

CORE REQUIREMENTS ON-THE-JOB LEARNING  
FIELD TECHNICIAN CONCRETE/MASONRY INSPECTOR  
O\*NET-SOC CODE: 47-4011.00 RAIS CODE: 1121

In addition to the related instruction, Apprentices will take tests in order to receive the following certifications during the first 1,200 hours of core apprenticeship:

- Soil
  - Troxler orientation (required during the five-day site evaluation)
  - 10-hour OSHA (required during the first 1,200 hours of apprenticeship)
  - NICET Level I (required during the first 1,200 hours of apprenticeship)
  
- Asphalt
  - Nuclear density testing class (required during the first 1,200 hours of apprenticeship)
  - Aggregates course (required during the first 1,200 hours of apprenticeship)
  - Level I certification (required during the first 1,200 hours of apprenticeship)
  
- Steel/Fireproofing
  - Structural Steel Technologies - Bolting Test (required during the first 1,200 hours of apprenticeship)
  
- Concrete
  - ACI Level I/Level I certification (required during the five-day site evaluation)
  
- Masonry
  - No certifications unless chosen as a Major discipline

All Apprentices must complete the requisite 1,200 of Core OJL, including a minimum of 100 hours in soils, 100 hours in asphalt, 100 hours in steel/welding fireproofing, 100 hours in concrete, and 100 hours in masonry, and complete the minimum 144 hours of classroom instruction, including but not limited to the Troxler Orientation Course, 10-hour OSHA Course, NICET Level I Certification, nuclear density testing course, aggregates course, Level I Certification, completion of Structural Steel and Technologies Bolting Test with a passing grade, and ACI Level I certification before advancing to the second period of apprenticeship and choosing a Major discipline. Those failing to successfully pass examinations may be given an opportunity to re-take those examinations at the discretion of the JATC.

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Core on-the-job learning (OJL); (1,200 Hours Total), each apprentice will complete an initial minimum of 100 hours and a maximum of 800 hours in the following core disciplines: 1) Soil, 2) Asphalt, 3) Steel/Welding/Fireproofing, 4) Concrete, and 5) Masonry, but a total of 1,200 core hours. Once an Apprentice completes the initial 1,200 core hours, he/she may choose which of the following three main disciplines to complete the remaining 4,800 hours of apprenticeship.

- 1. Soil/Asphalt**
- 2. Steel/Welding/Fireproofing**
- 3. Concrete/Masonry**

An apprentice may only choose one main discipline at a time to complete the apprenticeship. Each apprentice will receive a "Certificate of Completion of Apprenticeship" in the respective chosen main discipline. However, an apprentice may choose to obtain more than one completion certificate. If an apprentice chooses to complete more than one completion certificate, the apprentice will be granted previous credit and only be required to complete the requisite 4,800 OJL and related classroom instruction in the subsequent main discipline. Further, an apprentice choosing to obtain more than one completion certificate shall be paid journeyman scale while completing his/her subsequent Master certificate(s). An apprentice who obtains a completion certificate in all three (3) main disciplines will receive a Master Completion Certificate for Field technician.

An apprentice must take and pass all exams required for the chosen discipline in order to obtain journeyman status. If an apprentice has difficulty passing all required exams, the apprentice may take a one-time transfer into one of the other two major disciplines offered. If the apprentice cannot pass the required exams in the second chosen major discipline, the apprentice will be terminated and the Apprenticeship Agreement will be cancelled. All apprentices are required to finish the apprenticeship program within six (6) years of entrance into the program. Those who have chosen to take a one-time transfer will be given additional time equal to the time spent in the first chosen major discipline in which to complete the apprenticeship.

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<b>Discipline: SOIL</b>		<b>Approx. Core Hours (minimum)</b>	<b>Approx. Core Hours (maximum)</b>
1.	Learn the duties and responsibilities of a soil technician	10	100
2.	Learn how to properly sample soils (random)	10	100
3.	Learn proper terms for soils and soil density	10	50
4.	Learn different methods and testing related to the compaction of soil	10	100
5.	Learn the basics of mass grading	10	50
6.	Learn the basics of bearing capacity of soils	10	50
7.	Learn the basics of proof rolls	10	50
8.	Learn the basics of footing inspections	10	50
9.	Learn the basics of tests applicable to soils	10	150
10.	Learn how to use and maintain specific soil testing equipment	5	50
11.	Learn proper safety methods when conducting various soil tests or using specific soil testing equipment	5	50
<b>Total Hours</b>		100	800

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<b>Discipline: ASPHALT</b>		<b>Approx. Core Hours (minimum)</b>	<b>Approx. Core Hours (maximum)</b>
1.	Learn the duties and responsibilities of an asphalt technician	10	100
2.	Learn how to read and interpret DOT specs	15	100
3.	Learn how to read and interpret DOT forms	10	100
4.	Learn different methods and testing related to asphalt	15	100
5.	Learn how to review mix designs for compliance with project requirements	10	100
6.	Learn how to perform preliminary tests on proposed aggregates and asphalt	15	100
7.	Learn how to verify stability and density, bulk specific gravity, and maximum specific density	15	100
8.	Learn how to use and maintain specific asphalt testing equipment	5	50
9.	Learn proper safety methods when conducting various asphalt tests or using specific asphalt testing equipment	5	50
<b>Total Hours</b>		100	800

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<b>Discipline: STEEL/WELDING/FIREPROOFING</b>		<b>Approx. Core Hours (minimum)</b>	<b>Approx. Core Hours (maximum)</b>
1.	Learn the duties and responsibilities of a steel / fireproofing technician	10	100
2.	Learn particular standards (AWS, AWCI, etc.) applied to steel/fireproof testing	20	150
3.	Learn how to read a welding procedure specification	10	100
4.	Learn the basics of welding procedures	10	150
5.	Learn the basics of non-destructive testing	20	100
6.	Learn how to check a welder's certification and log	5	25
7.	Learn the tests applicable to steel, fireproofing, and post-tension	10	75
8.	Learn how to use and maintain specific steel, fireproofing, and post-tension testing equipment	5	50
9.	Learn proper safety methods when conducting various steel, fireproofing, and post-tension tests or using specific steel, fireproofing, and post-tension testing equipment	10	50
<b>Total Hours</b>		100	800

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<b>Discipline: CONCRETE</b>		<b>Approx. Core Hours (minimum)</b>	<b>Approx. Core Hours (maximum)</b>
1.	Learn the duties and responsibilities of a concrete technician	10	100
2.	Learn how to check reinforced steel for size, spacing, clearances, and splices	10	50
3.	Learn how to verify a concrete mix design	5	50
4.	Learn the proper technique for sampling concrete	10	90
5.	Learn proper techniques for water control	5	35
6.	Learn proper techniques for placing concrete	5	45
7.	Learn how to cast compression test specimens	10	35
8.	Learn how to inspect forms for cleanliness and proper treatment prior to concrete placement	5	10
9.	Learn tests applicable to concrete testing	10	100
10.	Learn how to inspect for slump, entrained air, temperature, and wet unit weight	5	50
11.	Learn how to determine number of mixing revolutions and/or length of time since batching	5	35
12.	Learn how to sample concrete and prepare test cylinders in accordance with ASTM C31	5	50
13.	Learn how to inspect placement procedures to determine segregation, cold joints, displacement of reinforcing or forms, and proper support of embedded items, anchors, and bolts	5	50
14.	Learn how to use and maintain specific concrete testing equipment	5	50
15.	Learn proper safety methods when conducting various concrete tests or using specific concrete testing equipment	5	50
<b>Total Hours</b>		100	800

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During the Core OJL, Apprentices are given the opportunity to develop limited skills in all core disciplines covered by the Field Technician occupation. These limited skills will allow the Apprentice to make an educated decision as to which major discipline to choose to complete their Apprenticeship. Employers may dictate in which core disciplines the Apprentice receives the first 1,200 hours of Core OJL; however, Employers must allow the Apprentice to achieve a minimum of 100 hours and a maximum of 800 hours in the five disciplines listed during the first-year of apprenticeship.

<b>Discipline: MASONRY</b>		<b>Approx. Core Hours (minimum)</b>	<b>Approx. Core Hours (maximum)</b>
1.	Learn the duties and responsibilities of a masonry technician	10	100
2.	Learn tests applicable to masonry testing	20	100
3.	Learn how to properly store on-site completed masonry prisms	10	100
4.	Learn how to identify concrete masonry units, pre-bagged mortar, or grout	10	100
5.	Learn the proper technique for placing grout into concrete masonry units	15	100
6.	Learn the proper technique for consolidating grout with a vibrator	15	100
7.	Learn how to inspect head and bed joints	10	100
8.	Learn how to use and maintain specific masonry testing equipment	5	50
9.	Learn proper safety methods when conducting various masonry tests or using specific masonry testing equipment	5	50
<b>Total Hours</b>		100	800

All Apprentices must complete the requisite 1,200 of Core OJL, including a minimum of 100 hours in soils, 100 hours in asphalt, 100 hours in steel/welding fireproofing, 100 hours in concrete, and 100 hours in masonry, and complete the minimum 144 hours of classroom instruction, including but not limited to the Troxler Orientation Course, 10-hour OSHA Course, NICET Level I Certification, nuclear density testing course, aggregates course, Level I Certification, completion of Structural Steel and Technologies Bolting Test with a passing grade, and ACI Level I certification before advancing to the second period of apprenticeship and choosing a Major discipline. Those failing to successfully pass examinations may be given an opportunity to re-take those examinations at the discretion of the JATC.

**WORK PROCESS SCHEDULE**  
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<b>Discipline: CONCRETE</b>		<b>Approx. Hours (minimum)</b>	<b>Approx. Hours (maximum)</b>
<b>CONCRETE</b>			
1.	Learn advanced placement of reinforcing steel/decks	200	300
2.	Learn how to verify placement of pre-stressed or post-tensioned tendons	200	300
3.	Learn how to prepare stressing sheets	200	300
4.	Learn the proper procedure for stressing tendons and recording results	200	300
5.	Learn how to calibrate jacking equipment	200	200
6.	Learn how to verify mill markings and tags and cement mill test reports and certifications	200	200
7.	Learn how to perform tests on concrete aggregates, pre-stressing strand wire reinforcing steel, and steel used for structural steel-embedded items	200	500
8.	Learn how to inspect quantity and spacing of reinforcing and stressing steel	200	300
9.	Learn how to inspect tensioning of pre-stressing elements, measure elongation of strands, and record gauge pressure	200	350
10.	Learn how to inspect curing procedures, temperatures, and curing cycles	200	350
11.	Learn how to inspect field installation and structural connections	200	350
12.	Learn how to inspect bars for size and grade	200	250
13.	Learn how to inspect shop bends on bars	200	250
14.	Learn how to inspect for proper bar location, spacing, alignment, clearances, splices, laps, ties, form and ground clearance, supports, field bend radii, gouges, and tack welds	200	250
15.	Learn how to verify concrete mix designs, tensioning data and calculations for stressing	200	300
<b>Total Hours</b>		<b>3,000</b>	<b>4,500</b>

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Employers may dictate in which disciplines the Apprentice receives the remaining 4,800 hours of OJL; however, the Employers must allow the Apprentice to achieve a minimum of 3,000 hours and a maximum of 4,500 hours in concrete and a minimum of 300 hours and a maximum of 1,800 hours in masonry.

<b>Discipline: MASONRY</b>		<b>Approx. Hours (minimum)</b>	<b>Approx. Hours (maximum)</b>
<b>MASONRY</b>			
1.	Learn how to review mix designs for compliance with project requirements	50	400
2.	Learn how to inspect for proper horizontal and vertical reinforcing steel placement	50	400
3.	Have an advanced knowledge of tests applicable to masonry testing	100	500
4.	Have an advanced knowledge of specifications for masonry structures (ACI 530.1/ASCE 6/TMS 602)	100	500
<b>Total Hours</b>		300	1,800

All Apprentices must complete the requisite 1,200 of Core OJL, including a minimum of 100 hours in soils, 100 hours in asphalt, 100 hours in steel/welding fireproofing, 100 hours in concrete, and 100 hours in masonry, and complete the minimum 144 hours of classroom instruction, including but not limited to the Troxler Orientation Course, 10-hour OSHA Course, NICET Level I Certification, nuclear density testing course, aggregates course, Level I Certification, completion of Structural Steel and Technologies Bolting Test with a passing grade, and ACI Level I certification before advancing to the second period of apprenticeship and choosing a Major discipline. Those failing to successfully pass examinations may be given an opportunity to re-take those examinations at the discretion of the JATC.

RELATED INSTRUCTION OUTLINE  
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In addition to the required on-the-job training (OJL) for a major in concrete/masonry, Apprentices shall be required to enroll, attend, and complete the initial minimum 144 hours of classroom instruction and a minimum of 144 classroom hours each year thereafter of related classroom instruction in subjects relating to concrete/masonry. Topics to be studied (completed) as part of the required curriculum shall include, but not be limited to those listed below. The order of presentation and/or year of presentation may change from time to time:

<b>Discipline: CONCRETE/MASONRY</b>	<b>Hours</b>
8-hour Nuclear Gauge refresher course (8 x 4 years)	32
Plans and specs specific to concrete/masonry testing	40
Advanced understanding of standard lab and field equipment for testing	40
Advanced understanding of field and lab tests performed on concrete/masonry	56
Intermediate mathematics	44
Advanced communications	32
Advanced physical science specific to concrete/masonry testing	64
Learn the agencies and procedures for publishing testing procedures	32
Basic drafting	40
Learn bituminous terminology (ASTM)	86
Learn American Concrete Institute 318 and 530	86
Ethics	24
<b>Total Hours (minimum 576)</b>	<b>576</b>