WACEL Certification Program Concept Statement
Revised February 2006

1.0 Purpose

The purpose of WACEL certification is to assess an individual's knowledge of information deemed critical to the proper performance of the tasks associated with the work for which certification is sought. Certification implies solely that an individual has met WACEL criteria and prerequisites and has passed an examination. A certification is valid for five years only. WACEL criteria, prerequisites and examinations are compatible with guidelines established by ACI, ASTM and local governments.

2.0 Scope

The program is applicable to all individuals performing work covered by the certification categories delineated below in Section 4 when such work is performed in the WACEL area of operations as determined by the Board of Directors.

3.0 Operational Requirements/Impropriety

WACEL offers written testing in the WACEL office on request and at designated training facilities. Supervisory personnel are required to call at least 24 hours in advance of testing to determine availability of testing facilities. WACEL also will provide testing at members' offices provided the member has at least five technicians to test and the member agrees to pay an additional administrative fee of $250.

3.1 Impropriety

Technicians as part of the application and testing process must acknowledge in writing that they are aware of and agree with WACEL policy with respect to impropriety and compromising the integrity of the testing process. Technicians who are caught cheating or compromising the integrity of the certification program, e.g. photographing tests, stealing tests, copying test questions, etc. will be barred from participating in the WACEL testing program for a period of five years and have all existing certifications automatically rescinded.

4.0 Technical Requirements

Individuals considered for certification in concrete, bituminous concrete, structural steel, structural concrete/masonry, sprayed-on fireproofing, soil laboratory technician and/or soil testing and inspection shall have sufficient education, training and experience to help assure understanding of the principles and procedures of the tasks comprising the position for which certification is sought.

4.1 Concrete Inspection and Testing

Concrete inspection and testing comprise two levels of technical qualification. They are:

4.1.1 Level I Concrete Technician: Shall understand the basic concepts of concrete mixes, cements, aggregates and water content and how variations affect the final product, and shall have sufficient education, training and experience to properly perform normal daily control tests for concrete, such as preparation and testing of compressive-strength cylinders and determination of slump, air content and unit weight.

4.1.2 Level II Concrete Technician: Shall be thoroughly familiar with applicable codes and specifications, as well as various ASTM standards dealing with concrete aggregates, and shall be able to interpret and evaluate test results and able to organize and report field and laboratory tests. In addition, a Level II Concrete Technician shall have sufficient education, training and experience to properly inspect batch plant operations and concrete handling and placing, and to prepare trial batches.

4.2 Bituminous Concrete Inspection and Testing

There is only one level of certification for Bituminous Concrete inspection and testing. The required qualifications are as follows:

4.2.1 Bituminous Concrete Technician: Shall understand the properties and proportions of the materials, and how they effect the mix; shall understand the different layers of bituminous concrete pavement and how each is placed and compacted to obtain quality pavement, and shall understand the laboratory and field testing procedures, and their relationship to the quality of the pavement.

4.3 Soils Inspection and Testing

Soils Inspection and Testing comprise two levels of technical qualification. They are:

4.3.1 Level I Soils Technician: Shall have sufficient education, training and experience to identify soils; perform basic laboratory soil tests; obtain soil samples in the field, and perform field density tests for compaction control. Responsibilities are limited to performance of required tasks and reporting results, without decision-making. More specifically, a Level I Soils Technician shall:

- be familiar with soil types and classification systems in general;
- be proficient in application of the Unified Soil Classification System;
- have a basic understanding of the concepts of specific gravity, void ratio, saturation, etc.;

- be proficient in determination of moisture content and liquid and plastic limits; sieve analysis; laboratory compaction (moisture-density relationships), and performance of field density tests by sand cone, rubber balloon, drive cylinder or nuclear methods, and be proficient in the use of a calculator for multiplication and division and have knowledge of the pertinent conversion factors for the units utilized.

4.4 Foundation Technician

A Foundation Technician shall have sufficient education training and experience with general foundation observation and testing requirements and demonstrate an ability to interpret plans and specifications. The exam is divided into two sections: General Knowledge and Specification and Plan Interpretation. The General Knowledge section includes questions addressing shallow foundations, field reporting requirements, density testing, problem soils, and ACI and ASTM requirements.

The second part of the test evaluates a technician's ability to read and interpret plans and specifications. Every examinee is provided with a sample geotechnical report and a set of project drawings. Examinees are asked to identify boring depths, different soil types, slope steepness, fill types, plasticity of soils, bearing capacity, leveling pad and lift thicknesses, design strengths for different foundations, compaction requirements, and optimum moisture contents, among other design, testing and observation criteria.

4.5 Structural Concrete/Masonry Inspector

A Structural Concrete/Masonry Inspector shall have sufficient education, training and experience to understand plans and specifications; shall be familiar with ACI and other applicable codes, and shall be proficient in field observation procedures to verify compliance with these directives. The Structural Concrete/Masonry Inspector shall be capable of proper observations, inspections and testing of forms, reinforcing steel, post-tensioning, tilt-up construction and other facets of placing, sampling and curing concrete, and shall be familiar with structural masonry construction beyond the basic level, including familiarity with the various codes and directives concerning such construction as well as sampling and testing procedures. In addition, the Structural Concrete/Masonry Inspector must understand advance topics for concrete as a construction material such as the effect of low water-cement ratios, air entrapment, air content and hydration, etc., Additionally, the exam covers basic concepts of batching, consolidation, curing, hot and cold weather concreting and destruction and nondestructive testing methods.

4.6 Structural Steel Inspector

A Structural Steel Inspector shall have sufficient training, education and experience to understand contract drawings, shop drawings and project specifications. Structural Steel Inspectors should also be familiar with codes and standards promulgated by the American Institute of Steel Construction (AISC) American Welding Society (AWS), Steel Structures Painting Council and appropriate specifications related to steel decking and

joints. In addition, the Structural Steel Inspector shall be capable of inspecting bolted and welded connections, column plumb, decking, joists, member sizes and member placement, painting and surface preparation, and have knowledge of nondestructive testing of steel and weldments. Other responsibilities include demonstrated proficiency with field procedures to help verify compliance with structural steel specifications, and ability to recognize and report deficiencies and deviations from specifications.

4.7 Sprayed-On Fireproofing

Sprayed-on Fire Proofing Testing and Certification comprise two levels of technical qualification. They are:

4.7.1 Level I Technician shall be familiar with the purpose of sprayed-on fire resistive materials, can describe different types of materials, understands and can discuss safety issues associated with testing and inspecting sprayed-on fire resistive materials and can review and extract required testing and information from approved submittals. In addition, a Level I Technician must:

- know how to properly measure the thickness of sprayed-on fire-resistive materials in accord with ASTM standards;
- understand the wide range of testing frequency requirements that may be found in applicable publications;
- understand the two different density test methods permitted by ASTM E 605;
- can properly describe how to take and record a sample for density testing as required by ASTM E 605;
- understand how to properly conduct an adhesion/cohesion test in accord with ASTM E 736;
- know how to determine and report deficiency test results
- understand the various aspects of proper application, ambient temperature and painted/primed structural members.

4.8 Soil Laboratory Technician

Can visually identify and classify soil in accordance with USCS

- Has basic knowledge of and can interpret soils laboratory tests (moisture content, sieve analysis, Atterberg limits, proctor tests)

- Can obtain, identify and transport soil samples

- Familiar with requirements of ASTM D2216 Moisture content

- Familiar with requirements of ASTM D421 Grain Size Determination - Sieve Analysis

- Familiar with requirements of ASTM D422 Grain Size Determination - Hydrometer

- Familiar with the requirements of ASTM D4318 Atterberg Limits

- Familiar with the requirements of ASTM D698, D1557 and VTM -1 Proctor Tests

- Familiar with the requirements of ASTM D1883, VTM-8, California Bearing Ratio

- Familiar with the requirements of ASTM D854 Specific Gravity Testing

4.9. Concrete Masonry Strength Testing Technician

Certification as a WACEL Concrete/Masonry Strength Testing Technician requires the successful completion of a 2-hour, written examination. Requirements are:

- Can safely and properly cap cylindrical concrete specimens using molten sulfur mortar as delineated in ASTM C617.

- Can correctly use unbonded caps in the testing of cylindrical concrete specimens as specified in ASTM C1231.

- Can correctly determine the compressive strength of cylindrical concrete specimens in accordance with ASTM C39.

- Can properly test a cast, flexural strength test specimen using third-point loading as specified in ASTM C78.

- Can correctly prepare and test drilled cores for compressive strength testing in accordance with ASTM C42.

- Can correctly determine the compressive strength of masonry mortar cubes in accordance with ASTM C109 and C780.

- Can correctly and properly determine the compressive strength of masonry grout prisms as specified in ASTM C1019.

5.0 OTHER REQUIREMENTS AND PREREQUISITES

All applicants shall complete and submit to WACEL an application for certification for the level of certification being sought. Applications must be received in the WACEL office three business days prior to the test date. Failure to submit an application or an application that is incomplete shall be subject to stipulations set forth in Sections 6.4 and 6.5. Other requirements and prerequisites are as follows:

5.1 Level I Technician (Concrete, Soils, Fireproofing, Soil Laboratory Technician, Concrete/Masonry Strength Testing Technician)

5.1.1 Education: Shall have sufficient formal education to read, understand and execute written instructions, codes and procedures, and shall be capable of keeping accurate field records.

5.1.2 Demonstrated Proficiency (Concrete Only): Shall demonstrate proficiency in performing field tests, including molding cylinders, making a slump test, and performing air and yield tests. (Successful completion of a field test administered by ACI or a similar test given by the WACEL Quality Assurance Committee will demonstrate such proficiency.)

5.1.3 Recommendation: Shall be recommended for Level I certification by a qualified supervisor. (In the event the applicant is unemployed, self-employed or employed by a nonmember, this recommendation shall be furnished and sealed by a professional engineer familiar with the applicant's capabilities. Such recommendation shall also identify the circumstances that establish its propriety.)

5.1.4 Other Qualifications: Shall have other or equivalent qualifications established or subject to approval by the WACEL Quality Assurance Committee.

5.1.5 Written Examination: Shall pass the written examination for Level I certification.

5.1.6 Attendance at a WACEL-Recognized Training Session: Technicians who are unsuccessful in their first attempt to pass a Soils or Concrete Level I examination are required as a prerequisite of certification to attend a WACEL-sponsored Concrete Level I or Soils Level I training program or a similar program recognized by the WACEL Quality Assurance Committee.

5.2 Level II Technician (Concrete, Foundations)

5.2.1 Prior Certification: Shall be certified as a WACEL Level I Soils Technician and/ or a WACEL or ACI Level I Concrete Technician.

5.2.2 Prior Experience: Shall have one year of satisfactory performance as a Level I Technician or the equivalent or have the equivalent training and experience that in the opinion of the professional engineer in charge of the firm, the individual can perform the duties of a Level II Technician.

5.2.3 Recommendation: Shall be recommended for Level II certification by a qualified supervisor. (In the event the applicant is unemployed, self-employed or employed by a nonmember, this recommendation shall be furnished and sealed by a professional engineer familiar with the applicant's capabilities. Such recommendation shall also identify the circumstances that establish its propriety.)

5.2.4 Other Qualifications: Shall have other or equivalent qualifications established or subject to approval by the WACEL Quality Assurance Committee.

5.2.5 Written Examination: Shall pass the written examination for Level II certification.

5.3 Foundation Technician

5.3.1 Formal Education: Shall have a formal education at least equivalent to that required for a high school diploma. (Additional formal education is expected.)

5.3.2 Prior Certification: Shall be certified as a Level I Concrete Technician and Level I Soils Technician. (In the event the applicant is unemployed, self-employed or employed by a nonmember, this recommendation shall be furnished and sealed by a professional engineer familiar with the applicant's capabilities. Such recommendation shall also identify the circumstances that establish its propriety.)

5.3.3 Field Experience: Shall have at least a years' relevant field experience, or have equivalent education and experience described in writing and attested to by the applicant's supervisor, who shall be a registered professional engineer. (In the event the applicant is unemployed, self-employed or employed by a nonmember, this recommendation shall be furnished and sealed by a professional engineer familiar with the applicant's capabilities. Such recommendation shall also identify the circumstances that establish its propriety.)

5.3.4 Recommendation: Shall be recommended for certification by the professional engineer in charge of services provided by the firm. (In the event the applicant is unemployed, self-employed or employed by a nonmember, this recommendation shall be furnished and sealed by a professional engineer familiar with the applicant's capabilities. Such recommendation shall also identify the circumstances that establish its propriety.)

5.3.5 Other Qualifications: Shall have other or equivalent qualifications established or subject to approval by the WACEL Quality Assurance Committee.

5.3.6 Written Examination: Shall pass the written examination for Foundation Technician.

5.4 Structural Concrete Masonry Inspector

5.4.1 Formal Education: Shall have a formal education at least equivalent to that required for a high school diploma. (Additional formal education is expected.)

5.4.2 Prior Certification: Shall be certified as a Level I and II Concrete Technician, and have education, training and experience exceeding that are required for Level I and Level II Concrete Technician and attested to by the applicant's supervisor, who shall be a registered professional engineer. (In the event the applicant is unemployed, self-employed or employed by a nonmember, this recommendation shall be furnished and

sealed by a professional engineer familiar with the applicant's capabilities. Such recommendation shall also identify the circumstances that establish its propriety.)

5.4.3 Field Experience: Shall have at least a years' relevant field experience, or have equivalent education and experience described in writing and attested to by the applicant's supervisor, who shall be a registered professional engineer. (In the event the applicant is unemployed, self-employed or employed by a nonmember, this recommendation shall be furnished and sealed by a professional engineer familiar with the applicant's capabilities. Such recommendation shall also identify the circumstances that establish its propriety.)

5.4.4 Recommendation: Shall be recommended for certification by the professional engineer in charge of services provided by the firm. (In the event the applicant is unemployed, self-employed or employed by a nonmember, this recommendation shall be furnished and sealed by a professional engineer familiar with the applicant's capabilities. Such recommendation shall also identify the circumstances that establish its propriety.)

5.3.5. Other Qualifications: Shall have other or equivalent qualifications established or subject to approval by the WACEL Quality Assurance Committee.

5.3.6 Written Examination: Shall pass the written examination for Structural Inspector certification.

5.4. Bituminous Concrete

5.4.1 Formal Education: Shall have sufficient formal education to read, understand, and execute written instructions, codes and procedures, and shall be capable of keeping accurate field records.

5.4.2 Recommendation: Shall be recommended for certification by a qualified supervisor. (In the event the applicant is unemployed or self-employed, this recommendation shall be furnished and sealed by a professional engineer familiar with the applicant's capabilities. Such recommendation shall also identify the circumstances that establish its propriety.)

5.4.3 Other Qualifications: Shall have other or equivalent qualifications established or subject to approval by the WACEL Quality Assurance Committee.

5.4.4 Written Examination: Shall pass the written examination for certification.

5.5 Structural Steel Inspector

5.5.1 Formal Education: Shall have sufficient formal education to read, understand, and execute written instructions, codes and procedures, and shall be capable of keeping accurate field records.

5.5.2 Recommendation: Shall be recommended for certification by a qualified supervisor. (In the event the applicant is unemployed or self-employed, this recommendation shall be furnished and sealed by a professional engineer familiar with the applicant's capabilities. Such recommendation shall also identify the circumstances that establish its propriety.)

5.5.3 Other Qualifications: Shall have other or equivalent qualifications established or subject to approval by the WACEL Quality Assurance Committee.

5.5.4 Written Examination: Shall pass the written examination for certification.

6.0 EXAMINATIONS

6.1 Administration

Examinations shall be administered by an independent party and shall be graded by an independent party not affiliated with WACEL or a member firm.

6.2 Study Guides

WACEL has prepared study guides for all levels of certification outlined above except Structural Steel. Study guides are free to WACEL Members. The cost to nonmembers are as follows:

Soils I: $225
Concrete I: $225
Concrete II: $25
Foundation Technician: $25
Structural Concrete Masonry Inspector: $25
Concrete/Masonry Strength Testing Technician: $25
Bituminous Concrete : $25
Fireproofing: $25

WACEL reserves the right to modify these prices at any time.

6.3 Passing Grade

To pass an examination, an applicant shall obtain an overall grade of 80 percent.

6.4 Fulfilling Requirements and Prerequisites

Applicants shall meet all requirements and prerequisites for certification within three calendar months from the date on which examination results are received in the WACEL office. If requirements and prerequisites are not fulfilled within that time period, or if the WACEL office is not informed of such fulfillment within that time period, except applicants for Concrete Technician Level I, the examination will be considered void.

Applicants must take both field and written sections of the Concrete Level I exam within 90 days of one another and provide evidence of doing so. Results of the test must be reported to the WACEL office within 45 days of the technicians being notified of exam results. Such voidance shall not disencumber the applicant from fulfilling certification-related financial obligations to WACEL.

6.5. Applications

Applicants for WACEL certification must submit a completed application for each certification sought to the Program Coordinator at the WACEL office. Applicants who do not submitted an completed application signed by the head of a lab or (nonmembers) registered professional engineer will not be certified.

6.6 Examination Costs

WACEL members bear the majority of examination costs through their dues payments. Rates in effect at the time of this document's issuance were:

Member Firm Representatives

Written Examination

Soils I, Concrete I, Concrete II, Foundation Technician, Fireproofing, Structural Concrete/Masonry Inspector, Structural Steel Inspector, Soil Lab Technician, Concrete/Masonry Strength Testing Technician and Bituminous Concrete	$ 75 per examination
Practical Examination Concrete Technician Level I	$ 75 per examination
Testing at member's facility (five tests minimum)	$250 per test

Nonmember Firm Representatives
Nonmembers must prepare for all exams. Applications will not be honored unless accompanied by payment.

Written Examination Soils I, Foundation Technician Concrete I, Concrete II, Structural Concrete/Masonry Inspector, Structural Steel Inspector and Bituminous Concrete	$325 per examination
Practical Examination	$275 per examination

Government or Nonprofit Organization Representatives

Written Examination

Soils I, Concrete I, Concrete II, Foundation Technician, Fireproofing, Structural Concrete/Masonry Inspector, Structural Steel Inspector, Soil Lab Technician, Concrete/Masonry Strength Testing Technician and Bituminous Concrete

$ 85 per examination

Practical Examination
Concrete Technician Level I $ 85 per examination

6.7 No-Show Charge

Technicians which apply but fail to take the examination will be billed a $25 no-show charge per examination. Member technicians will be charged a $75 no-show charge if they fail to attend a scheduled practical examination. Nonmember technicians will forfeit their testing fee if they fail to show for the practical exam.

6.8 Release of Information

Information about an applicant's test score will be made known by WACEL only to the duly authorized representative of the WACEL member firm employing the applicant, or to the duly authorized representative of some other organization employing the applicant when such other organization has paid all fees associated with the certification examination involved.

7.0 CERTIFICATES

7.1 Issuance and Display

Upon successful completion of all requirements, wall and wallet certificates shall be issued to the certified individual by WACEL. Wallet certificates should be carried at all times to provide evidence of certification.

7.2 Issuance Restrictions

7.2.1 Member Firm Personnel: Certificates shall not be issued to individuals employed by any member firm which is more than 90 days in arrears of dues or other payments to WACEL, unless certification fees are paid separately at nonmember rates.

7.2.2 Nonmember Firm Personnel: Certificates shall not be issued to individuals employed by any nonmember firm until all certification fees then owing have been paid in full and other prerequisites satisfied.

7.3 Issuance Date

The certificate issuance date is the date on which all requirements for certification have been met.

8.0 RECERTIFICATION

Any certified individual may be recertified at or prior to the expiration of current certification, either by providing evidence of continuing satisfactory performance and payment of recertification fees, or through re-examination in accordance with applicable requirements identified above. Level II certification supercedes Level I certification. WACEL accepts as evidence of continuing satisfactory performance a letter from the professional engineer in charge of the laboratory that indicates the individual remains qualified to perform at the level of certification obtained. Concrete Level I technicians in order to be recertified must retake and pass the written exam and field test every five years.

8.1 Recertification Fees

Recertification fees are as follows:	$30/member
	$225/nonmember