



NATIONAL OCCUPATIONAL STANDARD

**PRECAST CONCRETE ELEMENT ASSEMBLER
LEVEL 3**

REFERENCE CODE / 12UMS0247-3

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Occupation:	PRECAST CONCRETE ELEMENT ASSEMBLER
Level:	3¹
Reference Code:	12UMS0247-3
Prepared by:	The Turkish Employers Association of Construction Industries (INTES)
Verified by:	VQA Construction Sector Committee
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¹ Occupational Qualification Level is determined as Level Three (3) in the octal (8) level matrix.

TERMS, SYMBOLS AND ABBREVIATIONS

POST-TENSIONING: the operation of drawing pre-tensioning steel through gaps left inside after concrete is poured and reached to adequate resistance level,

BACKFILL AND SERVICE ROADS: roads for transporting manufactured components to mounting area,

DISPATCH LIST: document on which list of materials sent to construction site is written,

ISCO: International Standard Classification of Occupations,

OHS: Occupational Health & Safety

PILING: Stockpiling materials on each other,

LIFTING HOOKS: Means components left during the production to assist removing the product from the formwork, during transportation and mounting,

PERSONAL PROTECTIVE EQUIPMENT (PPE): All kinds of tools, instruments, appliances and devices which are worn, put on or hold by the worker and which protect the worker from one or more hazards arising from the work and effect the health and safety of the worker, and which are designed to suit such purpose,

SUPPORTING WEDGE: auxiliary component used for stockpiling products,

SUPPORTING: Means fixing of prefabricated components on the stock area and during the installation at the described distance,

PIN: Connection element placed into the product during production in order to assist the installation,

POS NO: name and brand of each component as specified in the project,

RISK: Means probability of occurrence of a hazardous event and combination of results.

HAZARD: Potential of damage or injury likely to affect the worker or workplace and likely to exist in the workplace or to be caused externally,

CONSTRUCTION ELEMENT: component used in the structure manufactured as in the type of prefabricated and/or to-pour on site

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1. INTRODUCTION

National occupational standard on precast Concrete Unit Assembly Worker (level 3) is issued by Turkish Employer's Union of Construction Industry (INTES) assigned by Vocational Qualifications Agency in accordance with provisions of "Directive on Drawing National Occupational Standards" and "Directive on Procedures and Fundamentals of establishment, assignment and works of Committees under Vocational Qualifications Agency" published pursuant to 5544 numbered Law on Vocational Qualifications Agency and mentioned law.

National occupational standard on precast concrete unit assembly worker (level 3) is considered by asking opinions from relevant institutions and organizations in the sector and approved by Vocational Qualifications Agency Executive Board upon inspection by Turkish Employer's Union of Construction Industry (INTES).

2. INTRODUCTION OF THE OCCUPATION

2.1. Definition of the Occupation

Precast concrete unit assembly worker (level 3) is a qualified person, who takes required OHS and environmental actions, makes work organizations regarding his job within the scope of quality systems, carries out preparation operations prior to assembly of precast concrete units, makes assembly of them and attends to activities required for his professional development.

2.2. Place of the Occupation in International Classification System

7114 (Concrete placers, concrete finishers and related workers)

2.3. Regulations on Health, Safety and Environment

Labor Law No. 4857

Social Security and General Health Insurance Law No.5510

Occupational Health and Safety Law No. 6331

Regulation on Heavy and Dangerous Works Regulation on Safety and Health Signs

By Law on the Health and Safety Conditions when using Business Equipment

Occupational Safety and Health Regulation

By Law on the Usage of Personal Protective Equipment in the Business Places

By Law on Occupational Health and Safety in Construction Works

By Law on Health and Safety in Construction Works

Regulation on Control of Hazardous Wastes Furthermore, it is essential to obey laws, statutory rules and regulations on occupational health and safety and environment; and to perform risk analysis regarding this issue.

2.4. Other legislation relating to the occupation

TS EN 13198 Precast Concrete Products - Household furniture and garden products

TS EN 13369 Precast Concrete Products – General Rules

TSE K 118 Precast Reinforced Concrete Construction Elements – Quality Management Systems

Furthermore, other applicable legislation, laws, bylaws, and regulations regarding the occupation should be complied with.

2.5. Working Environment and Conditions

Working environments of a precast concrete unit assembly worker (level 3) are usually hot, dangerous, noisy, dusty, rather dirty places where should be well ventilated. He might not only work in a workshop but also outdoor and at height. There are risks of accident and getting injured during performance of works and these require being taken of measures regarding occupational health and security.

2.6. Other Requirements Regarding the Occupation

Precast concrete unit assembly worker should have no height phobia and bear a report with “Employment and/or Periodic Examination form for whom to work in heavy and dangerous duties” title.

3. OCCUPATIONAL PROFILE

3.1. Duties, Tasks and Performance Criteria

Duties		Tasks		Performance Criteria	
Code	Name	Code	Name	Code	Description
A	Doing work organization (continues)	A.1	To take measures towards occupational health and safety	A.1.1	Has knowledge about risk factors in the work environment
				A.1.2	Uses necessary PPEs for occupational health and safety
				A.1.3	Informs the authorized person regarding the troubles, which could constitute problems
				A.1.4	Avoids behaviors, which could cause accident, pays attention to and complies with measures
				A.1.5	Ensures that only related persons are present at the worksite
				A.1.6	Keeps ready first aid kit and fire extinguisher
				A.1.7	Takes with the communication devices (wireless, telephone etc.)
				A.1.8	Does the necessary safety equipment control at the workplace according to the instructions of the work safety expert.
				A.1.9	Ensures keeping the work areas clean and tidy.
				A.1.10	Uses safety belts when working at high places and places where it is difficult to ensure stability
				A.1.11	Takes necessary measures against the danger of fire
				A.1.12	Provides keeping the dangerous materials at a safe place
				A.1.13	Appropriates materials of occupational health and safety and keeps them in closed areas.

Duties		Tasks		Performance Criteria	
Code	Name	Code	Name	Code	Description
A	Doing work organization	A.2	To take information regarding the work to be done	A.2.1	Takes information written or verbally from the related authorities regarding the work to be performed.
				A.2.2	Determines the program regarding the work
				A.2.3	Reports the daily works to the superiors
		A.3	To make preliminary preparations done before shipment to construction site	A.3.1	Makes his preparations for mounting according to assembly works schedule in accordance with the instructions of his superiors.
				A.3.2	Arrives to assembly site and checks if service roads and construction site is ready for assembly operation
				A.3.3	Receives foundations by having their application done
				A.3.4	Ensures that tools and instruments (rope, wedge, etc) to be used in mounting are supplied in time.
		A.4	To contribute decreasing of environmental risks	A.4.1	Does the necessary separation and classification for recycling of recyclable materials
				A.4.2	Separates dangerous and hazardous materials from other materials according to the instructions and ensures storages by taking necessary precautions.
		A.5	To apply technical procedures to ensure quality	A.5.1	Applies technical procedures to ensure quality according to the type of work
				A.5.2	Provides fulfillment of quality conditions during procedures.

Duties		Tasks		Performance Criteria	
Code	Name	Code	Name	Code	Description
B	Making preparations prior to assembly	B.1	To make required controls before starting mounting operation	B.1.1	Compares pos numbers on the dispatch list with components transported to construction site and checks their conformity.
				B.1.2	Checks if construction equipments are delivered in the quantity as specified in dispatch list.
				B.1.3	Ensures that auxiliary materials to be used in assembly operation (wedge, bolt, bracket tape, beam, electrode, supporting wedge, etc) are available in sufficient quantities
				B.1.4	Inspects sketches and details of relevant project application and makes preparations before starting assembly operation.
				B.1.5	Ensures that appropriate equipment is used by checking equipments and materials to be used in assembly operation.
				B.1.6	Ensures that construction site cleaning is performed in accordance with relevant operating instructions.
		B.2	To read instructions regarding materials to be mounted	B.2.1	Checks conformity of all products to be mounted with project and instructions.

Duties		Tasks		Performance Criteria	
Code	Name	Code	Name	Code	Description
C	Ensuring the assembly done	C.1	To ensure that assembly works are performed in accordance with the instructions	C.1.1	Ensures that precast construction units to be assembled are unloaded and piled to assembly area in accordance with the instructions.
				C.1.2	Performs or cause to perform assembly operations in accordance with their project and assembly instructions so as not to exceed specified tolerances.
				C.1.3	Performs or cause to perform required repair and correction works in connection with the damages on products occurred during transport and assembly.
				C.1.4	Ensures completion of work by taking required safety actions around it if there is post-tensioning operation
		C.2	To make controls during assembly	C.2.1	Checks materials and equipments during assembly
		C.3	To take required action in case of an incompatibility	C.3.1	Reports failure to authorized persons and ensures rectification of the failure in case of a failure detected on assembly equipments.
				C.3.2	Halts assembly operation and reports to authorized persons in case of incompatibility
		C.4	To make environmental cleaning done after assembly	C.4.1	Ensures that site cleaning is performed
				C.4.2	Ensures that solid wastes produced in the area of manufacture are separated and sorted by their types

Duties		Tasks		Performance Criteria	
Code	Name	Code	Name	Code	Description
D	Taking part in the occupational development activities	D.1	To perform studies on personal occupational development.	D.1.1	Participates in the trainings related to his occupation and keeps the certificates he obtains.
				D.1.2	Follows up new technologies and developments related to his occupation.
				D.1.3	Shares his/her knowledge and experience with his/her colleagues.

3.2. Tools, Appliances and Equipment Used

1. Wooden wedge
2. Warehouse Exit Form
3. Breakdown Report Form
4. Hammer
5. Concrete Drills and Bits
6. Steel Rope
7. Steel measuring tape
8. Level line
9. Electrical stone cutter
10. Set-square
11. Lifting apparatus
12. Personal protective equipment (helmet, protective glove, ear protectors, steel toe shoes, luminous vest, safety belt, dust glasses, dust mask, protective clothes and etc.)
13. Caliper
14. Mechanical concrete crusher and bits
15. Measuring tape
16. Leveling rod
17. Leveling instrument
18. Project file
19. Bubble level
20. Supporting wedge
21. Chalk
22. Theodolite
23. Fire Extinguisher

3.3. Knowledge & Skills

1. Knowledge on emergency case
2. Knowledge on tools, apparatus and equipment
3. Basic first aid knowledge
4. Knowledge on concrete
5. Ability of working in a team or an organization
6. Knowledge on occupational health & safety
7. Knowledge on railway signs
8. Knowledge on the work site operation procedures
9. Level transfer information
10. Knowledge on use of user's guide, handbook and maintenance book
11. Skill of estimating distance and weight
12. Knowledge on legal regulations regarding the occupation
13. Knowledge of vocational terms
14. Skill of organization
15. Skill of learning and being able to share what he learned

16. Knowledge on design reading
17. Skills of oral and written communication
18. Knowledge on standard materials
19. Knowledge on statics-mechanics
20. Knowledge on basic labor legislation
21. Knowledge on fire fighting techniques and use of fire-extinguisher
22. Knowledge and ability of working at height

3.4. Attitudes and Behaviors

1. To be cold blooded and calm under emergency and stressful situation
2. To decide within the scope of his knowledge and experience
3. To use her/his time effectively and efficiently in accordance with work orders
4. To adopt regulations set forth in environmental, quality, and OHS legislation
5. To be open to change and to adapt to changing conditions
6. To be in harmony with the team
7. To take care of human relations
8. To have working discipline
9. To obey the working principles of the workplace
10. To pay attention to the usage of tools, appliances and equipments belonging to workplace
11. To pay attention to quality
12. To be willingful to improve himself/herself
13. To ensure his/her own safety and safety of other people
14. To have professional ethics
15. To be planned and organized
16. To be sensitive to issues of risk and hazard factors
17. To know his/her responsibilities and to fulfill the same
18. To learn instructions and guides and to comply them meticulously
19. To react effectively, rapidly and correctly within his area of work in cases of emergency
20. To share information effectively, openly and accurately in shift changes
21. To be open to innovations
22. To inform authorities properly and on time
23. To inform concerned people about the defects which are not under his/her authority

4. TESTING, ASSESSMENT AND CERTIFICATION

Testing and assessment for certification with respect to national qualifications based on Precast Concrete Element Assembler (Level 3) Occupational Standard shall be held in written and/or oral forms, theoretically and practically, in testing and assessment centers where required conditions are met.

Testing and assessment method and practice principles shall be detailed with national qualifications to be drawn up pursuant to this occupational standard. Activities regarding testing, assessment and certification shall be conducted within the framework of Vocational Qualification Authority, Testing and Certification Regulation.

ANNEX: Institutions Participated In the Occupational Standard Preparation Process

1. Professional Standards Team of Institution Preparing Professional Standard

H.Necati ERSOY	İNTES – Secretary General
Dr. Aytekin AKAGÜN	İNTES – Civil Engineer MSC
Aslı KARATEKİN	İNTES – Project Manager
Sevil Buket ATAR	İNTES – Construction Technician

2. Technical Work Group Members

Alper Uçar	Turkish Prefabrication Union – Civil Engineer
Dolunay Çapan	Afaprefabrik A.Ş. – Civil Engineer
İlker Sezan	Kam Ankara Beton San. Inc. – Civil Engineer
Kenan Çelik	Kam Ankara Beton San. Inc. –Physics Engineer
Orhan Manzak	Yapı Merkezi Prefabrikasyon A.Ş. – Senior Civil Engineer

3. People, Institutions, and Organizations Asked for Opinion:

Afaprefabrik Prefabrike Beton San. Tic. A. Ş.
Ankara Chamber of Industry
Ankara Chamber of Commerce
Concrete Agent Manufacturers Union
Bosphorus University, Faculty of Engineering, Department of Civil Engineering
Directorate General of State Hydraulic Works, Department of Project and Civil Works
Dokuz Eylül University, School of Engineering, Department of Civil Engineering
Gazi University, Faculty of Technology
Chamber of Civil Engineers, Ankara Branch - INTES Members
İstanbul Technical University, Faculty of Civil Engineering, Department of Civil Engineering
KAM Ankara Beton Sanayi A.Ş.
Karadeniz (Blacksea) Technical University, School of Engineering, Department of Civil Engineering
Foundation of Supporting Occupational Training and Small-Scale Industry
Middle East Technical University, Faculty of Engineering, Department of Civil Engineering
Republic of Turkey Ministry of Public Works and Settlement, General Directorate of Construction
Republic of Turkey Ministry of Labor & Social Security, Center For Labor & Social Security Training and Research, ÇASGEM
Republic of Turkey Ministry of Labor and Social Security, General Directorate of Occupational Health and Safety
Republic of Turkey Ministry of Labor & Social Security, Social Security Institution's Directorate of Construction and Property Affairs
Republic of Turkey Turkish State Railways, TCDD – Directorate of Construction and Property Affairs
Republic of Turkey Ministry of National Education, Directorate of Educational Research and Development
Republic of Turkey Ministry of National Education, General Directorate of Apprenticeship and Non-Formal Education
Republic of Turkey Ministry of National Education, General Directorate of Technical Education For Boys
Republic of Turkey Ministry of Transportation, General Directorate of Highways
Republic of Turkey Board of Higher Education (YOK)
Turkish Accreditation Agency, TÜRKAK

Association of Turkish Consulting Engineers and Architects- TMMMB
Turkish Cement Manufacturers' Association
Confederation of Turkish Tradesmen and Craftsmen, TESK
Turkish Ready Mixed Concrete Association
Turkish Construction Contractors Union, TİM-SE
Confederation of Turkish Trade Unions, TÜRK-İŞ
Turkish Confederation of Employer Associations, TİSK
Turkish Contractors Association, TMB
Turkish Union of Chambers and Exchange Commodities, TOBB
Turkish Prefabrication Union
Turkish Official Sector of Construction Contractors Union, TÜRK-İNŞA
Turkish Union of Road Construction and Building Workers, YOL-İŞ
Yapı Merkezi Prefabrikasyon A.Ş.
Federation of Building Products Manufacturers
Yıldız Technical University, School of Engineering, Department of Civil Engineering

4. Sector Committee Members and Experts

Mustafa DEMİR,	President	Turkish Confederation of Employer Associations
Ekrem DİRİER,	Vice President	Ministry of National Education
Ahmet Emin YİĞİT,	Member	Member (Ministry of Environment and Urban Planning)
Kemal AYDOĞAN,	Member	Ministry of Labor and Social Security
Abdülkadir YILMAZ,	Member	Ministry of Communication
Can BALKAYA,	Member	Board of Higher Education (YOK)
H.Necati ERSOY,	Member	Turkish Union of Chambers and Exchange Commodities (TOBB)
TOBB) Mustafa ARSLAN,	Member	Confederation of Turkish Tradesmen and Craftsmen (TESK)
Hacı ÜSTÜNDAL,	Member	HAK Trade Unions Confederation
Aylin RAMANLI,	Member	Occupational Qualification Authority
Firuzan SİLAHŞÖR,	Department Head	Occupational Qualification Authority
Sinan GERGİN,	Sector Committee	(Prime Ministry Department of the Administration of the Disabled and Elder Services)

5. Executive Board

Bayram AKBAŞ,	President	Representative of Ministry of Labor and Social Security
Prof. Dr. Oğuz BORAT,	Vice President	(Representative of Ministry of Education)
Assoc. Prof. Dr. Ömer AÇIKGÖZ,	Member	Representative Board of Higher Education
Prof. Dr. Yücel ALTUNBAŞAK,	Member	Representative of Professional Organizations
Dr. Osman YILDIZ,	Member	(Representative of Confederation of Turkish Trade Unions)
Celal KOLOĞLU,	Member	Representative of Turkish Confederation of Employer Associations