

# **A Transportation Hub**

## **AIAS/APC 2007 Student Design Competition**

Sponsored by the  
**American Plastics Council**

Administered by the  
**American Institute of Architecture Students**

## **SPONSOR**

### **American Plastics Council**



The American Plastics Council (APC) is a major trade association for the U.S. Plastics Industry. Through a variety of outreach efforts, APC works to promote the benefits of plastics and the plastics industry. APC is comprised of 17 of the leading resin manufacturers, plus one affiliated trade association representing the vinyl industry. APC's membership represents more than 80 percent of the U.S. monomer and polymer production and distribution capacity.

American Plastics Council  
1300 Wilson Blvd  
Arlington, VA 22209  
800.2.HELP.90  
[www.americanplasticscouncil.com](http://www.americanplasticscouncil.com)

## **COOPERATING ORGANIZATION**

### **American Institute of Architecture Students**



The American Institute of Architecture Students (AIAS) is an independent, nonprofit, student-run organization dedicated to providing unmatched programs, information, and resources on issues critical to architecture. The mission of the AIAS is to promote excellence in architectural education, training, and practice; to foster an appreciation of architecture and related disciplines; to enrich communities in a spirit of collaboration; and to organize students and combine their efforts to advance the art and science of architecture.

American Institute of Architecture Students  
1735 New York Avenue, NW  
Washington, DC 20006-5292  
202.626.7472  
[www.aias.org](http://www.aias.org)

## **ABOUT THE COMPETITION**

Jointly sponsored by the American Plastics Council (APC) and the American Institute of Architecture Students (AIAS), the program will challenge students to learn about materials, specifically plastics and plastic composites construction materials, and their assembly in the design of a transportation hub. Participants will build knowledge about building materials and products and sustainable design. While open to any student, the competition is designed for advanced students. Total prize money is \$7,225, including \$2,500 for the winning design.

The objectives of this competition are:

- To research, respond to and highlight the unique aspects of designing a transportation hub that serves the selected site and community.
- To build knowledge about materials, products and assembly (primarily plastics and plastic composites) contributing to sustainable design and innovation in energy efficiency.
- To create a transportation hub that accommodates needs for all users and constituents.
- To encourage designers employ sustainable design and universal design principles for development of both building and site.

The AIAS supports and sponsors design competitions to contribute to the education of all students. Competitions present unique opportunities to investigate and utilize building materials and design techniques from different perspectives or those that the student might not be familiar with already. Furthermore, participants can compete among students from a broad range of programs and be evaluated by diverse juries of experts. Competitions can also assist instructors with developing a repertoire of design challenges to use in studio courses.

## **REGISTRATION**

All information and materials needed to successfully participate in the competition are contained in this program document. There is no entry or submission fee required to participate in the competition for AIAS members. There is a \$10.00 submission fee for non-members. Competition entries may be the work of an individual or team. AIAS will email you an acknowledgement of receipt of your submission; please keep a copy of your registration for your records as verification. The deadline for submissions is March 28, 2007 (postmarked).

## **ELIGIBILITY**

The competition is open to all students of architecture and design in North America (and members of the AIAS not residing in North America). Entries will be accepted for individuals as well as team solutions. Teams should be made up of no more than four students. Submissions should be principally the product of work in a design studio, building materials class, design charrette or a person's spare time.

## EVALUATION CRITERIA

In addressing the specific issues of the design challenge, submissions will be evaluated on the following:

- Cleverness and appropriate use of plastics and plastic composite building materials.
- The percentage of the building materials that are plastic and plastic composites, many of which are listed on [www.greenbuildingsolutions.org](http://www.greenbuildingsolutions.org).
- A demonstration that the following objectives have been met:
  - To build knowledge about materials, products, and assembly (primarily plastics and plastic composites) contributing to sustainable design.
  - To respond to and highlight the unique aspects of the selected site.
  - To create a transportation hub that accommodates the transportation needs for all users, with a displayed understanding of the traffic flow within the facility.
  - To encourage designers to employ sustainable design principles for development of both building and site.
- Clear and easily comprehensible design.
- Originality.

Award-winning entries will be selected by a jury that will determine the award winners and honorable mentions on April 14, 2007.

Projects must be submitted on *no more than four* 20" x 20" (50 cm x 50 cm) illustration, foamcore, or other stiff lightweight mounting boards. Any other type of presentation (un-mounted, three-dimensional, or mounted on wood, metal or glass) will be disqualified. The ultimate goal for a submission should be an aesthetically pleasing design combined with a thoughtful presentation of its building and/or technical information.

Shipped entries should be packed in cardboard boxes or sturdy wrapping. Wood crates and other excessive packaging materials are not permitted; do not tape trace paper or any other type or protective materials to individual boards; do not use excessive bubble wrap or shipping materials, such as packing "peanuts"; do not use excessive amounts of tape on interior or exterior wrappings. These requirements are designed specifically to reduce waste and energy and must be adhered to strictly.

The names of student participants, their schools, or faculty sponsors must not appear on the front of any board. An *unsealed* envelope holding a copy of the completed project submission form (see page 15) and design essay must be affixed to the back of each board. All boards should be numbered on the back in the order in which they should be viewed (i.e., 1 of 4, 2 of 4, etc.).

All presentations must be suitable for black-and-white reproduction. Students may use color if desired, but must ensure that distinct colors will be readily distinguishable tones when photographed in black-and-white. Entries may be either originals or high-quality reproductions (if original drawings are submitted, please make sure that adequate reproductions are made before submission).

A compact disc (CD) with electronic copies of the design boards (.pdf or .tiff format only) and design essay (.doc or .rtf format only) should be included in the student entry.

## REQUIRED DRAWINGS

See page 14 for details.

## DESIGN ESSAY

A brief 500-word essay should appear as part of the presentation boards describing the most important concepts of the design project. The essay should explain how the design affects the dynamics of everyday use of the transportation hub and how the design is expressive of plastics and plastic composites. The presentation should graphically convey the design solution as much as possible, and therefore it should not rely on the design essay for a basic understanding of the project.

## AWARDS

On April 18, 2007, the award winners and honorable mentions will be announced via the AIAS Web site. The award winning entries will be displayed at the 2007 AIA Convention and Design Exposition in San Antonio, and a press release listing the winning projects will be sent to the schools of all participating students as well as posted on the AIAS Web site ([www.aias.org/plastics](http://www.aias.org/plastics)).

Winning students/teams and their AIAS chapters\* will receive cash prizes totaling up to \$7225, with the distribution as follows:

<b>First Prize</b>	\$2,500
AIAS Chapter:	\$500
<b>Second Prize</b>	\$1,500
AIAS Chapter:	\$275
<b>Third Prize</b>	\$750
AIAS Chapter:	\$200
Three Honorable Mentions:	\$500

The winning entries will be published in the Fall 2007 issue of *Crit, the Journal of the AIAS*. The American Plastics Council and the AIAS reserve the right to publish photographs of all entries and names of student entrants without compensation.

\* If there is not an AIAS chapter at the student's school, the chapter prize money will go towards the formation of a new chapter there.

## SUBMISSION FORM

Each project must be accompanied by a completed submission form in an unsealed envelope attached to the back of each board. A copy of the design essay must also be included with the project submission form.

## **SCHEDULE**

Wednesday, March 28, 2007	Deadline for competition submissions (postmarked).
Saturday, April 14, 2007	Review by the Jury (AIAS office, Washington, DC)
Wednesday, April 18, 2007	Results posted on the AIAS Web site.
May 3-5, 2006	Display of winning entries at 2007 AIA Convention and Design Exposition in San Antonio.
Fall 2007	Publication of winning design in <i>Crit.</i>

## **IMPORTANT NOTES**

Entries cannot be returned to participants under any circumstances. Upon receipt they become the property of the AIAS. Students submitting original material should ensure that they have adequate reproductions before sending their work. The AIAS and APC reserve the right to publish drawings, written descriptions, photographs, and the names of entrants, without compensation.

## **FOR MORE INFORMATION**

Program updates, including information on jury members as they are confirmed:

American Institute of Architecture Students  
Attn: Transportation Hub Competition  
1735 New York Avenue, NW  
Washington, DC 20006-5292  
T 202.626.7472  
F 202.626.7414  
E [webmaster@aias.org](mailto:webmaster@aias.org)  
W [www.aias.org/plastics](http://www.aias.org/plastics)

## **RESOURCES**

The intention behind the APC/AIAS student competition is to make students aware that background research is a fundamental element in approaching any design project. Examples of resources are listed in the program description.

**2007 AIAS/APC Student Design Competition  
A Transportation Hub**

Submit all submission materials to:  
American Institute of Architecture Students  
Attn: Transportation Hub  
1735 New York Avenue, NW  
Washington, DC 20006-5292  
F 202.626.7414  
webmaster@aias.org

## **A TRANSPORTATION HUB**

The price of gasoline has been rising dramatically over the last few years. There is no end in sight for this growing problem and so people are looking for alternative ways to get around. With highways crowded with vehicles, people are searching for ways to conserve energy and save money. Now more than ever, public transportation options have become very important to many.

Many cities have well established transportation systems that are utilized by a large percentage of the population. Some communities are investing in public transportation systems while others are strictly “car cities.” There is a growing awareness in all cities for the need for alternative means of transportation. A transportation hub brings many forms of public transportation together and allows commuters to utilize various means of transportation to reach their destination.

### **OVERVIEW AND OBJECTIVES**

This document contains a program for a 124,300 GSF transportation hub for a community. This competition is considered an “open” competition, a specific site for the competition has not been given and participants must select their own site location. The program contains information on creating a hub that includes passenger trains, a light rail system and bus services area. Participants are welcome to select their own site location and can select a site as part of a current urban transportation system or create a hub for an area that is in need of a system hub. Thorough research on the site location, along with a comprehensive understanding of site conditions will be necessary to successfully complete this program. The program encourages competitors to develop strong ideas about sustainable design with regard to the site and building.

All designers should consider the site and building from an accessibility standpoint. Consideration should be given to ensure that designs comply with the Americans with Disabilities Act. For more information designers should consult with the US Access Board at [www.access-board.gov](http://www.access-board.gov) or 800.872.2253.

The objectives of this competition are:

- To research, respond to and highlight the unique aspects of designing a transportation hub that serves the selected site and community.
- To build knowledge about materials, products and assembly (primarily plastics and plastic composites) contributing to sustainable design and innovation in energy efficiency.
- To create a transportation hub that accommodates needs for all users and constituents associated with a transportation facility.
- To encourage designers to employ sustainable and universal design principles for development of both building and site.

### **PROGRAM OVERVIEW**

#### **Building Codes/Zoning Ordinances/ADA Compliance**

Local regulations should be applied to the design problem. Submissions should reflect reasonable regard for the health and safety of occupants. In cases where variance from local codes is deemed

reasonable and necessary for purposes of meeting design objectives, and where no ill effects are apparent, entrants should assume that approval for variance would be granted. While the site chosen can be in your located anyway, participants are encouraged to work with local considerations of the selected location.

**Climate**

All competition participants are to identify climate conditions consistent with the site used. Climate conditions must be identified and used in development of design solutions.

**Space Allocation**

The function and programmatic requirements outlined here must be met. The area allocations, however, are suggestions only and may be altered. Solutions should observe the total gross square footage within a range of plus or minus ten percent.

**I. Passenger Train Services & Operations Areas**

Trains will approach the station on 6 tracks, which are served by three center platforms elevated to approximately 48", thus allowing passengers to enter and exit trains without steps. The platforms must be a minimum of 24' wide and 800' long.

<b>1. Station Services</b>	<b>850 S.F.</b>
a. Passenger Train Offices	200 s.f.
b. Passenger Train Managers Office	150 s.f.
c. Passenger Train Office Reception	200 s.f.
d. Train Crew Check-in Office	150 s.f.
e. Information Center/Desk	150 s.f.
<b>2. Waiting &amp; Queuing Areas</b>	<b>62,600 S.F.</b>
a. Platform Area	57,600 s.f.
b. Waiting Areas (not including platforms)	5,000 s.f.
<b>3. Baggage, Mail, Package</b>	<b>2,150 S.F.</b>
a. Supervisor's Office	150 s.f.
b. General Handling Area	1,000 s.f.
c. Retrieval Desk	200 s.f.
d. Baggage Queuing	400 s.f.

e. Shipping & Receiving	250 s.f.
f. Maintenance Shop	150 s.f.

## **II. Light Rail Services & Operations Areas**

Light Rail will approach the station on 2 tracks, which are served by one center platform elevated to approximately 48", thus allowing passengers to enter and exit trains without steps. The platforms must be a minimum of 24' wide and 600' long.

<b>1. Light Rail Total</b>	<b>15,350 S.F.</b>
a. Waiting & Queuing Areas (including Platforms)	15,000 s.f.
b. Information Center/Desk	150 s.f.
c. Light Rail Offices	200 s.f.

## **III. Bus Services & Operations Areas**

Coaches will service the station at a maximum of six at one time. Following are assumed coach information: Width 96", Length 40', Wheel base 279" (23' 3"), Turning radius 44', Seating for 44 passengers with room for 22 standees, and has a wheelchair lift.

<b>1. Bus Total</b>	<b>4,450 S.F.</b>
a. Waiting & Queuing Areas (including Platforms)	4,000 s.f.
b. Information Center/Desk	150 s.f.
c. Bus Offices (3 separate offices at 100 s.f. each)	300 s.f.

## **IV. Transportation Hub Shared Services**

<b>1. Station Services</b>	<b>1,650 S.F.</b>
a. Station Offices	200 s.f.
b. Station Managers Office	150 s.f.
c. Station Office Reception	200 s.f.
d. Telephones	100 s.f.
e. Public Toilets (M/F 500 s.f. each)	1,000 s.f.

<b>2. Ticketing Facilities</b>	<b>1,825 S.F.</b>
a. Ticket Queuing Area	350 s.f.
b. Fare Collection	300 s.f.
c. Accounting	350 s.f.
d. Cashiers	150 s.f.
e. Supervisor	150 s.f.
f. Storage	100 s.f.
g. Ticket Storage	50 s.f.
h. Staff Toilet	75 s.f.
i. Tour Office	200 s.f.
j. Equipment Room	100 s.f.
<b>3. Cleaning Facilities &amp; Equipment</b>	<b>1,050 S.F.</b>
a. Custodial Equipment Storage	600 s.f.
b. Cleaning Supply Room	150 s.f.
c. Janitor's Closets (2 at 50 s.f. each)	100 s.f.
d. Trash Storage	200 s.f.
<b>4. Security Department</b>	<b>950 S.F.</b>
a. Reception	200 s.f.
b. Workroom (security camera booth)	100 s.f.
c. Holding Room	100 s.f.
d. Security Office	150 s.f.
e. Interrogation Room	100 s.f.
f. Training & Assembly Room	250 s.f.
g. Storage Room	50 s.f.

<b>5. Employee Facilities</b>	<b>1,900 S.F.</b>
a. Employee's Lockers & Toilets	1,400 s.f.
b. Employee Lounge	500 s.f.

**V. Concessions**

<b>I. Food Services</b>	<b>5,000 S.F.</b>
a. Restaurant	3,000 s.f.
b. Fast-food/Snack Bar	1,000 s.f.
c. Cocktail Lounge	800 s.f.
d. Vending Machines	200 s.f.

<b>2. Retail Shops</b>	<b>1,650 S.F.</b>
a. Newsstand	500 s.f.
b. Car Rental (4 at 100 s.f. each)	400 s.f.
c. Gift Shop	500 s.f.
d. Flower Shop/Booth	150 s.f.
e. City Information Booth	100 s.f.

**Total Net Square Feet** **99,425 s.f.**

**Mechanical, Structural & Circulation** **25,875 s.f.**  
**(Plus 25% allowance)**

**Total Gross Square Feet** **124,300 s.f.**

<b>Station Parking (on site)*</b>	
Patron Parking (400 spaces)	140,000 s.f.
Employee Parking (50 spaces)	17,500 s.f.
Security Vehicle Parking (15 spaces)	5,250 s.f.

\* Please note that if the selected site is in an urban location that will not support the parking requirements, these standards can be modified to fit the site.

## INFORMATION RESOURCES

### **Plastics and Plastic Composites**

[www.greenbuildingsolutions.org](http://www.greenbuildingsolutions.org)

[www.plastics.org](http://www.plastics.org)

These are the official APC Web sites.

### **Additional Readings on Sustainable Design**

McDonnough, William and Michael Braungart, *Cradle to Cradle: Remaking the Way We Make Things*. North Point Press: New York, NY. © 2002.

Orr, David, *Earth in Mind: On Education, Environment, and the Human Prospect*. Island Press: Washington, DC. © 1994.

### **Accessibility/ADA**

US Access Board

[www.access-board.gov](http://www.access-board.gov)

800-872-2253.

## REQUIRED FOR SUBMISSION

### Media

Media for presentation is left to the discretion of the individual designer.

### Format

Projects must be submitted on *no more than four* 20" x 20" (50 cm x 50 cm) illustration, foamcore, or other stiff, lightweight mounting boards. Any other type of presentation (un-mounted, three-dimensional, or mounted on wood, metal or glass) will be disqualified. The ultimate goal for a submission should be an aesthetically pleasing design combined with a thoughtful presentation of its building and/or technical information.

## DRAWINGS

### Site / Context Plan

Illustrating the salient ideas of the building within its site context.

Scale: 1" = 100'-0"

### Building Plans, Sections, and Elevations

Provide plans, sections, and elevations to adequately describe the building and site.

Scale: 1/16" = 1'-0"

### Detailed Drawings

Designers are encouraged to provide detailed drawings (plans, sections, elevations, axonometrics, section perspectives, or other appropriate drawings) to illustrate building materials, assembly and sustainable design details.

Scale: 1/8" = 1'-0"

### Perspective Vignettes

The use of perspective vignettes to illustrate movement through the site/building and to explain the design intentions are strongly encouraged.

### Diagrams

Designers are encouraged to incorporate diagrams that explain their intentions into the competition boards.

### Physical Models

Model photographs may be incorporated into the presentation boards.

### Text

Designers are encouraged to provide text describing intentions and specifically how the design incorporates sustainable design principles. The 500 word essay should also be included as part of the design boards.

# APC/AIAS 2007 STUDENT DESIGN COMPETITION

## A Transportation Hub

### Registration Form

Please neatly write in the fields.

APPLICANT NAME(S):

1. \_\_\_\_\_  
(main contact person) AIAS Member#
2. \_\_\_\_\_  
AIAS Member#
3. \_\_\_\_\_  
AIAS Member#
4. \_\_\_\_\_  
AIAS Member#

APPLICANT SCHOOL: \_\_\_\_\_

PROJECT TITLE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

YEAR IN SCHOOL: \_\_\_\_\_

FACULTY ADVISOR (optional): \_\_\_\_\_

SEND ALL SUBMISSIONS TO:

American Institute of Architecture Students  
Attn: Transportation Hub Competition  
1735 New York Avenue, NW  
Washington, DC 20006-5292

QUESTIONS?

202.626.7472  
webmaster@aias.org

For non-AIAS members, please include the \$10.00 registration fee (check/money order in USD made payable to the "AIAS").