

HEED, Home Energy Efficient Design User Survey

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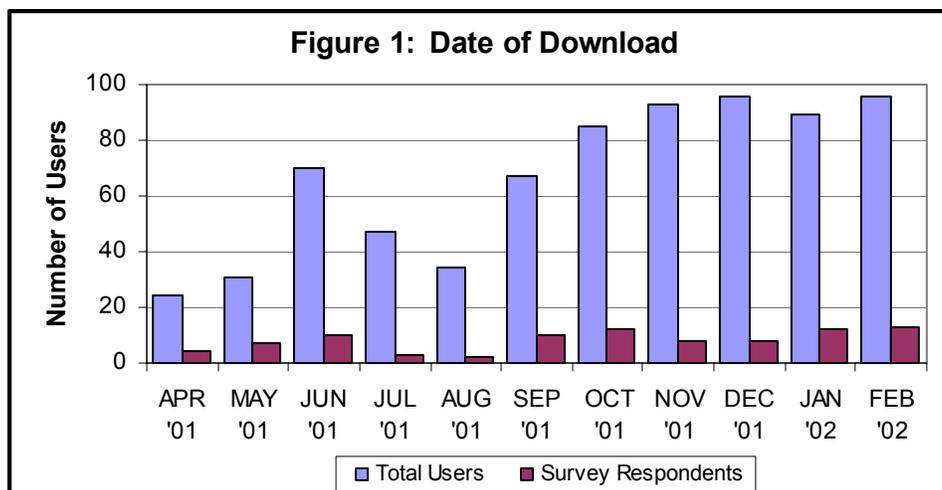
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Note: Analysis of User Comments in Appendix 2 were added by Murray Milne in August 2002. All these users were running pre-Beta releases of Version 1.1 or 1.2, or Beta release 1.2+. All bugs that could be identified from these comments are now fixed in the current Beta posted on the web site.

HEED, Home Energy Efficient Design User Survey

INTRODUCTION

An initial version of HEED, the Home Energy Efficient Design software that is under development at UCLA, was made available over the Internet in April, 2001. Since then, over 1100 users downloaded the program. After filtering out duplicate downloads to the same site (e.g. multi-version users and multiple copies to university computer labs), we found 732 unique downloads with progressively higher usage toward the end of 2001 and in early 2002 (see Figure 1).



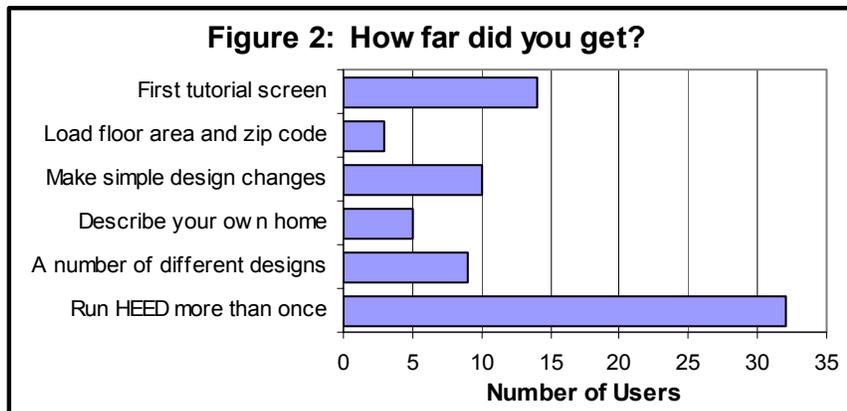
When downloading HEED from the Internet, potential users were required to give an e-mail address and asked if they would be willing to participate in a user survey. Four hundred and forty-one users indicated their willingness to participate. Of these only 354 had current e-mail addresses. In March, 2002, these users were sent an e-mail questionnaire in order to get feedback on use of the software in preparation for the final release of HEED. Those surveyed were asked to respond to five simple questions about usage patterns and opinion of the software as well as demographic data on who they were and where they are located (see full text of survey in Appendix 1).

There were ninety responses to the survey (a 25% response rate). Two respondents could not remember downloading the software. Five downloaded but indicated that they had not yet had time to use the software. Of the remaining 83 respondents, 9 (11%) were unable to install the software leaving 74 respondents who could provide input on use of HEED.

RESULTS

Fourteen (19%) of the users got no further than the first tutorial screen, however, more than half (56%) were able to evaluate a number of different designs, with most of these users running HEED more than once (see Table 1 and Figure 2).

Table 1: How far did you get?	Number of Respondents	Percent of Respondents
1 - First Tutorial Screen	14	19.2%
2 - Load Floor Area and Zip Code	3	4.1%
3 - Make Simple Design Changes	10	13.7%
4 - Describe Your Own Home	5	6.8%
5 - A Number of Different Designs	9	12.3%
6 - Run Heed More than Once	32	43.8%
TOTAL	73	100.0%



Three-fourths of the users (54 of the 74) felt that the program helped them learn something about their home's energy efficiency (see Table 2). In response to a question on whether they took any action as a result of running HEED, just over half commented that it was a useful learning experience. However, a number of users actually took some action as shown in Table 3. Actions included changing energy use behavior (16%), making architectural design changes (16%), purchasing more efficient lights and appliances (14%), or making building maintenance improvements (11%). Eighty-four percent liked using the program (see Table 4).

Table 2: Did you learn anything?	Number of Respondents	Percent of Respondents
YES	54	73.0%
NO	15	20.3%
No Response	5	6.8%
TOTAL	74	100.0%

Table 3: Actions Taken?*	Number of Respondents	Percent of Respondents
Nothing Changed	5	6.8%
Useful Learning Experience	40	54.1%
Changed Energy Use Behavior	12	16.2%
Purchased More Efficient Lights/Appliances	10	13.5%
Some Building Maintenance Improvements	8	10.8%
Remodeling Changes	1	1.4%
Architectural Design Changes	12	16.2%
Other	6	8.1%

* Users could specify more than one action

Table 4: Did you like it?	Number of Respondents	Percent of Respondents
YES	62	83.8%
NO	5	6.8%
No Response	7	9.5%
TOTAL	74	100.0%

About 40% of the program users are either teachers or students. The remaining described themselves architects or designers (31%), “do-it-yourself type” homeowners (20%) or energy consultants (14%).

Table 5: Describe yourself?*	Number of Respondents	Percent of Respondents
Renter, Concerned about Energy	4	5.4%
Homeowner, Do-it-yourself Type	15	20.3%
Homeowner, Call in a Professional	3	4.1%
Architect or Designer	23	31.1%
Energy Consultant	10	13.5%
Teacher	9	12.2%
Student	20	27.0%
Other	7	9.5%

* Users could select more than one category

Most of the users live outside of California either in the US or another country. Only 13 are located in the Southern California Edison service territory.

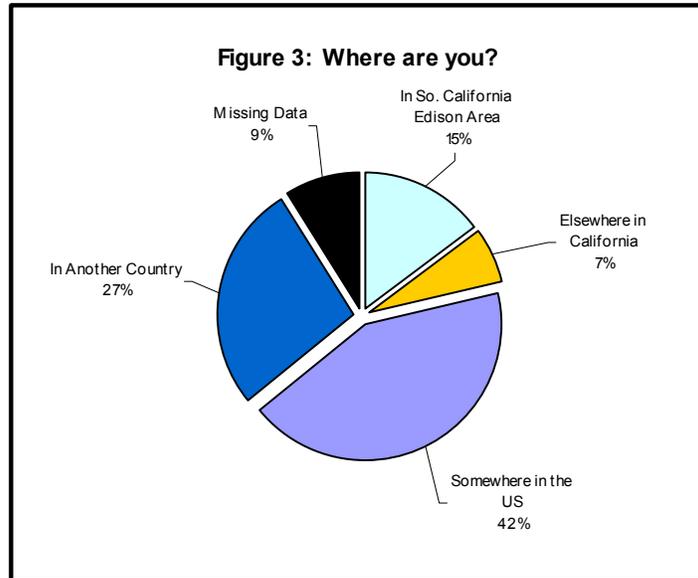


Table 6: Where are you?	Number of Respondents	Percent of Respondents
In So. California Edison Area	13	14.4%
Elsewhere in California	6	6.7%
Somewhere in the US	39	43.3%
In Another Country	24	26.7%
Missing Data	8	8.9%
TOTAL	90	100.0%

Two improved versions of the software were made available for download since the first release (HEED 1.2 in September, 2001, and HEED 1.2+[BETA] in November, 2002). Most of those responding to the survey downloaded the two most recent versions which also corresponds to overall download patterns (see Figure 1). A slightly higher proportion of potential users were successful in installing the most recent BETA version than earlier versions but differences were not large enough to be statistically significant (see Table 7). The biggest difficulties reported by those who were able to load and use the program were printing results, saving data to a file for later use, and loading weather data for regions outside the Los Angeles area.

Table 7	Able to install HEED?		N
	Yes	No	
Overall	89%	11%	80
Version			
HEED 1.1	90%	10%	20
HEED 1.2 (JRE 1.2.1)	84%	16%	32
HEED 1.2+[BETA](JRE 1.2.1)	93%	7%	29

The further a user was able to get in the program the more likely he/she was to give a positive response to the question “Did you learn anything?” (see Table 8). Only a third of those who only got as far as the tutorial screen or to the first step of simply loading floor area and zip code learned something from using the software. On the other hand, over 90 percent of those who were able to use the program in a more sophisticated fashion felt they learned something. All those who classified themselves as energy consultants learned something from using the program as well as 90 percent of the students. Other categories of users hovered around a 70 percent positive response rate. It is interesting to see in Table 9, that those who got furthest in use of the program were the energy consultants (90% were able to run different designs and/or run the program more than once), students (70%) and “do-it-yourself” type homeowners (60%).

It didn’t make too much difference where the user was located, although a larger proportion of those living in the Southern California Edison service area felt that they learned something from using the program (85%) than those living in other areas of the United States. This was not surprising given the main criticism of the software was that users were unable to load weather data for regions outside Los Angeles. Users reported that one of the most interesting things learned from using the software was the effect window placement and size had on heating or cooling the building.

Almost all users liked the program (see Table 10), even those who felt they did not learn anything from using it. Many commented that the program was very user-friendly and what they liked best was the graphic interface that made the results easy to understand. Suggestions for program improvement include the ability to handle larger floor plans or buildings and the ability to adjust floor to ceiling height (i.e. not a constant height requirement over the entire plan). All the written comments from the survey respondents are listed in Appendix 2.

Table 8	Did you learn anything?		N
	Yes	No	
Overall	79%	21%	70
Version			
HEED 1.1	61%	39%	18
HEED 1.2 (JRE 1.2.1)	92%	8%	26
HEED 1.2+[BETA](JRE 1.2.1)	77%	23%	26
How far did you get?			
1- First Tutorial Screen	33%	67%	12
2- Load floor area and zip code	33%	67%	3
3- Simple design changes	90%	10%	10
4- Describe your own home	80%	20%	5
5- Different Designs	100%		9
6- Run HEED more than once	90%	10%	30
Who are you?			
Homeowner, do-it-yourself type	73%	27%	15
Architect or Designer	77%	23%	22
Energy Consultant	100%		9
Teacher	71%	29%	7
Student	90%	10%	20
Where are you?			
In So. Cal Edison Area	85%	15%	13
Elsewhere in California	60%	40%	5
Somewhere in the US	74%	26%	31
In Another Country	84%	16%	19

Table 9 How far did you get?	Homeowner, do-it- yourself	Architect/ Designer	Energy Consultant	Teacher	Student
1- First Tutorial Screen	13%	22%	10%	33%	10%
2- Load floor area and zip code	7%	4%		11%	5%
3- Simple design changes	13%	22%		22%	10%
4- Describe your own home	7%	13%			5%
5- Different Designs	13%	13%	10%		15%
6- Run HEED more than once	47%	26%	80%	33%	55%
N	15	22	10	9	20

Table 10	Did you like it?		N
	Yes	No	
Overall	93%	7%	67
Version			
HEED 1.1	94%	6%	17
HEED 1.2 (JRE 1.2.1)	88%	12%	25
HEED 1.2+[BETA](JRE 1.2.1)	96%	4%	25
How far did you get?			
1- First Tutorial Screen	70%	30%	10
2- Load floor area and zip code	100%		2
3- Simple design changes	90%	10%	10
4- Describe your own home	80%	20%	5
5- Different Designs	100%		9
6- Run HEED more than once	100%		31
Who are you?			
Homeowner, do-it-yourself type	93%	7%	14
Architect or Designer	95%	5%	22
Energy Consultant	100%		9
Teacher	71%	29%	7
Student	95%	5%	19
Where are you?			
In So. Cal Edison Area	100%		14
Elsewhere in California	80%	20%	5
Somewhere in the US	90%	10%	30
In Another Country	94%	6%	17

Appendix 1 : The Survey

A while ago you downloaded HEED, the Home Energy Efficient Design software that we are developing here at UCLA. We are preparing the final release and need your feedback. Would you answer these five questions for us?

Click Reply and then just put an X in front of your answers. Please add any comments if you can and Send it back us:

1. Were you able to install HEED successfully?

YES

NO

Comments?

2. How far did you get?

TO THE FIRST TUTORIAL SCREEN

TO LOAD IN YOUR FLOOR AREA AND ZIP CODE

TO MAKE SOME SIMPLE DESIGN CHANGES

TO DESCRIBE YOUR OWN HOME

TO CREATE A NUMBER OF DIFFERENT DESIGNS

TO RUN HEED MORE THAN ONCE

Suggestions?

3. Did it help you learn anything about your Home's Energy Efficiency?

YES

NO

What was most interesting?

4. Did you take any action as a result of running HEED?

NOTHING CHANGED

IT WAS A USEFUL LEARNING EXPERIENCE

CHANGED ENERGY USE BEHAVIOR

PURCHASED MORE EFFICIENT LIGHTS OR APPLIANCES

MADE SOME BUILDING MAINTENANCE IMPROVEMENTS

MADE REMODELING CHANGES (please tell us what you did)

MADE PROJECT CHANGES WITH THE CONTRACTOR

MADE ARCHITECTURAL DESIGN CHANGES

OTHER?

Please tell us more:

5. Did you like it?

YES

NO

What did you like Best, Least:

How would you describe yourself:

- RENTER, CONCERNED ABOUT ENERGY
- HOMEOWNER, DO-IT-YOURSELF TYPE
- HOMEOWNER, CALL IN A PROFESSIONAL
- APARTMENT MANAGER
- ARCHITECT OR DESIGNER
- ENERGY CONSULTANT
- TEACHER
- STUDENT
- OTHER

Where are you

- IN SOUTHERN CALIFORNIA EDISON'S SERVICE TERRITORY
- ELSEWHERE IN CALIFORNIA
- SOMEWHERE IN THE UNITED STATES
- IN ANOTHER COUNTRY

Thank you VERY much. Your comments will help us improve this program. A new version will be posted on the web site within the month. Please let us know what you think at HEED@aud.ucla.edu.

APPENDIX 2: Responses to Open-ended Questions

Note: Analysis of User Comments in this Appendix 2 were added by Murray Milne in bold face in August 2002. All these users were running pre-Beta releases of Version 1.1 or 1.2, or Beta release 1.2+. All bugs that could be identified from these comments are now fixed in the current Beta posted on the web site.

ID Q1: Comments on Installation

- 21 Easy and friendly installation.
- 24 I installed the software but It doesn't run in my PC, which has win2000. I don't have any idea why. If you have some suggestion, I'll appreciate it.**Later releases were adapted to run on Windows 2000 and XP.**
- 56 Windows 98.
- 58 Fast install, no problems.
- 60 To be honest I planned to investigate it this summer, i.e. when I have sufficient time.
- 89 This was not because of any deficiency in your program. I simply was overly optimistic when I downloaded HEED, thinking I might get around to using it. Will probably download the new version, when it comes out, hoping again to actually use it.
- 108 I was on your site but was not able download heed for some reason. I just bought a Gateway computer and runs on Windows XP home Edition. I am going to try to download HEED again. ... **This is classic behavior experienced by people on networks or behind firewalls that prohibit the downloading of .exe programs... this is explicitly addressed in comments on the download site.**
- 120 Could not get the weather data for Tn. loaded into the program and running.
.... **The web site contains a special file explaining how to download and install weather data for non-California stations, but it is still a bit complicated...**
- 121 I downloaded the program, but not really used it. I studied residential energy efficiency at Cal Poly 15 years ago and wanted to see what was current in analysis programs (used CalPas at the time). I have been sidetracked by other projects.
- 125 Pretty fast.
- 138 Since it's windows based program, it was fairly simple to download.
.... **Most people do not have a problem with downloads**
- 157 Only weather data and latitude that the program wants to us is LA.
- 183 For some reasons this wasn't installed properly and couldn't run it. I got very busy to try again! The rest of the survey would be N/A to me ... **Sounds like the firewall problem...**
- 279 I have to admit that I have not had the time to run the program, mainly because of lack of local data. I will use in the near future.
- 309 Please make sure the download/install/use sequence is up to date with the latest OS (NT, 2000, XP...) ... **HEED now works for 2000 and XP**
- 323 I only installed the software but I didn't run until now.
- 326 I have not attempted to install the software yet, i have been too busy.
- 359 There was a fatal error at the very end when i was about to get my summary info. The program quit at the crucial moment.
... **This is the one bug we cannot decipher, it is behavior no one else has reported...**

- 391 Have only the Excel workbook (solar.xls) and the PDF installed. I'm not sure, since I installed it at least four months ago; I think your program overwrote some of my system files with obsolete ones and I had to manually delete them.
... This user is talking about another program, not HEED (we do not use .xls or PDP files)...
- 426 I would be VERY happy to respond, however, this is what I ran into (see attachment) "is not a valid Win32 application". **... This is the typical error of an incomplete download caused by a network of firewall restriction...**
- 433 However, I could not print any of the graphs nor the design isometric. I am interested in climatic influences in the design solutions.
... Clicking on the Print icon gives instructions on how to print the graphics and screen images. This must be from one of the pre-Beta releases.

ID Q2: How far did you get? Suggestions?

- 21 How can I change climatic data? I'd like to create my own database for my own country climatic conditions... **... This is explained inside the program in Help and on the web page...**
- 50 Add capability for: Larger buildings, vertical shading devices, adjustable floor-to-ceiling height. **... The floor planner graphic layout screen causes the limit of 4000 sqft on each floor. Vertical shading (fins) is now implemented... Floor-to-ceiling height can now be over-ridden on the advanced data input screen...**
- 56 I had problems with the window placement.
... This sounds like the problem we were having with the click-and-drag function, which would not allow windows to overlap so deleted them... this has now been solved by printing these overlapped windows in red with a warning...
- 91 "Never was able to load my new home's design, had to use the baseline design, and calculate the needs based on that"
... Unclear how this happened because any change the user makes is automatically stored.
- 100 I AM HAVING A PROBLEM PUTTING ANOTHER LOCATION IN TO GET THE RIGHT ACCURATE RESULTS. CAN YOU HELP ME WITH THIS PROBLEM? WHEN I CHANGE THE ZIP CODE OR LOCATION IT WILL RETURN TO THE DEFAULT.
...This user needs to read the information on the web page or in the Help file, although changing climate data is a bit complicated... Only zipcodes for the SCE service territory are implemented...
- 120 I will try again when the new version is posted. Thanks for letting me know. If you have a file on how to use the weather data with the program please let me know the site address and page.
- 125 Maybe just the form of the building is far from realistic.
- 128 Please add the ability to put in energy pricing data from locations outside of California. Also would like more sophisticated design input capability, to accommodate variations in floor plans and room combinations for more complex building designs.
... These are all functions we would like to add...
- 138 The 'Print' command, for some reason, does not work at all. This was the only flaw I have found on the program. **... In later releases this gives instructions on how to print...**
- 142 I couldn't model house with more than 1 floor and with difference lay-out for each floor.
...HEED always allows multiple floors, but currently they each must have the same shape... Solar-5 allowed different shaped floors by using the Combine function, which we would like to add to HEED...
- 157 I live in Tucson, AZ. I downloaded the weather data for Tucson and tried a number of times to load it. The only data that comes up however is LA. Help! I am using Windows ME fyi. **We emailed back to all these people with a referral to the Frequently Asked Questions File which explains how to do this...**
- 208 The floor area needs to be bigger, we had a design that was too large to be on HEED.
... see 50 above...
- 216 NEED TO MAKE MORE EASY TO BE ABLE TO LOAD INFORMATION FOR OTHER AREAS OF THE COUNTRY. FOR EXAMPLE I WAS SUCCESSFUL IN LOADING THE WEATHER DATA FOR SEATTLE BUT NOT THE ENERGY COSTS AND OTHER PNW DATA **... see 21 above...**
- 217 I need more information on Insulated Concrete Forms, ICF.

- 230 Would have liked to have been able to more easily put in my design floor plan and elevations. I had elements of my design that were different stories but I was only able to make the entire building one constant level. ... **see 142 above...**
- 273 More thorough set of choices for construction of walls, insulation and windows and ability to input specific values would be helpful. 2x2 squares would be more accurate for floor plan input.
... Any type of construction can be input on the Advanced Design Input screens... We hope in the future to be able to let the user select modules other than 4x4...
- 314 IT WAS BETTER WHEN I WAS ABLE TO WORK ON MULTIPLE PROJECTS.
.. This is unclear because users can now have as many 9-scheme projects as they wish.
- 359 Maybe a programming error? ... **I do not know what this means...**
- 404 Like to see fins on windows and to have the ability to use HEED on small scale commercial projects (CEED). Like to use floor plans that are one story over certain portions, and two stories over others.
... Fins are now available... We would also like to modify HEED into CEED... or CREED for Commercial and Residential Energy Efficient Design.
- 408 Not a HEED problem, I just did not have a specific application, or time to test/evaluate the system.
- 439 Quiet difficult for a real project.
- 443 Make program obviously useful for larger scaled buildings by zones etc. as Solar 5.
... This is probably the most common suggestion from users, which we would love to be able to address in the next project...

ID Q3: What was most interesting?

- 7 Graphical display.
- 21 The accurate 3D graphics showing the energy performance through the day hourly !!!!!.
- 50 Not applicable--I used it as a teaching tool.
- 58 Effects of solar heating from window placement/size, long wall placement, etc.!!!!
- 125 Choice of material affects largely the effect. !!!!!
- 126 The different scenarios you can set.!!!!
- 128 Daily temperature variations and total year energy consumption data most useful in refining my passive solar designs. !!!!!
- 138 Being able to change building characteristics such as: wall sections, windows, building location, and see how they, by changing them, improve the building energy efficiency performance. !!!!!
- 142 Correlation between windows and heating or cooling house. !!!!!
- 144 I cannot access as I am outside of the USA.
- 146 Windows gain/lose lots of heat. !!!!!
- 208 It was hard to get the correct charts to come up and to give us the information that we needed. We didn't know if we had the correct input according to HEED.
- 216 DETERMINED THAT REGLASING (CHANGING MY WINDOWS IS NOT COST EFFECTIVE BASED UPON ENERGY COST (BASED UPON \$/kwh FROM LA) !!!!!
- 273 Effect of orientation of house on energy consumption. !!!!!
- 314 I WAS TRYING TO RECREATE AN ACCURATE EXISTING MODEL OF MY HOME. STILL WORKING ON IT.
- 373 The cost generation. !!!!!
- 391 The Payback period. !!!!!
- 394 Window (dual glazed) and insulation changes to save \$. !!!!!
- 404 We used HEED to help us evaluate environmental features for two large multi-family affordable housing projects. It enabled us to prioritize which energy features were most important and where we would get more bang for our buck. !!!!!
- 408 Only because I did not thoroughly analyze it.
- 445 Heat loss through windows. !!!!!
- ... I am delighted with these comments (especially those marked !!!!!)... They seem to show that these folks can use HEED in a productive way to help answer energy-specific design problems...**

ID Q4: Did you take any action?

- 7 Perhaps later, I am not through with it yet.
- 21 It gave some pleasant hours to a Brazilian Architecture student. I could test some ideas and have a quick feedback. !!!!!
- 50 Taught architecture students. !!!!!
- 58 Adjusted thermostat, purchased compact fluorescent bulbs (replaced incandescents), replaced A/C filters, cleaned heat pump condenser grill, repaired insulation on heat pump piping... Low buck operations--college student at home !!!!!
- 91 Redesigned house to allow a freer flow of attic air; installed more insulation; increased the basement depth to 10 ft, giving better cooling effect from sub surface temperatures--will use this to assist cooling in the summer. !!!!!
- 101 Relied more on energy ratings of new appliance (dishwasher) when making purchasing decision. !!!!!
- 125 I'm still an architectural student, haven't really use it in profession yet.
- 126 The program definitely needs more improvement but it has potentials.
- 142 I'm going to build a new house and, depending also on our local code, trying to choose best solutions. !!!!!
- 157 Can't get the program to work with any other weather data so I did not make design changes.
- 196 I am in process of buying a home in the southern outskirts of Spokane, WA. It is on 4.3 acres with no trees in sight. I am interested in an addition as well as making the current structures more energy efficient. !!!!!
- 208 It was a school project. !!!!!
- 216 THIS IS BASICALLY A VERY GOOD PROGRAM BUT IT IS TOO SPECIFIC TO SOUTHERN CA AND TO DIFFICULT TO MODIFY TO A SPECIFIC NON LA AREA. KEEP UP THE GOOD WORK. !!!!!
- 224 I change windows and floor plans but the results didn't change dramatically. I live in the northeast, downloaded area specific weather info, but the program didn't seem to work for minor changes in this latitude.
- 256 The influence of street-grid rearrangements in readjustment areas on orientation and solar heat gain of buildings in Taiwan. !!!!!
- 292 HEED IS A DESIGN TOOL USEFUL TO SAVE ENERGY IN BUILDINGS, BUT ONLY IN LOS ANGELES. I WOULD LIKE USE HEED WITH WEATHER INFORMATION FOR DIFFERENT STATES IN MEXICO, LIKE MEXICO CITY. HOW COULD I INTRODUCE THE WEATHER INFORMATION ABOUT MY COUNTRY.
- 355 Installed solar PV.
- 394 Semi Rigid insulation added to walls and ceiling and dual glazed vinyl windows. !!!!!
- 402 Trying to decide on a house floor plan and used this model to look at passive options. !!!!!
- 404 Evaluated - building envelope, insulation, floor slabs, window types, window overhangs, whole house fans. Allowed us to determine which design decisions most likely to affect liveability, and take action on those that had the most impact. !!!!!
- 443 "Excellent teaching tool at the NJSOA/NJIT for about 120 students per semester." !!!!!
- 445 It didn't give many options for different building configurations besides a simple rectangular shape (ie a-frame building, etc)
- ... I am pleased so many people (especially those maked !!!!!) used HEED so productively...**

ID Q5: What did you like Best?

- 21 Graphic interface, very user- friendly indeed! !!!!!
- 50 Ease of use!!!!
- 56 The floor plan tools were simple enough for home owners!!!!
- 58 Simple, idiot-proof start with options for in-depth analysis as user (I) became more experienced !!!!!
- 101 It was based on real life - i.e., my home least: not always intuitive to use; would have liked more quantitative guidance regarding penalties associated with not remedying drafts.
- 120 The program looks good!!!!
- 121 Thanks for making the program available. I will get around to using the program in the future, let me know if I can help when I do!!!!
- 125 Material selection!!!!
- 126 Easily understood graphics!!!!
- 138 The possibility to create the case study building's site plan and change it, as well as having a 3D version of the building where windows' location can be indicated for proper suppression or change!!!!
- 142 EASY TO USE AND SEE COST OF ANY CHANGE!!!!
- 196 I found the beginning very easy to use and plan to make more use of it after we occupy the house and I have time to consider it!!!!
- 216 FOR RESIDENTIAL STRUCTURES THIS HEED IS ONE OF THE BASICALLY BEST ENERGY MODELING PROGRAM THAT I HAVE USED (I AM A ME-PE WITH EXTENSIVE HVAC DESIGN/MAINTENANCE EXPERIENCE WHO IS GETTING INTO COMMERCIAL ENERGY USE CONSULTING)!!!!
- 217 I would like to use your program, with an ICF added feature. With all the news of high energy costs recently, consumers will search out alternatives to save money. That should increase ICF home building.
- 273 It is nice to see an accessible tool which can be used to guide energy decisions about home energy issues!!!!
- 314 THE ATTEMPT TO BE USER FRIENDLY WITH A GRAPHICAL INTERFACE. IT ISN'T ARCHIAIC LIKE MOST PROGRAMS. THE OUPUT AND COMPARISON GRAPHS ARE GREAT!!!!
- 336 I am an architecture student. I liked the fact that it allowed me to evaluate a design project from a different, more practical perspective!!!!
- 355 It was free, and worked reasonably well -- I learned about it at the Solar Forum in Washington DC last year!!!!
- 394 Available information was good!!!!
- 404 The ability to model and compare different options!!!!
- 408 It is a very useful tool!!!!
- 443 Programs Logic and completeness of input/output data!!!!
- 445 It was fun!!!! !!!!!

... My team and I really appreciate all these comments (marked !!!!!), this is what we set out to do...

ID Q5: What did you like Least?

- 21 Only Los Angeles data! ... **Now resolved...**
- 40 I couldn't get into it; I was trying to find something for studio; I ended up using REM design - which seemed easier; and a little of energy -10.
- 50 The few bugs.
- 58 Lack of "guesstimation tables" for thermal properties of walls/windows (ie, 3 1/2" fiberglass = R-13 + 1/2" foam board = R-7, etc.). Use of U-values vice R-values for walls. **...Basic Design mention R values, but Advanced Design lets you input U-values for entire assemblies...**
- 91 Lack of being able to add my own design and work it from there.
- 101 Not always intuitive to use; would have liked more quantitative guidance regarding penalties associated with not remedying drafts. **... Drafts are mentioned in both Help and Advice...**
- 117 My floor plan kept changing its not as user friendly as I would have liked it to be. **... The only way I can think this could happen if he recalculated the Initial Design...**
- 120 I didn't have a week to find out how to use the weather data. I tried several times, and could not find exact information on how to load the weather data into the program.
- 125 Form of building is too rigid. **... Yes there are some forms like triangles and circles that can only be approximated.**
- 142 Difficult to adapt to different country with different laws.
- 155 The format in which it was presented, meaning that it was not all text. **... It seems this user did not like the graphic input and output features of HEED...**
- 157 Looks like a good idea but I can't get it to work correctly. What about Skylights? **... Skylights can be input on either Basic Windows screen or the Advanced Windows Glazing screen...**
- 158 We can not work with our climatic data and in metric units. **... Metric units would be easy to add...**
- 188 I couldn't easily plot the irregular second floor (i.e. not the same as the first) or the impacts of the neighbors building. **... Currently the only impact is if the neighbors touch (as in a townhouse), but remote shading could be added in the future...**
- 196 I did find that I was unable to exit the program from the early screens, namely the ones that show scheme 1 and 2 and the beginning of my inputs. **... True, you have to copy out scheme three before you can exit, unless you crash out...**
- 208 It was hard for us to run properly or to have the information work the way it was supposed to. My class had a hard time running the program. I would say that it will be very helpful if we can run it properly without flaws messing up our designs. **...I wish I had more data on this...**
- 217 No information on Insulated Concrete Forms (ICF). ICF's are much more energy efficient. Giving a homeowner R values that are unrealistic with conventional frame homes.
- 230 It would have been more user friendly if there was a way to save your design cases to files. **... This must have been an earlier version, now user can copy designs into as many Project files as they wish...**
- 273 A more detailed description of the methods used for calculating the energy use would be helpful. **... This is given in Advice...**
- 336 The only negative would be that it was unclear how the program would work on a building with multiple floors.
- 394 But the program was not user friendly. **... Again I wish I had some specifics on this...**

- 404 We had to learn how to save our data so that we could use other schemes. Saving data in windows explorer and then reloading it was a bit cumbersome. ... **Now this is much easier...**
- 443 Problem printing data and graphs! ... **Now this is explained when clicking the Print icon..**
- 445 But I didn't feel like I could really depend on it for accurate results.
... **Although this kind of comment is rare given the final more robust version, I feel obliged to minimize or eliminate them in the future...**