

Assignment 3 Bus Stop Design

Due: October 29

The city of San Francisco would like to promote the use of its public transit systems. Part of this effort involves the redesign of city bus stops to improve public image and better meet rider needs, which vary significantly by location. The City has decided to hold an open design competition to encourage creative thinking about the problem and select the best 'brand' design for the replacement of 92 stops citywide and additional 8 new stops. At this stage, the City has decided to break the competition in two components – seat design and enclosure design – and has identified a number of key design parameters and ranges for each component, which are described in more detail below. You have been assigned by your office to design to one of the following components in teams of two:

Seat Design

People come in all shapes and sizes, but we all have the same need at some time or another: to rest comfortably. You will be creating a single parametric model for bus stop seating that responds to the applicable drivers that the City has identified below.

Enclosure Design

The bus station enclosure should allow waiting riders to enjoy the natural environment while protecting them from the elements. You will be creating a single parametric model for bus stop enclosure that responds to the applicable drivers that the City has identified below.

Driver	Type	Range	Applicable to
Street curb	Curve	Linear to spline	Seat, Enclosure
Sidewalk width	Length	6 -14 ft	Seat, Enclosure
Occupancy level	Integer	1-30	Seat, Enclosure
Temperature	Real	0° - 110° F	Seat, Enclosure
Wind direction	Angle	0-360 deg (relative to street)	Enclosure
Wind strength	Real	0-30mph (typ)	Enclosure
Sun direction	Vector	TBD	Enclosure
View direction	Angle	0-360 deg (relative to street)	Enclosure
Person height	Length	3'-7'	Seat
Person weight	Real	40-300lbs	Seat
Person age	Integer	8-80 years	Seat
Waiting time	Real	1 – 60min	Seat

Deliverables:

- 3-D CAD model which can achieve configurations for the range of parameters described above
- Presentation to the class including:
 - Explanation of how the parameterization you have chosen responds to the drivers using a logic diagram
 - Screen shots of the model to illustrate the range of possible configurations
 - Argument for why your design should be selected
 - Where does your model break? Is this acceptable to you?