

**Department of Civil and Environmental Engineering
Laboratory Project Information Form**

Checklist

- Project description complete
- Completed laboratory safety training
- Completed WHMIS training
- Student/supervisor signed off

**Department of Civil and Environmental Engineering
Laboratory Project Information Form**

Project Information			
Project Title			
Project Duration	<i>Start Date:</i>		<i>Duration:</i>
Project Supervisor			
Funding Source			
Project Description			
List of Chemicals/Materials and Required Precautions			
Space, Equipment and Staff Time Requirements			

Student Information			
Name			
Student No.			
Email address			
Office No.			
Office Phone Ext.			
Degree Program	<input type="checkbox"/> Ph.D. <input type="checkbox"/> MAsC. <input type="checkbox"/> MEng. <input type="checkbox"/> USR	Expected Graduation	
Emergency Contact	Home Phone #	Cell Phone #	
WHMIS	Completed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Date completed	
Lab Safety Training	Completed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Date completed	

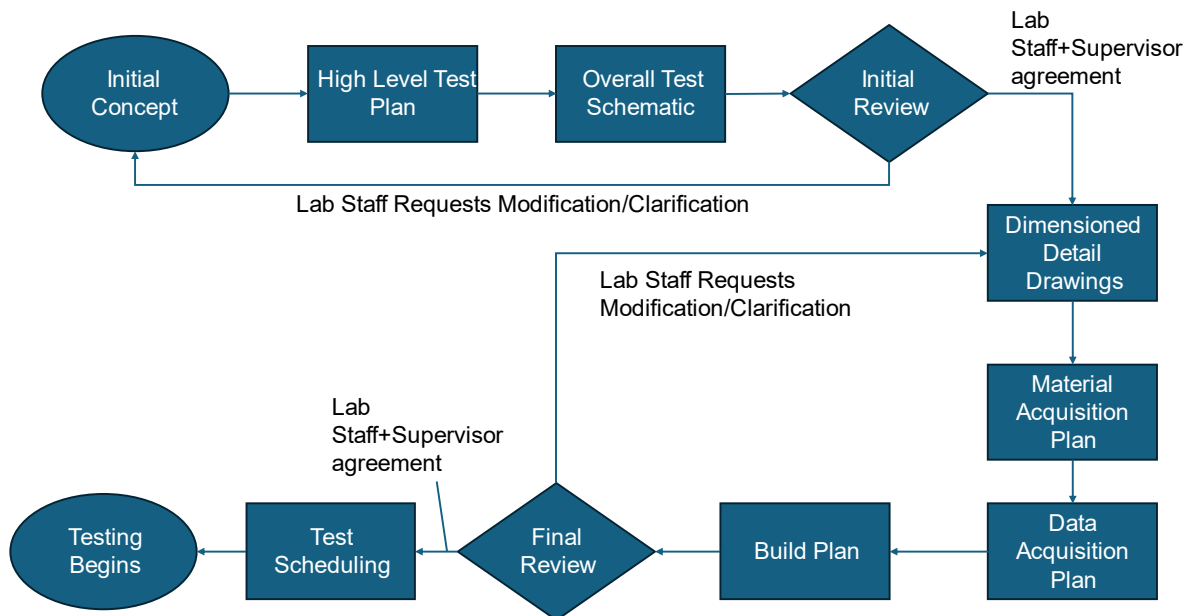
Signatures			
Student		Date:	
Supervisor		Date:	
Lab. Supervisor		Date:	

Department of Civil and Environmental Engineering Laboratory Project Test Plan

Preface and Guide

The remainder of this document is designed to provide guidance and details on the steps that need to be followed or the tasks that need to be accomplished prior to the implementation of any testing, especially those which will take place on the Strong Floor. Testing is by nature expensive and time-consuming and a few hours upfront will save many hours, and much frustration later. Therefore, the goal is to have a ‘test plan document’ so that everyone involved understands the goal and associated risks and the project can move forward in a timely and cost-effective manner. However, it is not possible to provide a generalized form as the requirements will differ significantly from one project to another and thus only general guidelines are provided here; whatever methodology best suits the particulars of the test design is also acceptable. Also, the plan is not expected to be perfect. It is well understood that changes and modifications are a part of testing. However, if we have a well-defined test plan in place, it would be much easier to visualize the deviations from the plans and make the necessary course corrections.

The flowchart below shows the general path forward. Each step is detailed in the text section below. Please be aware that at any point the lab staff is available to assist in the development of the plan. It is likely to be beneficial, especially during reviews, in that necessary modifications or clarifications can be requested and made. The goal here is to work more effectively together and leverage the skills available from everyone in the department.



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BLOCK EXPLANATIONS

High-Level Test Plan:

A high-level test plan is designed to provide the overall context of what the testing is designed to accomplish from the perspective of the researcher implementing the testing. Some major points which should be included are as follows, but these points should not be considered exhaustive.

- What is the end question which is trying to be answered?
- What is the size of the samples? (Very general, are they large, handheld, microscopic?)
- Does the testing require a statistical sample? How many articles are expected to be under test?
- How many tests are required and how do they relate to one another?
 - Does one test have to run before another?
 - Is there expected to be a lag time between one test and another?
 - Does one test inform the loading/instrumentation on the next test?
- Are there any standard test methods which will be used for any of those steps?
 - Is the testing a modification of any standard tests?

Overall Test Schematic:

Please provide a drawing that meets all the criteria below. Ideally, this drawing should have at minimum three views and possibly sections, with as much detail as possible, with the understanding that at this point everything is unlikely to be completely decided. Where a question exists, it should be noted clearly.

- Overall dimensions of specimens (Length/Width/Height)
- Location of loading (if applicable)
- Required data collection types (Example: Force, Temperature, Strain, Displacement, etc.)
- Any non-negotiable requirements.

Initial Review Meeting with the Lab Staff

The initial review meeting with the lab staff will ensure a good understanding of the initial test plan and schematic if there are any major lingering questions. Lab staff will also provide feedback from the perspective of complicated elements of the test plan from their perspectives and potential ways to mitigate any risks and provide guidance into the detailed design phase.

It will help if the research supervisor is available for this meeting so all involved parties are on the same page.

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Dimensioned Detailed Drawings

For **each component** in the test, a detailed drawing should be generated. This is required for any component which the lab staff is supposed to build. The drawing should have three views and have the following information at a minimum.

- Complete dimensions
- Complete tolerances (Maximum and minimum allowable sizes)
- Material definition

Material Acquisition Plan

A Bill of Materials (BOM) with the following details should be provided.

- A complete list of everything required to run the testing from samples down to screws and adhesives, ideally with cost and lead times.
- When are the samples expected to arrive, or the lead time for them once they are needed?
- Where are the samples being stored prior to/during/after the testing?
- Are there any specific requirements for the storage of the samples to retain their required properties?

Data Acquisition Plan

A document detailing the data acquisition requirements should be provided. For each sensor, the following should be detailed at a minimum.

- Sensor type
- Location
- Required capture rate (Time between samples)
- Required resolution (How small of a difference needs to be measured)
- Any required post-processing such as
 - Filtering
 - Averaging
 - Decimation

Build Plan

For each of the detailed drawings **that are not being manufactured by the lab staff**, a plan of manufacture should be written. This is particularly important for anything which is glued or has strain gauges installed, as prior planning of this information can significantly improve the quality of data generated/reduce the annoyance post-testing.

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It also properly informs the lab staff how much space is required for the lead-up to testing such that it can be properly scheduled.

Scheduling

With the final plan in place, the lab supervisor will provide a preliminary schedule and a space within the lab based on the availability of the lab staff/requirements of the project and the number of projects running. This shouldn't be considered perfect as no project runs without error but should provide a reasonable expectation as to when the testing can be completed.

Final Review

The lab staff, student, and research supervisor will sit down together and evaluate all the preplanning data and assumptions and develop a reasonable timeline for the testing. This in general will be best completed in person in the area the test is most likely to be performed in. From there final signoff will be completed and work can begin.