**XVI.** **During Construction**

m. **Material Testing**

**What is it?**

Materials testing is the process of pulling, bending, twisting, turning, hitting, and

squeezing building materials or components to make sure they withstand the

intense stresses, strains and impact forces they are likely to experience in use

and  application. In other words, materials’ testing examines the overall strength,

toughness, flexibility, suitability and fitness for the intended purpose.

**Why is it required?**

Effective materials testing is essential to verify building material characteristics

for application trials, detect defects, analyze failures.

**Who is involved and what are their roles?**

Material Testing Vendor – Study project document, perform required tests and

submit test results.

General Contractor – Schedule testing services with testing vendor and sign time

tickets for the technician in the field.

Architect/ Engineer - Identify and specify tests and acceptable parameter required

for the project and review test reports for compliance with specifications.

WSU Project Manager – Bring testing vendor on board before construction

commencement, manage / coordinate all testing activity from start to acceptance.

**How is it done?**

N/A

**Forms**

**Filing**

File all test reports electronically in a folder.

**Reference**

See attached list of tests that may be required for a construction / renovation

Project.

n. **Security**

**What is it?**

This comprises of installation of security devices such as cameras, alarms, one

card machines and associated infrastructure. Security devices can report locally

or report to a central networking system (WSU Police)

**Why is it required?**

The purpose to install security devices is to protect and monitor university’s

property and personal.

**Who is involved and what are their roles?**

General Contractor / Security Vendor / Electrical Subcontractor – Furnish, install

and test security devices per university guidelines and project specification.

Coordination with the project team is required before final installation.

WSU Police / C&IT (department and university ) / One Card Office– Participate in

coordination meetings and facilitate testing of security devices.

WSU Project Manager – Make sure key team members are involved early on

in the project and all security concerns from customer and WSU Police is being

addressed.

Architect / Security Consultant – Answer questions / concerns that come up

during coordination / installation and verify that work is performed per

specifications.

*Note: WSU Police plays a role only if the security system in the project reports*

*back to Public safety.*

**How is it done?**

Security contractor can be the General Contractors sub-contractor or could be

directly hire by WSU.

**Critical Timeline**

Security consultant must be involved during planning Phase of the project. There

are infrastructure required that should be covered in the construction document.

**Forms**

**Filing**

File hard and soft copies of as builds drawings. A set of drawing must be

sent to WSU Police for their files.

**Reference**

Other primary contracts / methods of contracting

**o. Testing and balancing**

**What is it?**

It is the process of performing air and hydronic flow / pressure measurements on

the building HVAC system. Flow is adjusted to achieve optimum performance of

the building environmental equipment.

**Why is it required?**

Testing and balancing is performed to achieve proper operation of the HVAC

system in a building.

**Who is involved and what are their roles?**

Testing balancing vendor – Perform required tests, adjustments and balance

building HVAC system and submit results.

General Contractor – Schedule and facilitate testing – balancing with WSU PM

and testing vendor.

Architect/ Engineer – Verify proper operation and capacity of existing HVAC

System, design new or revisions to the existing HVAC system to support

renovation of the space, and review test reports for compliance with design and

specifications.

WSU Project Manager – Bring vendor on board before construction

commencement, manage / coordinate all testing – balancing activity from start to

acceptance.

*Note: Testing and balancing vendor are in some cases directly hired by the*

*General Contractors.*

**Critical Timeline**

A testing and balancing vendor must be brought on board before construction

Commencement. It is important to measure air and water flow / pressure of

existing HVAC system.

**How is it done?**

N/A

**Forms**

**Filing**

File pre and post construction test reports electronically in a folder.

**Reference**

Other primary contracts / methods of contracting