1.964 Design for Sustainability
Fall 2006

FINAL PROJECT HANDOUT

OPTION #1: LIFE CYCLE ASSESSMENT

Teams of 2 students may conduct an environmental life cycle assessment analysis of two products or processes of interest to you. In the past, students have looked at different sorts of roofing materials, bridge building techniques, wood products, pultrusion products, water treatment technologies, and so on. This is purposefully vague such that most interests can be accommodated. Please discuss with the instructors any topics that might be a little unexpected. You will be provided with full environmental databases but you are expected to cover all aspects of LCA, from scope to normalization and characterization.

OPTION #2: SUSTAINABLE HOUSING FOR TRANSIENT SEAFARERS IN MANILA

Team(s) of 4-5 people can focus on a specific housing project in the Philippines, in the framework of the entrepreneurship initiative CentroMigrante, based on the idea of safe and affordable self-build homes for transient jobseekers in Manila. The group is expected to conduct research on local materials, construction techniques and climate conditions in order to propose sustainable solutions for temporary dwellings. Two or more conceptual designs should be presented, showing assessment of different low-energy, design-for-disassembly systems that can meet specific economic and technical requirements. Your proposal could even couple the design concept with some brief environmental analysis of building materials or techniques.

OPTION #3: GREEN RETROFITTING OF SUBURBAN HOMES

Teams of 2-4 students should pick a suburban home (e.g., one owned by your parents or an instructor) and analyze potential green renovations/additions that address some or all (depending on the number of team members) of the following components: (1) energy technologies –passive and active, (2) water conservation and reuse; (3) non-toxic building and decorating materials; and (4) sustainable landscaping. We expect that these analyses will include material sourcing, cost-benefit/economic pay-back analysis, product life-cycle assessment, and ecological foot-printing. Evaluations should summarize potential energy, water and materials savings from use of various materials, designs and systems; assess institutional constraints (e.g., local building regulations); and consider integrated design problems.

FINAL PROJECT DEADLINES

Part A: Option Choice OCTOBER 27TH , 2006

Please email your 1st and 2nd choice to the TA by the end of the day on Friday Oct 27th. We will try to accommodate your choices accordingly.

Part B: Topic and Team NOVEMBER 1ST , 2006

Please provide the team names and the general topic you wish to study.

Part C: Project abstract NOVEMBER 15TH , 2006

The project abstract should include the scope of the project, noting the intended audience and purpose of your analysis. If conducting an LCA, for example, the functional unit and boundary limits should be defined. This should be under 2 pages in length, but sufficiently detailed to fully frame your project.

Part D: Project report and presentations DECEMBER 6TH – 13TH, 2006

Project reports are expected to be about 10 pages, plus appendices. Reports should clearly state the purpose and method of your analysis or cpresent your design evaluation and process, as well as any conclusions reached. Presentations will be given over two class meetings and they are expected to be about 10 minutes in length, followed by discussion.