**A Montana Tech Method Software Development Standard**

**MTM Small Module Development Sheet Inspection Process**

Version 1.5
September 8, 2014

A. Frank Ackerman

*Software Engineering
Montana Tech of the University of Montana*

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| *Version* | *Date* | *Author*  | *Comment* |
| 1.0 | 05/20/10 | Frank Ackerman | First version |
| 1.1 | 04/09/11 | Frank Ackerman | Improvements for Senior Seminar Talk |
| 1.2 | 07/28/11 | Frank Ackerman | Generalize for multiple inspections |
| 1.3 | 09/19/11 | Frank Ackerman | Clarify re-work considerations |
| 1.4 | 09/15/12 | Frank Ackerman | Wording and additional clarification |
| 1.5 | 09/08/14 | Frank Ackerman | Minor changes |

# Introduction

This document describes the inspection forms and process to be used to inspect a program developed using the *Small Module Development Sheet* (SMDS).

Entry Conditions

1. It has been specified in the development sheet that an inspection (or several inspections) is(are) required for this program.
2. All the documentation required for the inspectionhas been completed.
3. All the unit tests have been executed successfully, if so required.

Inspection Process

## The program Author obtains an Inspection Moderator

For most of the programs developed in the Montana Tech CS Department the Inspection Moderator will be designated by the course instructor. The Moderator’s first responsibility is to meet with the Author to verify that all of the deliverables called for in a small module development sheet have been satisfactorily completed. In the case where the inspection has been set up by the instructor, the Moderator should verify that all the deliverables are in the package prepared by the instructor.

## The Inspection Moderator recruits an inspection team.

Again, for most programs developed in the Montana Tech CS department the inspection team and the roles of each individual on the team will be designated by the course instructor.

## The Inspection Moderator schedules the inspection meeting

Again, for most programs developed in the Montana Tech CS Department the meeting will be scheduled by the course instructor. An important first question is: Can all the material be inspected in one meeting? An inspection meeting should not be scheduled for more than a class period. If this is not enough time then the Moderator (or instructor) should schedule more than one meeting. If a meeting place has not already been scheduled the Moderator needs to attend to this detail.

## The Inspection Moderator distributes the meeting preparation materials

Again, for most programs developed in the Montana Tech CS Department the inspection preparation materials will be prepared and distributed by the course instructor. These materials will consist of:

1. Inspection Meeting Notice (for each inspector)

An inspection meeting notice and accompanying checklist provides a high level description of the planned inspection. For every MTM inspection there are four participant roles:

1. Moderator

The Moderator is in charge of the inspection meeting. The Moderator leads the inspection team through each item designated on the Meeting Notice check list. When examining detailed logic and complex correctness arguments the Moderator may read the material out loud verbatim. The Moderator needs to make sure that the Recorder records each of the defects the team discovers. At the completion of the inspection it is the Moderator’s responsibility to turn in the Inspection Report and Defect List(s) to the project manager.

1. Author

The Author is the person who is responsible for the module at the time of the inspection. Typically this is the person who created the development sheet, and wrote and tested the code.

1. Recorder

The Recorder is responsible for accurately recording all of the defects that the team finds and for entering the summary defect counts at the end of the meeting.

1. Inspector

Any member of the inspection team that does not have one of the three roles listed above is designated simply as an Inspector. Inspectors are responsible for: (1) preparing for the meeting according to the checklist and making note of potential defects either on the meeting notice or directly on the materials to be inspected, and (2) actively participating in the meeting (see inspection meeting description below). Although not specifically so designated, the Moderator, Author, and Recorder are also inspectors.

1. Simple Program Development Sheet Inspection Checklist

All inspectors should use this list for their preparation and actually check off each item.

1. The Simple Program Development Sheet

This is the artifact that is to be inspected. In our class inspections we usually inspect only the SPDS sections noted on the Inspection Meeting notice.

1. Code Listings

If code is to be inspected it will be presented as a separate attachment. Inspection code defects include any non-conformances to the pertinent MTM code standard.

1. Listings of test scripts, test files, and test outputs

Depending in their size, test scripts, test files, and test outputs may be included in the body of the SPDS or on separate attachments. If a random test is called for there should be a separate listing of the random test case generator.

1. Inspection Report

Every inspection must produce an Inspection Report. The Moderator should begin compiling this report at the beginning of the inspection meeting by obtaining and recording each inspector’s preparation time and number of major defects.

## Each member of the inspection team individually prepares for the inspection meeting

Each Inspector carefully examines all the materials checked on the Meeting Notice with particular attention to the points mentioned on the *Small Module Inspection Checklist*. Each inspector should make note of parts of the material he or she did not fully understand, he or she suspects may be defective, and any items he or she think are actual defects. Each inspector should note how much time he or she spent on preparation.

## The Inspection Moderator conducts the inspection meeting

The first item of business is to collect preparation times and number of major defects from each Inspector. The Moderator records these times on the Inspection Report. The Moderator must then decide if the team is sufficiently well prepared to proceed with the inspection. If the team is not sufficiently well prepared, the meeting should be rescheduled.

An inspection meeting should be narrowly focused on finding defects in the program’s work products. All inspectors are responsible for keeping this focus and should keep in mind that it is the artifact that are being inspected, not the Author. Avoid personalizing the artifact, address the artifact items, not the Author. For example, don’t say, “You wrote here ...” but rather something like “The code here is saying ...”. Do not try to correct any of the defects found. Problem solving is fun, but an inspection meeting is not the place for it; speak to the Author after the meeting if you think you have an idea that he or she would benefit from.

Since the purpose of an inspection meeting is to find defects in the Author’s work products it’s often easy to create interpersonal tensions. All Inspectors should go out of their way to avoid this and the Moderator should step in and address any interpersonal problems that arise.

All of the parts of the program development sheet that are checked on the meeting notice should be examined. The *Small Module Inspection Checklist* provides the order in which parts should be inspected and details on what to look for in each item.

## The inspection team determines whether or not a re-inspection is necessary

Usually the defect corrections necessary can safely be checked when the Moderator verifies the Author’s rework (see the step below) so a re-inspection is not necessary. In some cases, however, (1) the Author may not have clearly understood the problem, (2) the requirements may have changed between the time the Author was assigned the problem and the time of the inspection or (3) significant parts of the artifact being inspected were missing. In these cases a re-inspection may be necessary. Also, if any of the defects found during the meeting appear to involve a substantial amount of re-work, or complex rework, a re-inspection should be held.

## The Author addresses each item on the defect list

The Author should comment on each item on the defect list. Usually this will just be the comment “fixed”. In some cases, however, the Author may decided that what he or she thought was a defect during the inspection meeting is not in fact a defect. The reasons for this should be noted.

## The Moderator verifies the Author’s rework

The Author should make all the development materials available to the Moderator along with his or her annotated *Defect List*. Ordinarily the Moderator should be able to verify that all recorded defects have been addressed, but in some cases he or she may have to consult with the Author to do this.

## The Inspection Moderator completes the inspection

To complete an inspection the Moderator should turn into the project manager (in our case this is usually the instructor) (1) his or her copy of the meeting notice(s), (2) the Defect List with the Author’s annotations, and (3) the *Inspection Report*.

Exit Condition

Item 3.10 above has been completed.