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REAL LIFE’S SHADOWS

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This paper belongs to the didactic part of the conference – the autor will describe his ideas, how to teach constructions of shadows using not only classical lecture course, but some photographs of a roof’s model as well. There are several reasons to do this:

- Descriptive geometry as a subject might be received by students as complicated, difficult to understand and not useful. Author will prove the opposite is actually true.

- Teaching geometry using blackboard and chalk is considered as boring and old-fashioned. Some interactivity will blow “fresh air” into the subject.

- We have less and less hours to teach the subject, yet the number of important topics to discuss remains unchanged. A good idea might be joining some topic, like constructions of shadows and shaping roofs. Author will present his examples of shadows constructed on a simple model of roof.

- Students with less developed spatial imagination will have a chance to see “real-time” how a shadow behaves, how it changes when the light will move. After some play with a shadow, some will hopefully understand: *“It is not that difficult, I only have to feel what’s going on”*

During the course of descriptive geometry in the previous semester (winter semester 2013/14), author encountered some problems with effective teaching shadows in the Monge’s method, when the time for it is strongly limited. Many students of the faculty of architecture had serious problems with seeing 3-dimensional relations between an object, light and shadow. Even if a constructive drawing is always accompanied by a free-hand sketch, not all problems can be solved quickly. In order to help students to understand basics of shadow construction, author decided to build a model of a simple house with a properly solved roof, and took some pictures of that house, in different lighting situations. The selected cases include a wide variety of shadows; starting from the simplest, all the way to more and more advanced and complicated. Each shadow from the photo can be then explained by a constructive drawing. Students will see step-by-step how a shadow will be constructed, with additional explanation on the geometry of roofs or more complicated lighting cases.

Below presented are a photo of the house's model with a shadow, and a proper constructive drawing that corresponds to this case.

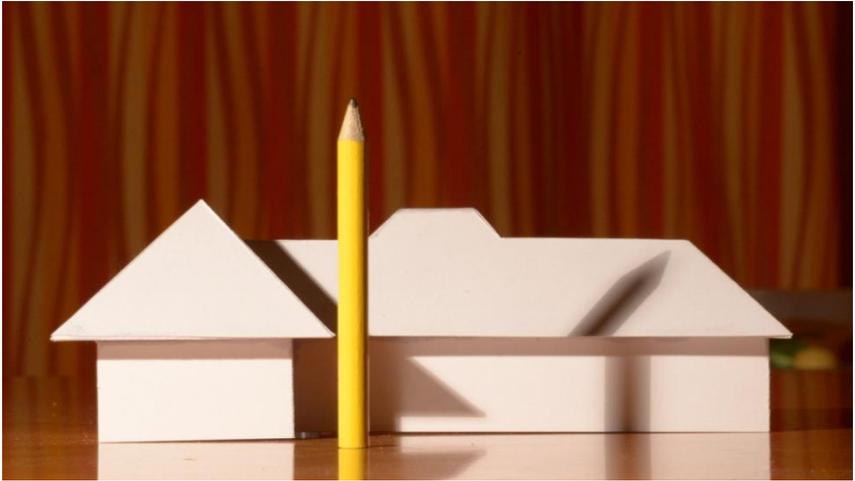


Fig. 1 Photo of a house's model and a pencil with created shadows

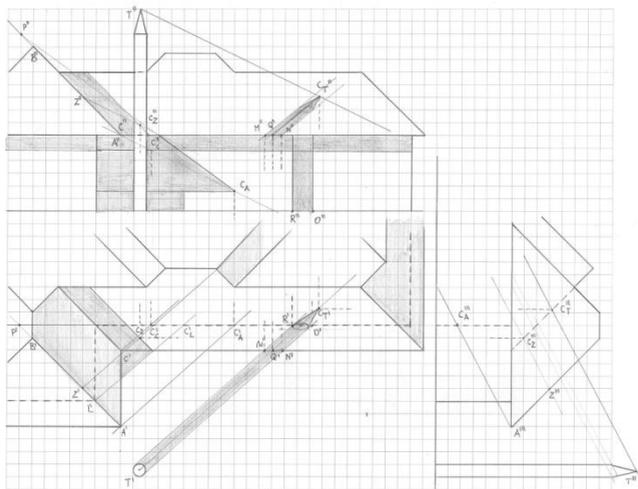


Fig. 2 Constructive drawing of the same case in the final stage