



**Washington State  
Department of Transportation**

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# Materials Manual

M 46-01.43

August 2023

**Engineering and Regional Operations**  
State Materials Laboratory



## WSDOT Standard Practice QC 7

### *Annual Precast Plant Review and Approval Process*

#### 1. Scope

This standard specifies requirements and procedures for WSDOT annual approval of all manufacturing facilities producing precast concrete structures in accordance with WSDOT *Standard Specification* Section 6-02.3(9).

#### 2. Referenced Documents

#### 3. WSDOT Qualified Products List

3.1 WSDOT Standard Specification

#### 4. Terminology

4.1 **Plant** – Manufacturing facility producing precast concrete structures with single plant location.

4.2 **NRMCA** – National Ready Mix Concrete Association

4.3 **ICBO** – International Congress Building Officials

4.4 **ICC-ES** – International Code Council Evaluation Services

4.5 **PCI** – Precast/Prestressed Concrete Institute

4.6 **NPCA** – National Precast Concrete Association

4.7 **RAM** - Request for Approval of Material (WSDOT Form 350-071) submitted by the plant, identifying their material sources for WSDOT approval.

4.8 **Quality Control** – Quality control inspection and documentation provided by the plant.

4.9 **QPL** – WSDOT Qualified Products List

4.10 **WSDOT** – Washington State Department of Transportation

4.11 **WSDOT Annual Approval** – The certification process defined in WSDOT Standard Practice QC 7.

4.12 **WSDOT Fabrication Inspector** – Quality Assurance inspector provided by the WSDOT Headquarters Materials Laboratory Materials and Fabrication Inspection Office.

#### 5. Significance and Use

5.1 This Standard Practice specifies procedures for approving plants on an annual basis and maintaining a plant approval document reviewed annually. Submittal documents pre approve specific documentation identified in this Standard Practice; replacing the requirement for contract specific submittals. Modifications can be made to the plants submittal at any time during the annual approval period.

## 6. Annual Plant Approval Requirements

- 6.1 Plants shall be initially approved through the QPL or RAM approval process. Plants shall not begin fabricating precast members prior to receiving WSDOT annual plant approval.
- 6.2 Maintain current PCI, or NPCA certification, or maintain current status as a recognized fabricator by ICBO or ICC-ES.
- 6.3 Maintain quality control staff meeting the training and certification requirements specified by the certifying organization.
- 6.4 Submit and maintain an annual approval document detailed in Section 6. Plants must complete and maintain all submittal requirements to remain in active approval status.
- 6.5 Submit annually by December 1st a document identifying the plant has reviewed their annual approval document and identifies whether the plant approval document remains unchanged, or details any anticipated revisions.
- 6.6 Successful completion of initial WSDOT plant approval detailed in Section 8 or successful maintenance of annual approval status detailed in Section 11.

## 7. Plant Submittal Requirement

- 7.1 Plants shall initially submit a document for annual approval that covers the submittal requirements of this section starting with Section 7.1.1. The document may be submitted by mail or submitted electronically. Submit documents to the WSDOT Transportation Technical Engineer.
  - 7.1.1 Table of Contents
  - 7.1.2 Table of Organization
  - 7.1.3 RAM documents. Submit RAM documents for the following materials.
    - Concrete Ready Mix Batch Plant (as applicable)
    - Epoxy Coated Reinforcing Steel
    - Fabrication Facilities Manufacturing Welded Embeds and Fabricating Reinforcing Steel
    - Reinforcing Steel
  - 7.1.4 Concrete mix designs. Submit mix designs on the latest revision of WSDOT Form 350-040. Mix designs are to be filled out completely. Aggregate, cement, slag, and admixtures must be from WSDOT approved sources.

Mix design submittal shall include the following for each mix design;

    - Compressive strength break history. A minimum of 15 sets (2 cylinders per set)
    - Cement mill certification report
    - Chloride Ion test results
    - Self-compacting concrete test data
  - 7.1.5 Curing procedures. Submit the procedure that will be used to cure precast members. Identify whether accelerated curing will be used and detail the procedure for monitoring and documenting curing operations.
  - 7.1.6 Fabrication procedures and drawings. This submittal is for standard fabrication procedures and specialized fabrication procedures. Specialized procedures may be added to the annual plant submittal as approved by the WSDOT Bridge and Structures Office, to facilitate fabrication of precast structures.

- 7.1.7 Weld procedures. Submit weld procedures for welding of embed plates or other structures as applicable to the plants manufacturing process.
- 7.1.8 Repair procedures. Submit repair procedures for anticipated repair scenarios. Approved repair procedures can be used during fabrication of precast members without further WSDOT engineering approval. Repair procedures must be detailed, including dimensional limits, and specific repair materials identified by material type, and brand name. Submittal shall include catalog cuts for repair materials.
- 7.1.9 Quality control plan. Submit quality control procedures and inspection forms. Inspection forms shall include information for the following.
- Pre Pour Inspection Report
  - Wet Concrete Testing Report
  - Compressive Strength Testing Report
  - Non Conformance Report
  - Post Pour Inspection Report
- 7.1.10 Ready mix batch plant NRMCA certification documentation as applicable. Not required for plants in house batch plant.
- 7.1.11 Problem resolution form. Submit a plant specific problem resolution form. Appendix “B” has an example of the Problem Resolution Form. This form is used to expedite resolution of construction issues encountered during fabrication of precast concrete structures.
- 7.1.12 Certificate of Compliance Document: Submit the form that will be used for the Certificate of Compliance document.
- 7.1.13 Final documentation package. Detail or outline the documents that will be provided to the WSDOT Materials and Fabrication Inspector prior to WSDOT final approval of precast members. Documents required in the final document package are as listed below.
- Pre Pour Inspection Report
  - Wet Concrete Testing Report
  - Compressive Strength Testing Report
  - Post Pour Inspection Report
  - Gradation Reports
  - Cure Charts for accelerated curing
  - Non Conformance Reports
  - Problem Resolution documents
  - Certificate of Compliance
  - Certificate of Materials Origin (for projects with “Buy America” Requirement, WSDOT Form 350-109)
  - Mill certs
    - Cement
    - Epoxy Coated Reinforcing Steel
    - Fly Ash
    - Micro Silica
    - Reinforcing Steel
    - Slag
    - Steel components

## 8. Initial Plant Approval Process

- 8.3.1 WSDOT Transportation Technical Engineer. Overall responsibility for annual approval and submittal review process. Coordinates all annual approval submittal activities. Reviews for acceptance all documentation with the exception of mix designs, specialized fabrication procedures, and repair procedures.
- 8.3.2 WSDOT Headquarters Materials Laboratory Fabrication Inspection Office. Responsible for review and approval of mix designs.
- 8.3 WSDOT review responsibilities.
  - 8.3.1 WSDOT Fabrication and Coatings Engineer. Overall responsibility for annual approval and submittal review process. Coordinates all annual approval submittal activities. Reviews for acceptance all documentation with the exception of mix designs, specialized fabrication procedures, and repair procedures.
  - 8.3.2 WSDOT Headquarters Materials Laboratory Fabrication Inspection Office. Responsible for review and acceptance of mix designs.
  - 8.3.3 WSDOT Construction Office. Responsible for review and approval of repair procedures.
  - 8.3.4 WSDOT Bridge and Structures Office. Responsible for approval of specialized fabrication procedures, and review and approval of welding procedures.
- 8.4 Review process.
  - 8.4.1 The WSDOT Transportation Technical Engineer will review portions of the plant submittal and will send specific sections referenced in Section 8.3 to the respective approving authorities.
  - 8.4.2 Approving authorities will send reviewed documents back to the WSDOT Transportation Technical Engineer.
  - 8.4.3 The WSDOT Transportation Technical Engineer will review the status of the submittals returned from the approving authorities and incorporate the documents into the annual plant approval document.
  - 8.4.4 Submittal documents will be signed or stamped “Approved”, “Approved as Noted”, “Not Approved”, or “Accepted” depending on their review status.
  - 8.4.5 RAM documents will be coded with acceptance codes by the WSDOT Transportation Technical Engineer. RAM codes for specific items are referenced in Appendix “C” of this Standard Practice.
  - 8.4.6 The WSDOT Transportation Technical Engineer will make an itemized list of review comments and action items and will place them at the front of the annual submittal document returned to the plant at the time of the initial plant approval meeting. If time allows, the WSDOT Transportation Technical Engineer will work directly with representatives from the plant to address review comments prior to the initial plant approval meeting.

- 8.4.7 The WSDOT Transportation Technical Engineer will schedule the initial plant approval meeting and will send the plant a letter and email notifying them of the date and time WSDOT will be at the plant for the initial plant approval meeting.
- 8.4.8 WSDOT will perform a formal audit of the plants facility, and operating and quality control procedures prior to the initial plant approval meeting. WSDOT will contact the plant and inform them of the date and time a WSDOT inspector will be at the plant for an inspection audit. The audit will follow the outline detailed in Appendix "A".
- 8.4.9 WSDOT will provide the plant with an electronic version of the reviewed annual approval document within 30 days following completion of the initial plant approval meeting.

## 9. Initial Plant Approval Meeting

### 9.1 Scheduling

- 9.1.1 An initial plant approval meeting will be scheduled after WSDOT has completed its review of the plants initial submittal. The meeting will be held at the plants physical location. WSDOT will notify the plant of the date and time the meeting will be held.

### 9.2 Attendees

- 9.2.1 WSDOT attendees will include at a minimum, the WSDOT Transportation Technical Engineer and a supervising inspector from the Materials and Fabrication Inspection Office.
- 9.2.2 Attendees from the plant shall include at a minimum the plant manager, production manager, and quality control manager, or their respective representatives.

### 9.3 Meeting Agenda

- 9.3.1 The meeting agenda will focus on comments from WSDOT's review of the plants annual approval document submittal, and WSDOT's plant inspection audit completed prior to the meeting.
- 9.3.2 WSDOT will inform the plant of their approval status upon completion of the initial approval meeting. Any deficiencies that would prevent approval will be identified and discussed during the meeting.

## 10. Initial Plant Approval Status Notification

- 10.1 Within 30 days following the initial plant approval meeting, the WSDOT Transportation Technical Engineer will send the plant a letter informing the plant of their approval status and the period of effectiveness. Any deficiencies identified during the annual plant review audit that would prevent annual approval will be identified in the letter.

## 11. Maintenance of Plant Approval Status After Initial Approval

- 11.1 Annual approval documents will remain in affect indefinitely as long as the document is maintained each calendar year.
- 11.2 The WSDOT Transportation Technical Engineer will send each plant a letter in October requesting a document identifying the plant has reviewed their annual approval document and identifies whether the plant approval documents remain unchanged, or details any anticipated revisions. The letter will also detail any changes to WSDOT's program that would affect the annual approval document. The document and any revisions ready for submittal shall be sent electronically to the WSDOT Transportation Technical Engineer no later than December 1<sup>st</sup>.
- 11.3 Revisions to mix designs will be processed through the QPL or reviewed during WSDOT project specific work activities. WSDOT will provide plants with a cost estimate for review of mix designs submitted through the QPL process. Costs associated with mix design reviews for project specific work activities will be based on the same process for review through the RAM process. Only mix designs reviewed by the WSDOT Headquarters Materials Laboratory will be added to the annual plant approval document.
- 11.4 Revisions submitted by the plant will be reviewed as detailed in Section 8.4.1 through 8.4.5.
- 11.5 The WSDOT Transportation Technical Engineer will review annual plant approval documents in December. Review comments will be provided to plants for their action by January 15th. Upon resolution of review comments, the WSDOT Transportation Technical Engineer will document revisions to the annual approval document and will maintain revision control by adding "Approved", "Approved as Noted", "Not approved", or "Accepted" revisions to the document and providing plants with an electronic version of the plants complete approval document. WSDOT will provide a revision control document at the front of the annual approval document, which details the changes from the previous version.
- 11.6 Onsite inspection audits will be performed by WSDOT when the plant starts its first project each calendar year. Audits will not be performed by WSDOT until there is work taking place. If a calendar year passes without an active project, WSDOT will perform an inspection audit when WSDOT project specific work starts. The audit will follow the outline detailed in Appendix A.

## 12. Annual Maintenance Approval Status Notification

- 12.1 Upon successful completion of WSDOT's annual plant approval document review and onsite plant inspection as applicable, the WSDOT Transportation Technical Engineer will send the plant a letter informing the plant of their approval status and the period of effectiveness. Any deficiencies identified during the annual plant review that would prevent annual approval will be identified in the letter.

## Appendix A Precast / Prestress Plant Inspection Audit

Plant: \_\_\_\_\_ Date: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Contact Person: \_\_\_\_\_

Plant Reviewed by: \_\_\_\_\_

Review Results: Acceptable      Unacceptable

### Materials

#### Concrete Cylinders

Is cylinder fabrication and testing in accordance with WSDOT test methods?      Yes      No

Does cylinder storage comply with specifications?      Yes      No

Is cylinder capping acceptable?      Yes      No

Method of capping:      Sulphur      Rubber caps      Other \_\_\_\_\_

What types of molds are used?      Paper      Plastic      Steel      Securer

Is cylinder testing machine calibrated?      Yes      No

Comments: \_\_\_\_\_

#### Cement

Is cement from an approved source?      Yes      No

Are cement certifications available?      Yes      No

Is cement storage acceptable?      Yes      No

Comments: \_\_\_\_\_

#### Aggregate

Has aggregate source been approved by WSDOT?      Yes      No

Does plant use WSDOT grading?      Yes      No

Is aggregate sampled and tested prior to use?      Yes      No

Is aggregate storage acceptable?      Yes      No

Comments: \_\_\_\_\_



**Reinforcing Steel**

Are mill test certificates available? Yes No

Is fabrication acceptable? Yes No

Is storage acceptable? Yes No

Comments: \_\_\_\_\_

**Forms**

Are forms clean, straight and in good condition? Yes No

Are forms checked for dimensions prior to use? Yes No

Comments: \_\_\_\_\_

**Batch Plant**

Does batch plant meet the certification requirements of the WSDOT Std. Spec. Yes No

Date of scale calibration: \_\_\_\_\_

Comments: \_\_\_\_\_

**Fabrication**

**Set Up**

Is reinforcing steel placed per contract Yes No

Is steel tied according to specifications and held in place during concrete placement? Yes No

Is the plant aware tack welding is not permitted? Yes No

Is there a Plant QC hold point for inspection prior to setting forms? Yes No

Comments: \_\_\_\_\_

**Concrete Placement**

Is concrete delivered in a timely manner? Yes No

Is plant using approved concrete mix design? Yes No

Is required concrete testing being done? Yes No

Is there adequate equipment for concrete placement in forms? Yes No

Is concrete placed per specifications? Yes No

Comments: \_\_\_\_\_

**Curing**

Is temperature measuring equipment acceptable? Yes No

Is product protected during curing? Yes No

Are test cylinders cured under same conditions as product? Yes No

What type of curing system is used?

Radiant \_\_\_\_\_

Hot air \_\_\_\_\_

Convection \_\_\_\_\_

Conducted Steam \_\_\_\_\_

Other \_\_\_\_\_

Comments: \_\_\_\_\_

**Stripping Procedures**

Are concrete cylinders for verification of stripping strength representative of the product? Yes No

Is required stripping strength being verified with cylinder breaks prior to stripping? Yes No

Comments: \_\_\_\_\_

**Inspection**

Does plant inspection staff have a good understanding of their job responsibilities? Yes No

Does plant inspection staff have adequate Training? Yes No

Is plant inspection staff familiar with the WSDOT Annual Approval process and procedures? Yes No

Are approved shop drawings, plans, and calculations available? Yes No

Are quality control procedures being followed? Yes No

Are quality control reports being filled out Properly? Yes No

Has the plant quality control department verified product repairs, workmanship, and finish are acceptable? Yes No

Comments: \_\_\_\_\_

**Product Handling and Storage**

Are products handled and stored properly? Yes No

Comments: \_\_\_\_\_

**Overall Review Comments**

**Review Attendees**

| Name | Job Description | Phone/Email |
|------|-----------------|-------------|
|      |                 |             |
|      |                 |             |
|      |                 |             |
|      |                 |             |
|      |                 |             |
|      |                 |             |
|      |                 |             |
|      |                 |             |
|      |                 |             |

**Appendix B Manufacturers Name Precast Problem Resolution Request**

Date: \_\_\_\_\_

Submitted To: \_\_\_\_\_

WSDOT Construction Engineer

Email: PrecastPRR@wsdot.wa.gov

Contractor \_\_\_\_\_

Fax: \_\_\_\_\_/Email: \_\_\_\_\_

WSDOT Contract No: \_\_\_\_\_

Project Name: \_\_\_\_\_

Company Name: \_\_\_\_\_

Submitted By (Contact Person): \_\_\_\_\_

Telephone No: \_\_\_\_\_

Fax No: \_\_\_\_\_

Email: \_\_\_\_\_

Priority: High Medium Low

Request Response Time: \_\_\_\_\_

Description of Problem:

Proposed Resolution:

WSDOT Fabrication Inspector's Name and Signature:

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

### Appendix C AM Acceptance Codes

| Products  | RAM Code |
|---|----------|
| Concrete Ready Mix Batch Plant                            | 8        |
| Epoxy Coated Reinforcing Steel                            | 2, 5, 6  |
| Fabrication Facilities (Steel Embeds & Fabricating Rebar) | 8        |
| Reinforcing Steel   | 2, 6     |

### RAM Acceptance Action Codes

- 1) Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into the project.
- 2) Mfg. Cert. of Compliance for 'Acceptance' prior to use of material.
- 3) Catalog Cuts for 'Acceptance' prior to use of material.
- 4) Not Listed (No relevance to annual submittal process)
- 5) Only Materials Tagged 'Approved for Shipment'
- 6) Submit Certificate of Materials Origin to Project Engineer Office. (Only for projects with "Buy America" requirement.
- 7) Not Listed (No relevance to annual submittal process)
- 8) Source Approved
- 9) Approval Withheld; submit samples for preliminary evaluation
- 10) Approval Withheld
- 11) Miscellaneous Acceptance Criteria



## WSDOT Standard Practice for HMA Mix Designs QC 8

### *Standard Practice for Development, Submittal and Approval of Hot Mix Asphalt Mix Designs*

#### 1. Scope

- 1.1 This standard specifies requirements and procedures for evaluation and approval of Hot Mix Asphalt mix designs for the Qualified Products List.
- 1.2 This standard may involve hazardous materials, operations and equipment. It does not address all of the safety problems associated with their use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

#### 2. Referenced Documents

- 2.1 WSDOT Standards
  - 2.1.1 [Standard Specifications for Road, Bridge, and Municipal Construction](#) M 41-10
  - 2.1.2 [Materials Manual](#) M 46-10

#### 3. Terminology

- 3.1 **AASHTO** – American Association of State Highway and Transportation Officials
- 3.2 **ASA** – Aggregate Source Approval
- 3.3 **ASTM** – American Society of Testing and Materials
- 3.4 **Bituminous Materials Section** – Testing Laboratory at the WSDOT State Materials Laboratory
- 3.5 **Business Days** – All weekdays, excluding state and federal holidays
- 3.6 **Contractor/Producer** – The Contractor, Producer or production facility that has the capacity for producing HMA meeting WSDOT [Standard Specifications](#).
- 3.7 **HMA** – Hot Mix Asphalt
- 3.8 **Materials Quality Assurance Section** – Office responsible for managing the Qualified Products List at the WSDOT State Materials Laboratory
- 3.9 **PG** – Performance Graded asphalt binder
- 3.10 **QPL** – Qualified Products List
- 3.11 **RAS** – Recycled Asphalt Shingles
- 3.12 **RAP** – Reclaimed Asphalt Pavement
- 3.13 **State Materials Laboratory** – 1655 S. 2nd Avenue SW, Tumwater, WA 98512-6951
- 3.14 **WSDOT** – Washington State Department of Transportation
- 3.15 **Replacement QPL Mix Design** – QPL HMA mix design that directly replaces the existing or previous QPL HMA mix design, consisting of the same class of mix, gyration level, binder grade, supplier, and aggregate source.

#### 4. Significance and Use

- 4.1 This standard specifies procedures for designing, submitting, evaluating and approving HMA mix designs for inclusion to the QPL.

#### 5. Mix Design Development

- 5.1 The Contractor/Producer or designee shall develop a HMA mix design in accordance with Section 5-04.2(1) of the *Standard Specifications*. The HMA mix design aggregate structure, asphalt binder content, anti-stripping additive, rutting susceptibility and indirect tensile strength shall be determined in accordance with WSDOT SOP 732, FOP for AASHTO T 324 and WSDOT FOP for ASTM D 6931 and meet the requirements of Sections 9-03.8(2) and 9-03.8(6) of the *Standard Specifications*.

- 5.1.1 The Contractor/Producer's mix design %Gmm Ndesign must be  $96.0 \pm 0.2\%$  at the optimum percent binder (Pb).

#### 6. Submission to the WSDOT Qualified Products List

- 6.1 Once the HMA mix design has been developed, the Contractor/Producer shall contact the Bituminous Materials Section at [HMAMD@wsdot.wa.gov](mailto:HMAMD@wsdot.wa.gov) or 360-709-5429 to initiate the HMA mix design submittal process. Replacement QPL HMA mix designs can be submitted up to six months prior to the existing QPL HMA mix design expiration date and still retain the original QPL HMA mix design date (month and day) on the new QPL HMA mix design.

- 6.2 To initiate the mix design submittal process, the Contractor/Producer shall provide the following:

- Company contact and billing information
- A completed copy of WSDOT Form 350-042
- A completed WSDOT Product Submittal Application Form
- ASA Report for the aggregate source(s)
- QPL Contractor/Producer Product Information page(s) for the PG asphalt binder and the anti-stripping additive
- Certification on the source of the recycled materials and applicable documentation per *Standard Specifications* Sections 5-04.2 and 9-03.21(1) for mix designs containing RAP and/or RAS
- Provide the testing and certification for toxicity characteristics in accordance with *Standard Specification* Section 9-03.21(1) for the RAS and RAP submitted with the mix design. The testing and certification shall be no older than 30 calendar days from when the mix design samples are received at the State Materials Laboratory.

- 6.3 Once the information from Step 6.2 is received the Bituminous Materials Section will assign a QPL evaluation tracking number. This will initiate the timeline associated with each step of the mix design evaluation process in Section 6 of this plan, as shown in Table 1.

- 6.4 The Bituminous Materials Section will review the mix design submittal (WSDOT Form 350-042) and all documentation provided to ensure it is complete and meets specification requirements. If the mix design submittal is complete and meets specification, the Bituminous Materials Section will prepare the initial letter with Cost estimate and email to the State Materials Laboratory Business Office. Mix design submittals that are incomplete or do not meet the specification requirements will be rejected and require resubmittal in accordance with Section 6.2 of this plan. All timelines in Table 1 will restart with resubmittal of mix designs.

- 6.5 The State Materials Laboratory Business Office will provide the following to the Contractor/ Producer:
- QPL evaluation tracking number
  - Initial letter detailing mix design evaluation
  - Cost sheet for mix design evaluation detailing submittal requirements and associated charges
  - Reimbursable Agreement and Statewide Vendor Forms (if needed)

6.6 After the contractor returns the Reimbursable Agreement and Statewide Vendor Form to the Business Office and Bituminous Materials Section, the Bituminous Materials Section will contact the Contractor/Producer to schedule the QPL HMA mix design materials delivery date.

6.6.1 The Contractor shall submit representative samples of aggregate, RAP and RAS (if required), totaling 700 pounds proportioned to match the Contractor's proposal to the State Materials Laboratory for testing.

For example, if the Contractor's proposal consists of five stockpiles with the following blending ratio:

| Material | Ratio |
|----------|-------|
| ¾" - #4  | 20%   |
| ½" - #8  | 30%   |
| #4 - 0   | 30%   |
| RAP      | 15%   |
| RAS      | 5%    |

Calculate the amount of aggregate needed from each stockpile in the following manner:

| Material |                | Pounds of Aggregate Needed Per Stockpile |
|----------|----------------|--|
| ¾" - #4  | 700 lbs x 0.20 | 140 pounds                               |
| ½" - #8  | 700 lbs x 0.30 | 210 pounds                               |
| #4 - 0   | 700 lbs x 0.30 | 210 pounds                               |
| RAP      | 700 lbs x 0.15 | 105 pounds                               |
| RAS      | 700 lbs x 0.05 | 35 pounds                                |

6.6.2 Transport aggregate in bags or other containers so constructed as to preclude loss or contamination of any part of the sample, or damage to the contents from mishandling during shipment. The weight limit for each bag or container of aggregate is 30 pounds maximum.

6.6.3 Each aggregate bag or container shall be clearly marked or labeled with suitable identification including the contract number, aggregate source identification and size of stockpile material.

When RAS will be used in the HMA mix design the contractor shall provide 40 dried RAS samples proportioned into individual 16 to 24-ounce aluminum containers (See Pictures of acceptable container in Figure 1). The RAS samples shall be representative of the RAS stockpile being reduced per WSDOT Errata to FOP for AASHTO R 47 in the WSDOT Materials Manual. In addition to the sample identification outlined in 6.6.3, the RAS containers shall be marked with indelible markings noting the weight of the material to the 0.1 grams. The required weights



of the RAS containers will be given to the contractor at the time of mix design submittal acceptance. RAS samples that do not meet the above requirements will result in rejection of the RAS mix design.

The RAS materials shall be accompanied by a test report from a certified testing laboratory verifying that the RAS materials submitted for mix design testing is non detect for asbestos utilizing Polarized Light Microscopy (PLM) 1000 point count test. The laboratory testing for asbestos content shall meet the certification requirements of Standard Specifications Section 9-03.21(1)A Reclaimed Asphalt Shingles and provide a copy of their laboratory certification along with the test results. The RAS materials shall also be accompanied by the Safety Data Sheet as outlined in Standard Specifications Section 9-03.21(1)A Recycled Asphalt Shingles.

WSDOT may independently test mix design samples for asbestos containing materials.

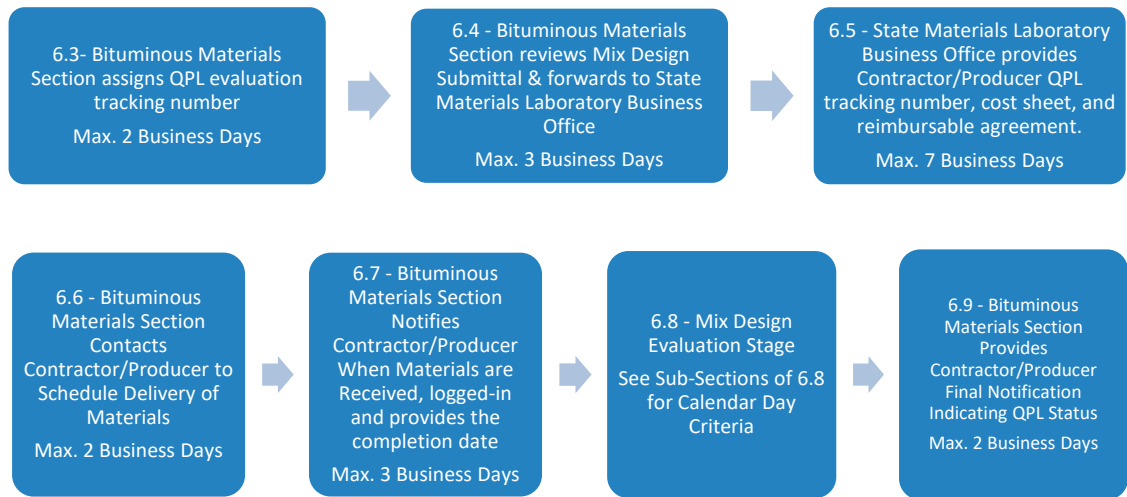
**Figure 1** Pictures of acceptable 16 to 24-ounce aluminum container with lid off and on



- 6.7 The Bituminous Materials Section will notify the Contractor/Producer when the mix design materials have been received, logged-in and a calendar day completion will be provided to the Contractor/Producer as specified in Section 6.9.
- 6.7.1 Mix design materials that are non-representative and/or out of specification will be rejected and require resubmittal of all mix design material. Mix design materials that are rejected and not picked up by the Contractor/Producer within 2 working days of the receipt of rejection will be disposed of. All timelines in Table 1 will restart with resubmittal of mix design materials. When WSDOT elects to independently test mix design samples for asbestos containing materials, the mix design will not be accepted until WSDOT receives the results of its independent laboratory testing.
- 6.8 A priority queue will be established by the Bituminous Materials Section for HMA mix design evaluations.
- 6.8.1 Preference will be given to mix designs submitted for WSDOT contracts.
- 6.8.2 HMA mix design evaluations for WSDOT contracts will be completed within 25 calendar days after the notification in Section 6.7.
- 6.8.3 HMA mix design evaluations that are not for WSDOT contracts, replacement HMA mix designs or HMA mix design evaluations containing RAS materials will be completed approximately 40 calendar days after the notification in Section 6.7.

- 6.8.4 QPL HMA mix design revisions must be submitted to the Bituminous Materials Section in writing, and if approved, a new completion date will be determined by the Bituminous Materials Section.
  - 6.8.5 The Bituminous Materials Section reserves the right to limit the number of HMA mix design evaluations accepted for non WSDOT contracts at any time. Workload and staffing will dictate the number of HMA mix design evaluations accepted at one time.
- 6.9 After the mix design evaluation is complete the Bituminous Materials Section will provide the status of the evaluation to the following:
- Final notification to the Contractor/Producer indicating QPL status after completion of the mix design evaluation.
  - Notification to the Materials Quality Assurance Section, QPL Engineer, that the evaluation is complete, and direction to add the HMA Mix Design to the QPL if applicable.

**Table 1 Timelines Associated with Each Step of the Mix Design Evaluation Process**



**7. Mix Design Evaluation**

- 7.1 The HMA mix design submitted by the Contractor/Producer will be evaluated by the Bituminous Materials Section in accordance with Section 9-03.8(2) and 9-03.8(6) of the *Standard Specifications*. All communication from the Bituminous Materials Section will be to the Contractor’s/Producer’s contact as specified on WSDOT Form 350-042.
- 7.2 HMA mix designs will be placed on the QPL provided they meet the requirements of Section 9-03.8(2) and 9-03.8(6) of the *Standard Specifications*.
  - 7.2.1 Voids in Mineral Aggregate (VMA) must be within 0.5% of the minimum specification in accordance with Section 9-03.8(2) of the *Standard Specifications* for the class of HMA evaluated.
  - 7.2.2 % Gmm at N design must be within 1.5% of the specification in Section 9-03.8(2) of the *Standard Specifications* for the class of HMA evaluated.
  - 7.2.3 Voids Filled with Asphalt (VFA) in Section 9-03.8(2) will not be part of the mix design evaluation.

- 7.3 A mix design that fails to meet the requirements listed in Section 7.2, 7.2.1 and 7.2.2 will not be accepted or placed on the QPL.
- 7.4 Adjustments to mix designs will not be allowed once they have been evaluated.
- 7.5 The Contractor/Producer will be issued a QPL mix design record providing the mix design is in compliance with Section 9 of this Standard Practice.
- 7.6 The QPL listing for HMA mix designs will show the following information:
  - Company name
  - HMA Class
  - Aggregate Source(s)
  - PG Grade
  - PG SupplierAnti-stripping additive brand and quantity (if applicable)

## 8. Referencing Mix Designs From The QPL

- 8.1 Requests for reference HMA mix designs for non WSDOT projects will be completed on WSDOT Form 350-041 and emailed to [HMAMD@wsdot.wa.gov](mailto:HMAMD@wsdot.wa.gov).
- 8.2 Reference HMA mix design reports will be issued for new mix designs on active and awarded WSDOT contracts once accepted and placed on the QPL.
- 8.3 Reference HMA mix design reports will be issued for current mix designs on active and awarded WSDOT contracts provided the HMA production history is in compliance with [Standard Specifications](#) Section 5-04.3(11)F.

## 9. Removal From The QPL

- 9.1 HMA mix designs will be automatically removed from the QPL in accordance with [Standard Specifications](#) Section 5-04.2(1).
- 9.2 HMA mix designs may be removed from the QPL if found in nonconformance with the [Standard Specifications](#) or this Standard Practice. Causes for removal from the QPL may include, but are not limited to the following:
  - Failure to comply with requirements of Standard Practice QC 8.
  - HMA mix designs that are out of compliance in accordance with [Standard Specifications](#)
  - Section 5-04.3(11)F.
  - Failure to notify WSDOT of changes in HMA production.
  - Removal at the request of the Contractor/Producer
  -

## 10. Ignition Furnace Calibration Factor (IFCF) Samples

- 10.1 Each HMA mix design submitted for evaluation will have 12 IFCF samples produced for WSDOT as part of the QPL evaluation process. For Design Build contracts WSDOT will produce 16 IFCF samples produced for WSDOT as part of the QPL evaluation process.
- 10.2 The Contractor/Producer may elect to have 4 IFCF samples produced as part of the QPL evaluation process.