**Lesson Plan Outline Geometry in Construction**

**Title:**

Translations, Reflections, & Rotations

**Objective(s):**

Students will perform transformations of line segments and shapes in the coordinate plane

**Learning Standard(s):**

[CCSS.MATH.CONTENT.HSG.CO.A.2](http://www.corestandards.org/Math/Content/HSG/CO/A/2/)

Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

[CCSS.MATH.CONTENT.HSG.CO.A.3](http://www.corestandards.org/Math/Content/HSG/CO/A/3/)

Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

[CCSS.MATH.CONTENT.HSG.CO.A.4](http://www.corestandards.org/Math/Content/HSG/CO/A/4/)

Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

[CCSS.MATH.CONTENT.HSG.CO.A.5](http://www.corestandards.org/Math/Content/HSG/CO/A/5/)

Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

**Activities:**

House & neighborhood design activity continued

Pipe Fitting: Students will be given two disconnected pipes; students will need to determine the sequence of transformations needed to fit the two pipes together.

**Materials:**

Pipes and parts to pipe fittings

New House Plot Design Activity

Transformations Review Packet