PART 1 – GENERAL
This design standard has been established to standardize typical acoustical ceiling tile installations at WUSM. Where minor renovations occur within a department and adjacent ceiling areas are scheduled to remain, the ceiling tiles and suspension system (if appropriate for the area) shall match the existing adjacent ceiling as close as commercially possible. Verify type with the Design & Construction Project Manager.

PART 2 – PRODUCTS
Ceiling tile types and descriptions referenced below are from Armstrong World Industries, Inc. Any deviations from these standards must be reviewed with and approved by the Design and Construction. All ceiling products shall be Class A minimum. It is the design professionals responsibility to determine need and location for use of fire guard/fire resistive products for use in UL floor/ceiling assemblies.

Design Standard Typical Installations

<table>
<thead>
<tr>
<th>Ceiling Tile Size</th>
<th>Type</th>
<th>Typical Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT-1 2' x 4' x 5/8&quot;</td>
<td>Fine Fissured #1729</td>
<td>Laboratories and utility spaces</td>
</tr>
<tr>
<td></td>
<td>Square edge Tegular #1732</td>
<td>Laboratory offices, offices, passages &amp; corridors</td>
</tr>
<tr>
<td>ACT-3 2' x 2' x 5/8&quot;</td>
<td>Dune #1774</td>
<td>Exec. offices, public corridors/lobbies, conference rooms, classrooms, administration areas, and as approved by the project manager</td>
</tr>
<tr>
<td></td>
<td>Tegular</td>
<td></td>
</tr>
<tr>
<td>ACT-4 2' x 4' x 5/8&quot;</td>
<td>Clean Room VL</td>
<td>At areas requiring a washable finish such as tissue culture laboratories, clean rooms and BSL-2 labs</td>
</tr>
<tr>
<td></td>
<td>Square edge</td>
<td>Note: Drywall ceilings are also appropriate for these locations. Ceilings at BSL-3 labs shall be drywall.</td>
</tr>
<tr>
<td>ACT-5 2' x 4' x 5/8&quot;</td>
<td>Ceramaguard #605</td>
<td>At damp locations provide moisture resistant acoustical panels. Locations include areas of high humidity such as autoclaves, glass washing areas, showers, and other wet locations. Note: Drywall ceilings are also appropriate for these locations. Hold down clips are not required with Armstrong products.</td>
</tr>
<tr>
<td></td>
<td>Square edge Unperforated</td>
<td></td>
</tr>
</tbody>
</table>

Ceiling Tile and Grid System Types

Acoustical panels shall be white (type as indicated above) or approved equal.

Ceiling grid system shall be Prelude XL 15/16" exposed tee system with a white baked on enamel finish or approved equal. Use of colored grid or different grid widths are by exception only and only where approved by the Project Manager.
Ceiling grid system at damp locations and clean rooms shall be 15/16” gasketed aluminum clean room grid system or approved equal. Optional use of 1 ½” grid width at clean room ceilings is acceptable. Wall molding at these locations shall be gasketed aluminum. Hang wires should be non-rusting.

**Special Exceptions**

Concealed spline suspension systems shall be used only in renovation areas where required to match existing.

Elevator lobbies shall be acoustical lay-in ceilings with drywall accents as appropriate and approved by the Project Manager.

**Seismic Design**

Suspended acoustical tile ceilings and suspension systems must be designed in compliance with IBC 2003, CISCA Guidelines and ASCE 7-02. The design professional (architect or professional engineer) must determine the Seismic Design Category and corresponding zone. WUSM design standard is category “C”, Zone “2”.

**NOTE:** If it is the architect’s belief that the project requires designing to a greater seismic design category (D, E & F) and associated seismic zone (3-4), the WUSM project manager must be notified by the architect along with a reason to substantiate a greater risk level. This notification should take place no later than the design development phase.

**Minimum seismic design criteria for suspended lay-in acoustical ceilings:**

- a. 7/8” wall molding with 3/8” clearance at all sides or with use of Berc clips the grid can be tight on two adjoining walls and ¼” clearance at clips.
- b. Intermediate duty grid system.
- c. Ceiling areas >1000 sf: requires lateral bracing (four 12 ga. Splay wires secured to the main runner within 2” of the cross runner intersection and splayed 90˚ from eachother at an angle not exceeding 45˚ at 12’ oc, maximum 6’ from room perimeter walls.
- d. Vertical hanger wires at 4’ oc along each main runner with a minimum of 3 turns and not hung more than 1 in 6 out of plumb (unless countersloping wires are provided).
- e. Perimeter hanger wires within 8’ from each wall for cross runners and main runners are not required for category “C” installations.
- f. Light fixtures must be positive attached to the suspended ceiling grid (earthquake clips). In addition, with intermediate duty grid, each light fixture must have two slack hanger wires at opposite corners independent of the ceiling suspension system. Wires must be within 3” of the fixture corner.
- g. Air terminals <20# must be positive attached to the ceiling grid system. Air terminals >20# and not more than 56# in addition to the above must have 2 slack wires at diagonal corners secured to the structure above.
- h. Ends of main runners and cross runners shall be tied together with stabilizer bars to prevent spreading at perimeter walls. “T” bar at perimeter can be used to meet this requirement. If optional BERC clips are used, installation of stabilizer bars are not required.

Exceptions:

1. Ceiling areas <144 sf or less surrounded by walls that connect directly to the structure above are exempt from lateral load design requirements.

**Note:** The City has no published standards for compliance. It is the responsibility of the design professional to provide directions and details for compliance.

**Extra Materials**
Provide Owner with attic stock at completion of project. Provide a minimum of one carton of each ceiling tile used. In addition, provide additional hold down clips where specified, at quantity of five percent of the total number required.

Deliver attic stock to location specified by Design and Construction Project Manager

PART 3 – EXECUTION

Ceiling pattern for each area shall be designed so that opposite sides of room are equal and provide a minimum tile size of 6”.

Provide hold down clips at all building entrance vestibules to prevent uplift of ceiling tiles.

END OF SECTION