



## **INDIANA DEPARTMENT OF TRANSPORTATION Division of Materials and Tests**

### **Directive 108**

#### **ITM Rules of Preparation**

An ITM is a form of specification and becomes a part of a contract document by being shown as a cross reference in the INDOT Standard Specifications. Contract documents may cross reference to an ITM or an ITM may exist for reasons other than a direct contractual requirement. A test method will become effective immediately upon approval by the ITM Committee and approval by the Director, Division of Materials and Tests.

#### **GENERAL**

An ITM will be prepared in a standard method as established by this guideline. In general, an ITM will follow the format of the AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing, Parts 1 and 2. There are a few section headings which are occasionally used within the AASHTO specifications that will be omitted from the standard major headings for ITMs. However, these AASHTO section headings may be used at the appropriate location within the standard major headings for ITMs. Bolding, underlining, or italicizing that is done in the AASHTO Test Methods will not be done, unless unusual circumstances determine a need for such emphasis.

A revision date will be maintained showing the actual date a version of the ITM was updated, or initially created, on the upper right hand corner of the first page and each subsequent page. The change in the revision date may or may not mean a substantive change has occurred to the ITM.

An orderly numbering system will be maintained for the ITMs. A three digit number will be assigned to the ITM, which is then followed by a hyphen and the last two digits of the calendar year. The calendar year identifies when the ITM was adopted or substantially revised. The letter T for a test method or the letter P for a test procedure will follow the calendar year.

An ITM is required to be reviewed and reconfirmed every four years from the year of adoption or the year of the latest revision. The year of review will be indicated in parentheses following the letters T or P in the test method identification.

The Material Services Engineer will assign the ITM number and all revision dates. The first three digits of the ITM will be assigned as follows:

<b>Test Method Materials or Subjects</b>	<b>Assigned Numbers</b>
Cement, except chemical analysis	101 to 199
Aggregate Materials	201 to 299
Metallic Materials, except chemical analysis	301 to 399
Concrete Materials	401 to 499
Soils	501 to 569
Asphalt Mixtures	571 to 599
Chemical Analysis, including metals, paints, epoxies, etc.	601 to 699
Asphalt Materials	701 to 799
Miscellaneous Materials	801 to 899
Testing Equipment Calibrations	901 to 925
Traffic	926 to 950

### **FORMAT AND MAJOR HEADINGS**

Each ITM will adopt the standard appearance as presented in Appendix A. A template is available in computer software that will establish the basics for the ITM document. The ITM writer will address each of the major headings, if appropriate. Other unique headings may be added as needed by the ITM writer. The major headings are as follows:

**SCOPE.**  
**REFERENCES.**  
**TERMINOLOGY.**  
**SIGNIFICANCE AND USE.**  
**APPARATUS.**  
**SAMPLING.**  
**PREPARATION OF TEST SPECIMEN.**  
**PROCEDURE.**  
**CALCULATIONS.**  
**REPORT.**  
**PRECISION.**

When new headings are presented, each heading will be inserted in the proper sequence to the ITM. The template has text shown in normal type that is standard under the heading and will be followed. Alternate ordering and guideline instructions are indicated in italicized type.

### CONVENTIONS FOR WORDS AND PHRASEOLOGY

**General.** Certain words and phrases have been adopted in the Standard Specifications and Recurring Special Provisions by the Standards Committee. The ITM Committee will adopt these conventions as much as possible, except where the ITM Committee determines a variation is preferred.

**References.** Cross references to other publications may be made, but in the following concise manner.

Instead of	Preferred
...in accordance with section 105.05 of the Indiana Department of Transportation Standard Specifications dated 2006...	...in accordance with 105.05...
If an entire referenced specification does not apply, use the phrase:	...in accordance with the applicable requirements of...

**Terms and Abbreviations.** ITMs will use the definitions contained in the Standard Specifications, Section 101 for key terms and abbreviations. Each ITM will contain an opening statement under Terminology that will make this cross reference. Definition of terms will not be repeated in the ITM for terms already contained in the Standard Specifications. Abbreviations will also not be repeated or initially identified by spelling out the entire term, then showing the abbreviation if the abbreviation is defined in the Standard Specifications.

Instead of	Preferred
...the Indiana Department of Transportation (INDOT)... ...INDOT	...the Department...
...an approved AASHTO Materials Reference Laboratory...	...an approved AMRL

SI metric is an international convention and metric symbols are not required to be defined. Most symbols common to transportation work are indicated in a table within the Standard Specifications.

Definitions will be used to define uncommon and exclusive industry related terms. Definitions will also be used to define a term common to everyday language, but having an uncommon, industry related definition.

**Common Words and Phrases.** ITM writers are required to use the following preferred words and phrases instead of words occasionally selected.

<b>Instead of</b>	<b>Preferred</b>
any any and all	all
as shown in the plans as detailed on the plans as shown on the detail sheets as shown on the standard drawings as shown on sheet ___ of the plans	as shown on the plans
each and every	each
insure assure	ensure
guard rail	guardrail
in conformance with	in accordance with
and/or	or
bid item item line item	pay item
project limits	contract limits
shall conform to	shall be in accordance with
utilize	use

The steps for conducting a test are written with the word "shall". If the test method or procedure has references to the Department or the Contractor, the word "shall" is used for the Contractor and the word "will" is used for the Department. Most specification statements may be written with just the word "shall" or "will" without using the word Contractor or Department. Subcontractors, Suppliers, Fabricators, Manufacturers, and others hired by the Contractor also "shall". The Department, the State, the Project Engineer, the DTE, the Technician and others who observe and enforce contract requirements also "will".

<b>Instead of</b>	<b>Preferred</b>
The Contractor shall place the concrete...	The concrete shall be placed...
The Engineer will measure the depth...	The depth will be measured...
...placed as directed by the Engineer.	...placed as directed.

Use shall or will instead of is to, must, should or similar verbs.

Instead of	Preferred
This work is to be done... This work must be done... This work should be done...	This work shall be done...

**Numerals.** Use numerals instead of written out names for all numbers that are shown with units of measure. Use numerals in fractions and decimals. Write out all names for numerals between one and nine, inclusive, that are not shown with units of measure. Use numerals instead of written out names for all numbers 10 and above that are not shown with units of measure. Do not begin a sentence with a number.

Instead of	Preferred
There shall be 1 sign...	There shall be one sign...
There shall be five liters...	There shall be 5 L...
There shall be three and one half turns...	There shall be 3 1/2 turns...
...shall submit 5 sets of samples...	...shall submit five sets of samples...
...shall be ten wires per conduit...	...shall be 10 wires per conduit...
14 tests will be performed... Fourteen tests will be performed...	...will require 14 tests...

Do not spell out numbers and then follow the numbers with a number in parentheses.

Instead of	Preferred
...shall be placed two (2) feet from...	...shall be placed 2 ft....

**Units of Measure.** Write out units of measure within sentences when not accompanied by a quantity. Units of measure may be shown as a symbol when used in tabular form or when accompanied by a quantity. Metric equivalents will appear immediately following English measures and be indicated in parentheses. The acknowledged and common abbreviations will be used as the English equivalent. The English unit, therefore, need not be written out.

Instead of	Preferred
...shall be placed 5 feet (1.5 meters) from...	...shall be placed 5 ft (1.5 m) from...
...shall be placed 1/4 inch (6 mm) from... ...shall be placed 1/4" (6 mm) from...	...shall be placed 1/4 in. (6 mm) from...
...will be measured by the ft (m)...	...will be measured by the linear foot (meter)...

**Emphasis.** Individual words, phrases, sentences, or even paragraphs in Test Methods are not to be emphasized. Typically, emphasis has been indicated by way of capitals, underlining, boldface and quotation marks. Ordinary type is enforceable without emphasis.

Instead of	Preferred
THIS WORK SHALL NOT CONTINUE AFTER DECEMBER 1.	This work shall not continue after December 1.
<u>This work shall not continue after December 1.</u>	
This work shall not continue after December <b>1.</b>	
This "work" shall not continue after "December 1".	

**Parentheses.** Nearly all parentheses may be eliminated without loss of sentence clarity. The only permitted parenthetical phrases are metric equivalents which follow English measurement units. Otherwise, parentheses have a tendency to hide or de-emphasize other genuinely important statements.

Instead of	Preferred
The painting shall include an undercoat [min. 2.5 mils (64 $\mu$ m)] of vinyl.	The painting shall include a vinyl undercoat having a thickness of 2.5 mils (64 $\mu$ m).
The finish coat (vinyl) shall be...place	The vinyl finish coat shall be placed...
...for each intersection by type (i.e. traffic signal or flasher).	for each intersection by type, such as traffic signal or flasher.

**Capitalization.** The phrases which require full capitalization are ITM titles and subsection headings. The words which require an initial capital letter without regard to their location in the sentence are Department, Engineer, Contractor, titles of individuals, titles of reference

publications, abbreviations in 101.01, or other proper nouns if their use is required. Capitalization shall not be used to emphasize certain words or phrases.

### **PROCEDURE FOR CREATING OR CHANGING AN ITM**

**Creating an ITM.** The following steps will be followed to initiate, develop, and implement a new ITM.

1. A person identifies a need for a new ITM.
2. The person will contact the Material Services Engineer, who establishes a number for the ITM and activates the preset word processing software for preparing the draft version of the ITM.
3. The person will prepare a draft of the new ITM on the word processing software.
4. The person will discuss the proposed ITM with affected parties and either incorporate comments into the draft or make a note of the comments for later discussion.
5. The Material Services Engineer will prepare a checklist for all other system changes and prepare the proposed changes to the affected systems.
6. The person will provide the Material Services Engineer with an electronic version of the draft ITM.
7. An ITM Committee member will review the draft for general content and adherence to preparation standards and notify the Material Services Engineer to include the ITM on the next available meeting agenda.
8. The Material Services Engineer will add the draft ITM as an agenda item on the next available meeting.
9. The Material Services Engineer will publish the agenda with the proposed ITM.
10. The ITM Committee will discuss the merits of the ITM and, if acceptable, the Chairman will designate a Contact Person for the ITM.
11. The Material Services Engineer will note any changes to the draft ITM during the discussion, and the Committee will vote on the ITM.
12. The Material Services Engineer will include the ITM in the meeting minutes.
13. The Material Services Engineer will distribute the meeting minutes.
14. Members of the ITM Committee will address editorial changes to the ITM version contained in the minutes within two weeks.

15. The Material Services Engineer will make the changes to the meeting minutes.
16. The minutes will be forwarded to the State Materials Engineer for review and approval.
17. The approved ITM will be published by the Material Services Engineer.

**Changing an Existing ITM.** The following steps will be followed to develop and implement changes to an existing ITM.

1. A person identifies a need for a change to an existing ITM.
2. The person will notify the Contact Person assigned to the ITM and the Materials Services Engineer in writing.
3. The Material Services Engineer will activate a copy of the existing ITM in the word processing software for preparing the draft version of the proposed changes to the ITM.
4. The person will prepare a draft of the revised ITM on the word processing software.
5. The person will discuss the revised ITM with affected parties and either incorporate any comments into the draft or make a note of the comments for later discussion.
6. The Material Services Engineer will prepare a checklist for all other system changes and prepare the proposed changes to the affected systems.
7. The person will provide a member of the ITM Committee and the Material Services Engineer with an electronic version of the draft ITM.
8. The ITM Committee member will review the draft for general content and adherence to preparation standards and notify the Material Services Engineer to include the draft ITM on the next available meeting agenda.
9. The Material Services Engineer will add the draft ITM as an agenda item on the next available meeting.
10. The Material Services Engineer will publish the agenda with the revised ITM.
11. The Material Services Engineer will note any changes to the draft ITM during discussions, and the Committee will vote on the ITM.
12. The Material Services Engineer will include the ITM in the meeting minutes.
13. The Material Services Engineer will distribute the meeting minutes.



14. Members of the ITM Committee will address editorial changes to the ITM version contained in the minutes to the Material Services Engineer within two weeks.
15. The Material Services Engineer will make the appropriate changes to the meeting minutes.
16. The minutes will be forwarded to the State Materials Engineer for review and approval.
17. The approved ITM will be published by the Material Services Engineer.

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**INDIANA DEPARTMENT OF TRANSPORTATION  
DIVISION OF MATERIALS AND TESTS**

*TITLE FOR TEST METHOD OR PROCEDURE*  
ITM No. 000-YYT (YYYY) or 000-YYP (YYYY)

**1.0 SCOPE.**

- 1.1** This test method (*procedure*) covers the... (*The scope shall contain a concise statement about the purpose of the ITM*)
- 1.2** The values stated in either acceptable English or SI metric units are to be regarded separately as standard, as appropriate for a specification with which this ITM is used. Within the text, SI metric units are shown in parenthesis. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other, without combining values in any way. (*This statement is required if the ITM is to contain both English and metric units. The English unit shall be shown first and the metric unit shall appear within parenthesis.*)
- 1.3** This ITM may involve hazardous materials, operations, and equipment and may not address all of the safety problems associated with the use of the test method. The user of the ITM is responsible for establishing appropriate safety and health practices and determining the applicability of regulatory limitations prior to use.

**2.0 REFERENCES.**

**2.1 AASHTO Standards.**

*M ### Material Name*  
*T ### Test Name*

**2.2 ASTM Standards.**

*A ### Standard Name*

**2.3 ITM Standards.**

*### Method (Procedure) Name*

**2.4 OTHERS.**

**3.0 TERMINOLOGY.** Definitions for terms and abbreviations shall be in accordance with the Department's Standard Specifications, Section 101 (*and as follows.*)

**3.1 Descriptions of Terms.**

**3.1.1 Term, symbol.** The... (*concise description of a term*)

a) Discussion. The term... *(explanation of the term)*

**4.0 SIGNIFICANCE AND USE.** This ITM is often used to... *(discuss the circumstances that the ITM will be used in normal practice and how the results will be used)*

**5.0 APPARATUS.**

**5.1 Apparatus Name.** The apparatus name shall be in accordance with the requirements of AASHTO (ASTM or ITM) M(T) ### for the... *(complete with appropriate statement, including parameters under which the apparatus is required to perform)*

**6.0 SAMPLING.**

**6.1** Sampling shall be done in accordance with... *(complete with appropriate reference)*

**7.0 PREPARATION OF TEST SPECIMEN.**

**7.1** Obtain approximately *(measurement unit)* of the sample using... *(complete with appropriate statement)*

**8.0 PROCEDURE.**

**8.1** *(Describe each step of the procedure in detail as the work occurs in the sequence of the test method. Each step of the procedure will describe the performance parameters, such as time and temperature. Procedures will identify the data to be recorded and the level of significance required. If different methods are used to arrive at a result, each will be described separately as Method A, Method B, etc.)...*

**8.1.1** *First statement in a listing...*

**8.1.2** *Second statement in a listing...*

**9.0 CALCULATIONS.**

**9.1** Calculate the... *(Formulas used in calculating the end result from the test will be stated. Each term in the formula will be defined. Each formula will have a separate subparagraph. Several steps or formulas may be required to provide a simple and understandable process.)*

**10.0 REPORT.**

**10.1** Report... *(characteristic being measured)* to the nearest *(decimal place)*

**11.0 PRECISION.**

**11.1** The estimates of precision of this test method (*procedure*) are based on results from the... (*complete with appropriate statement*)

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### ITM CHECKLIST

ITM : \_\_\_\_\_

Date ITM Approved: \_\_\_\_\_ Date ITM Implemented: \_\_\_\_\_

#### ITM Review

- The ITM format is in accordance with the ITM Rules of Preparation
- If a new ITM, an ITM Committee member has reviewed the ITM
- If a revised ITM, the Contact Person has reviewed the ITM

#### Specifications

- If the ITM is revised, the Standard Specifications, Recurring Specifications, or Unique Special Provisions have been identified
- If revisions to the Specifications are required, the revised Specification has been submitted to the State Materials Engineer for submittal to the Standards Committee

#### SiteManager

- Revisions to SiteManager have been checked and revisions submitted

#### Frequency Manual

- Revisions or additions to the Frequency Manual have been checked and included in the temporary file of the Frequency Manual for the following year

#### Instructions to Personnel

- District personnel affected by the ITM will be instructed to implement the ITM by: \_\_\_\_\_  
\_\_\_\_\_
- Materials and Tests personnel affected by the ITM will be instructed to implement the ITM by: \_\_\_\_\_  
\_\_\_\_\_
- Contractor personnel affected by the ITM will be instructed to implement the ITM by: \_\_\_\_\_  
\_\_\_\_\_

**Approved Material List**

- If the Approved Materials List is affected, the Contact Person of the Approved Material has been notified
- If the ITM requires a new listing on the Approved Material List, a Contact Person is identified

**Testing Equipment**

- Changes to existing testing equipment will be implemented by: \_\_\_\_\_  
\_\_\_\_\_
- Purchase of new testing equipment for all personnel conducting the ITM will be done by: \_\_\_\_\_  
\_\_\_\_\_

**Training Manuals**

- Contractor manuals are checked for revision
- HT Academy manuals are checked for revision
- General Instructions to Field Employees manual checked for revision

**Programs**

- Independent Assurance Program checked for revision
- Qualified Technician Program checked for revision

**Exams**

- Qualified Technician exams are checked for revisions
- HT Academy, Certified Technician, and Contractor Certification exams checked for revisions

NA -- Not Applicable

√ -- Satisfactory

Other Issues: \_\_\_\_\_  
\_\_\_\_\_

Material Services Engineer: \_\_\_\_\_

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