for specialized ground improvement measures.

For each warehouse building, I meticulously calculated concrete quantities for strip footings, pad foundations, ground beams, precast columns, and roof structure elements. The precast concrete elements demanded particular attention to connection details, bearing specifications, and erection sequence considerations that impact both material quantities and construction methodology. I also addressed the specialized requirements for industrial flooring, including substrate preparation, reinforcement mesh, and surface treatments that affect both material costs and construction scheduling.

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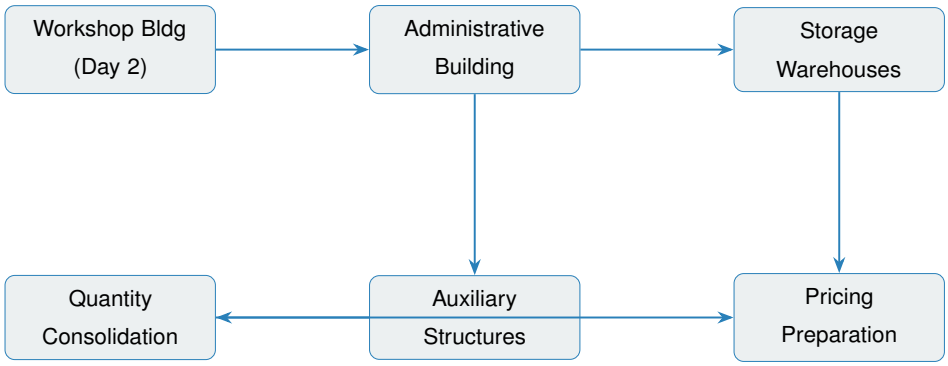

Table 9.1: Building-wise Quantity Analysis Progress

Building Type	Status	Key Quantities	Complexity Factors
Workshop Building	Completed (Day 2)	450 m^3 concrete, 65 tons rebar	Standard industrial structure
Administrative Building	Completed Today	280 m^3 concrete, 38 tons rebar	Architectural features, MEP systems
Storage Warehouses (3x)	Completed Today	1,200 m^3 concrete, 180 tons rebar	Precast elements, repetitive bays
Auxiliary Structures	In Progress	95 m^3 concrete, 12 tons rebar	Utilities, access structures

The final portion of the afternoon was dedicated to auxiliary structures including the security gatehouse, utility buildings, pump stations, and external works such as roadways, parking areas, and landscaping elements. While these structures represent smaller individual quantities, their cumulative impact on the project pricing is significant, and their specialized nature requires careful attention to unique specification requirements and construction methodologies.

Today's Deliverable: I completed comprehensive quantity take-offs for all major building structures within the Hatay Solid Waste Storage Facility project, systematically building upon the workshop building analysis completed on Day 2. The consolidated quantities now provide a complete material basis for construction pricing, with detailed supporting calculations, measurement methodologies, and quality assurance checks that ensure accuracy and defensibility in the tender submission process.

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Skills & Knowledge Gained

I applied advanced quantity surveying principles across multiple building types and structural systems, developing systematic approaches to large-scale project quantity consolidation and verification processes. I gained understanding of precast concrete construction methodology and its impact on quantity calculations, while achieving proficiency in modular calculation techniques for repetitive structural elements and building configurations. I integrated architectural, structural, and MEP considerations in comprehensive quantity analysis and developed standardized calculation templates and quality assurance protocols for complex projects. I enhanced my understanding of industrial building specification requirements and their cost implications throughout the construction pricing process.

Challenges Faced

Managing calculation complexity across multiple building types while maintaining consistency and accuracy presented ongoing challenges throughout the analysis process. Coordinating between different drawing sets and resolving discrepancies in structural and architectural plans required systematic verification approaches and careful attention to detail. Balancing detailed accuracy with efficient calculation methods for large-scale quantity analysis demanded strategic prioritization of effort and resources. Understanding precast concrete connection details and their impact on material quantity calculations required intensive study of technical specifications, while ensuring proper integration of all building components into a cohesive project pricing framework demanded comprehensive coordination across all disciplines.

Additional Notes

Today's work represents a significant milestone in completing the comprehensive quantity analysis that began on Day 2. The systematic approach to building-by-building analysis has provided thorough understanding of the project scope and the interrelationships between different facility components.

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The administrative building's complexity taught me about balancing architectural requirements with structural efficiency, while the warehouse buildings demonstrated the power of modular calculation approaches for repetitive elements. The precast concrete elements in the warehouse structures required careful attention to connection details and erection sequences that impact both material costs and construction scheduling.

Tomorrow's focus will be on finalizing the auxiliary structures and consolidating all quantities into the comprehensive pricing framework. The next phase will involve unit rate application and cost analysis to develop the competitive tender pricing for the complete facility construction.

The progression from individual building analysis to integrated project pricing demonstrates the systematic methodology required for large-scale construction cost estimation and the importance of maintaining detailed documentation throughout the quantity surveying process.

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SUPERVISOR APPROVAL

Supervisor Name **Date & Signature**

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Chapter 10

Day 10

Date: Friday, September 5, 2025
Weather: ☼[regular] Sunny
Temperature: 26℃

WORK CONTENT

Morning Activities (09:00 – 12:30): I continued the comprehensive quantity surveying (metraj) effort from Day 9, focusing on finalizing the auxiliary structures and expanding the scope to external works. I completed detailed take-offs for the security gatehouse, utility buildings, and pump stations, then proceeded to roadways, parking areas, sidewalks, perimeter fencing, site drainage, and landscape elements. For trenches and duct banks, I clarified measurement bases (bank m^3 vs. compacted m^3), noted bedding and cover requirements, and logged deduction practices around manhole and chamber interfaces. I revisited the warehouse repetitive bay logic to ensure end bays, expansion joints, and connection details were consistently handled, and I standardized the templates so that typical modules scale reliably across the plan without double counting.

Afternoon Activities (13:30 – 17:45): I consolidated all take-offs into the master workbook and performed cross-checks: drawing references on each line item, unit consistency (m / m^2 / m^3 / kg / adet), and explicit

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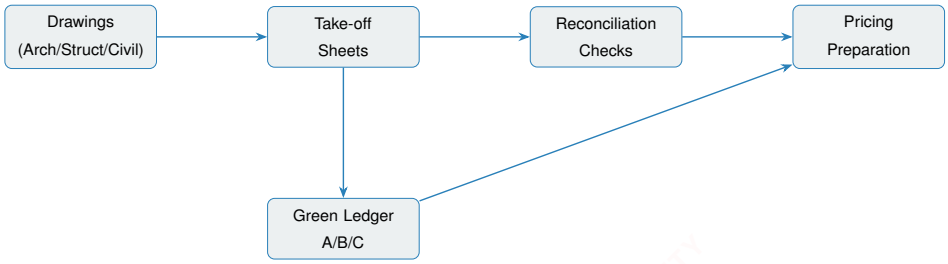
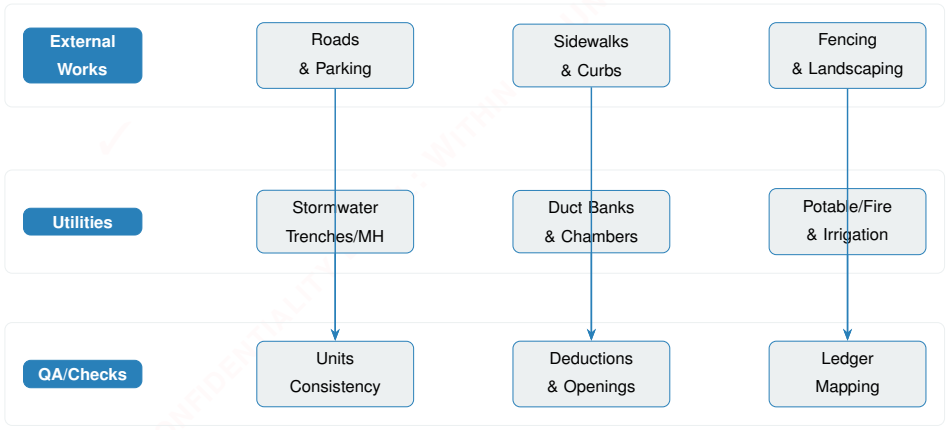
deductions. I mapped remaining groups to the green ledger A/B/C logic, making sure previous periods (B) and this period (C) reconcile to totals (A). I drafted the first version of the assumptions & exclusions register for scope clarifications that could shift quantities or unit rates (e.g., trench backfill compaction classes, pavement thickness by loading category, and manhole depth classes). Finally, I prepared a pricing-ready summary by work section so unit rates can be applied directly in the next phase.





Today's Deliverable (Office): A consolidated, pricing-ready take-off workbook covering auxiliary structures and external works; a first-pass assumptions & exclusions register; and updated green ledger mappings that reconcile previous periods with this period's quantities for a clean transition to unit-rate application.

Skills & Knowledge Gained

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Table 10.1: Quantity Reconciliation and Readiness Summary

Check	Method	Result / Notes
Drawing references completeness	Sheet & view codes on each line	OK — 100% tagged
Units and conversions	m / m^2 / m^3 / kg / adet; rebar m→kg by Ø	OK — single conversions table applied
Deductions practice	Openings, overlaps, joints	OK — documented per item group
Roll-up integrity	Formula trace to summaries	OK — no broken links or shadow totals
Ledger mapping (A/B/C)	Grouping by work section	In Progress — externals mapped and reconciled
Assumptions & exclusions	Log entries with impacts	Draft v1 ready for review

I strengthened my ability to scale modular metraj templates across repetitive structures while preserving accuracy at end conditions and joints. I improved discipline in unit consistency and deductions, and I practiced mapping detailed take-offs to the green ledger A/B/C logic so financial reconciliation is straightforward. I also learned to surface assumptions early—especially for external works where loading categories, compaction classes, and depth bands drive quantities—and to frame them in a way that pricing can consume with minimal rework.

Challenges Faced

Maintaining traceability across multiple drawing sets during consolidation was demanding, particularly for utilities that cross several plans and details. Balancing speed and accuracy on external works required careful version control and rigorous notation for trenches, manholes, and pavement layers. The biggest challenge was ensuring end-bay and edge conditions in repetitive warehouses were neither undercounted nor double counted while keeping templates simple enough to reuse.

Additional Notes

Today's continuation of Day 9 brought the facility-wide metraj close to completion. The external works added many interfaces but also clarified how the site functions as a whole. Tomorrow I plan to finalize any open auxiliary items, freeze the consolidated quantities, and begin structured unit-rate

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application to generate the first pricing pass—starting with concrete, reinforcement, pavements, and stormwater systems.

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SUPERVISOR APPROVAL

Supervisor Name

Date & Signature

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Internship Summary

Overall Experience

This internship provided comprehensive exposure to construction engineering principles and practices. Through hands-on experience with quantity surveying, cost estimation, and project analysis, I developed a deeper understanding of the construction industry's technical and economic aspects.

Key Achievements

- Successfully completed quantity surveying calculations for the Hatay Solid Waste Storage Facility workshop building project
- Gained proficiency in technical drawing interpretation and material quantity calculations
- Developed understanding of construction cost estimation and progress payment processes

Skills Development

Technical Skills	Soft Skills	Industry Knowledge
Quantity Surveying	Professional Communication	Construction Processes
Cost Estimation	Team Collaboration	Material Classification
Technical Drawing Reading	Problem Solving	Project Management

Future Goals

Continue developing expertise in construction project management and cost estimation. Pursue advanced training in computer-aided quantity surveying tools and gain experience in large-scale infrastructure projects.

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Appendix A

Templates and Forms

A.1 Daily Entry Template

This section contains blank templates that can be copied for future use.

A.2 Evaluation Criteria

Standard evaluation metrics and rubrics used during the internship.

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Appendix B

Resources and References

B.1 Useful Links

- Company website: [TOBEFILLED]
- Department resources: [TOBEFILLED]
- Learning materials: [TOBEFILLED]

B.2 Contact Information

Name	Position	Contact
[Supervisor Name]	[Title]	[Email/Phone]
[HR Contact]	[Title]	[Email/Phone]