

CITY OF COLUMBUS, OHIO

**SUPPLEMENT 1041
ASPHALT CONCRETE QUALITY ASSURANCE PROGRAM ADMINISTRATION**

June 2nd, 2023

1041.01 Scope

1041.02 Administration

1041.03 Personnel Approval

1041.04 Laboratory Approval

1041.01 Scope

A. This supplement outlines the requirements for Contractor's employees:

1. to perform asphalt concrete quality control testing under the Asphalt Quality Control Technician Level 2 approval program.
2. to perform asphalt concrete mix designs under the Asphalt Concrete Mix Design Level 3 approval program.
3. to perform supervision of asphalt concrete placement under the asphalt Field Quality Control Supervisor (FQCS) approval program.

B. This supplement outlines the requirements for a Contractor's or consultant's laboratory to be equipped with:

1. the proper equipment to perform asphalt concrete quality control testing in accordance with 403, 441 and 442 (approved Level 2 Laboratory).
2. the proper equipment to perform asphalt concrete mix designs and quality control testing (approved Level 3 Laboratory).

1041.02 Administration

A. The Department of Public Service, Division of Design and Construction is responsible for the administration of the asphalt approval programs.

B. The administration of the daily activities of the asphalt approval programs will be performed by the Laboratory.

1041.03 Personnel Approval

A. Asphalt Quality Control Technician Level 2

1. The City will approve quality control personnel upon satisfactory completion of the Level 2 Examination.
2. Eligibility requirements for the examination are the submission of proof of successful

completion of an ODOT approved asphalt concrete quality control course.

B. Asphalt Concrete Mix Design Technician Level 3

1. The City will approve mix design personnel upon satisfactory completion of the Level 3 Examination.
2. Eligibility requirements for the examination are the submission of proof of successful completion of an ODOT approved asphalt concrete mix design course.

C. Field Quality Control Supervisor

1. The City will approve FQCS personnel upon satisfactory completion of an ODOT approved FQCS course and verified minimum two years experience with asphalt placement operations on City or ODOT projects.

D. Removal from Work

1. Contractors and their employees are subject to the provisions of 108.05.
2. Any incident or problem will be investigated by the City's Testing Laboratory. A criterion for review, will be, but is not limited to, evidence of failure to meaningfully respond to deficiencies as outlined in the City C&MS. Lack of meaningful response is defined as a failure to respond to single event items that are major and obvious, or multiple event items that are recurring and minor in nature. Appropriate response is expected even if not directed by City personnel. The City's Testing Laboratory will make a written recommendation to the City Engineer. Final decision will be made in written form.

1041.04 Laboratory Approval

A. Level 2

1. A Level 2 Laboratory will contain the following equipment:
 - a. an Asphalt Content Nuclear Gauge (AC Gauge). This AC Gauge shall be a Troxler 3241-C with a 100mCi \pm 10 percent Am-241; Be neutron source or an equivalent gauge, approved by the Laboratory, with a 100mCi \pm 10 percent source and the capability of transferring its calibration data in accordance with City Supplement 1043 to a Troxler gauge meeting the above requirements. The AC Gauge shall be located in the Level 2 Laboratory such that it is at least 10 feet from the nearest variable hydrogen source. This includes haul roads, asphalt binder or emulsion tanks, water storage tanks, etc.
 - b. a minimum 10,000 g digital balance which reads to the nearest 0.1 g
 - c. a minimum of eight (8) AC Gauge pans
 - d. an AC Gauge printer
 - e. mechanical convection oven capable of maintaining a constant temperature of 355 \pm 20 °F (180 \pm 10 °C) for moisture testing
 - f. mechanical convection oven(s) capable of maintaining 200 -320 °F (93- 160 °C) and with sufficient space for all required samples and equipment without delaying any testing.
 - g. ignition oven meeting City Supplement 1054 when required by specification.

- h. muffle furnace capable of maintaining 500 - 600°C (932-1112 °F) or an ignition oven meeting the requirements of City Supplement 1054.
- i. mechanical shaker for 8.00 in (203 mm) or 12.00 in (305 mm) sieves for gradation analysis
- j. set of 8 inch (200 mm) diameter or 12 inch (300 mm) diameter sieves meeting the requirements of ASTM E11, " Specification for Wire-Cloth and Sieves for Testing Purposes" and of the proper size to ensure conformance to the appropriate gradation specifications.
- k. balances that meet the appropriate specifications
- l. 3000 g electrical centrifuge meeting the requirements of ASTM D 2172
- m. non-corrosive flat pan 12.00 in x 8.00 in x 1.00 in (305 mm x 203 mm x 25 mm) deep.
- n. hot plate
- o. 1000 ml graduate
- p. crucible suitable for ash determination
- q. bunsen burner or approved equal
- r. water bath with clean water meeting the requirements of City Supplement 1036 and including a switched suitable heater and switched circulator wired to a properly functioning ground fault interrupt outlet.
- s. 4000 ml glass flask or metal pycnometer meeting AASHTO T 209
- t. vacuum pump or water aspirator capable of evacuating air from the container to a residual pressure in accordance with AASHTO T 209
- u. thermometers will be Type 17 C meeting the requirements of ASTM E 1
- v. laboratory style timer with audible warning and visible timing (do not use devices such as watches, cell phones etc.)
- w. automatic, calibrated Marshall specimen compactor and extractor meeting the requirements of AASHTO T 245
- x. when 442 is specified, an automatic, calibrated gyratory specimen compactor meeting the requirements of AASHTO T 312. Include in the calibration internal angle

validation per AASHTO TP-71. At a minimum calibrate the internal angle annually and when requested by the District for poor comparison. Measure and record the external angle at each internal angle validation and verify the external angle when a gyratory is moved (if possible for the model in question, otherwise calibrate the internal angle). Place a sticker on the gyratory with the date of internal angle validation and values of internal and external angles measured as appropriate for the model in question. Document internal angle validation per the QCP. Do not use gyratory compactors that cannot meet T 312 and TP-71 requirements

y. miscellaneous equipment as required by the appropriate specification.

2. Provide a Level 2 Laboratory with a minimum floor area of 250 square feet (18.6 m²). Provide in the lab a desk or similar space for both a technician and monitor to perform paperwork.

3. Maintain the condition of the lab equipment according to the contractor Quality Control Program (403.03). Maintain orderliness and cleanliness of the lab according to the contractor Quality Control Program (403.03). Maintain the inside temperature of a Level 2 Laboratory at 68 to 86 °F (20 to 30 °C) during working hours.

4. Level 2 Laboratories will be inspected at the time of the asphalt plant inspection by City personnel. There is no maximum number of times a laboratory may be inspected.

5. Level 2 Laboratories are required to participate in the City's Reference Testing Program.

B. Level 3

1. A Level 3 Laboratory will meet all the equipment and size requirements of a Level 2 Laboratory and will have the following equipment:

- a. heated water bath capable of maintaining 140 ± 2 °F (60 ± 1.0 °C)
- b. Marshall test apparatus meeting the requirements of AASHTO T 245
- c. all apparatus for meeting AASHTO T 283.
- d. miscellaneous equipment as required by the appropriate specifications

2. An asphalt ignition oven is not required for a Level 3 Laboratory.

3. A computer with Microsoft Office, internet access and ability to email attachments is required.

4. Level 3 Laboratories will be inspected a minimum of once every two years by City personnel. There is no maximum number of times a laboratory may be inspected.

5. Level 3 Laboratories are required to participate in the City's Reference Testing Program.

C. Loss of Approval

1. Failure to maintain required equipment in good condition may result in loss of approval of a laboratory. Loss of approval can be invoked, in written form, by the Testing Engineer. Re-approval will be granted once the deficiencies have been corrected.

2. Chronic failure to maintain required equipment in good condition may result in loss of approval of a Level 3 approved person to perform work per Section 1041.03.