The Sims Design Document

Draft 5 – 8/31/98

Note to reader: the information here is for the use of The Sims development team. Sections that are decided and can be considered complete are in **bold**; other sections that are under discussion, or have competing opinions, or will be discussed at a later time in the milestone timeline, are normal font.

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Live Mode - People

Control Panel UI

To be designed by Sept 30

In the World UI

To be designed by Sept 30

Motives

SOCIAL

Romance note on 8/6: The July milestone implemented much of current Romance design. The success of that design is again under discussion. We will review Romance again when we design the story using character skills set in scenarios. This section has been un-bolded because it is returned to open, undecided status.

Romance in Social Motive

Romance occupies the high end of the social motive scale, from +70 to +100. In the social motive, regular and romantic interactions accrue social points ONLY to +69. To go to +70 and beyond, it takes romantic interactions. The social motive bar should reflect the "romantic territory" by appearing a different color. It is not possible for a character to move above +70 with another character unless they are "in romance".

Note that the social motive will often be well below +70 and all interactions (social and romantic) will boost it up. However it is only romantic ones that can boost it up over +70.

Romance in the World UI

Immediately after any type of social interaction between two characters finishes, there will be either a friendship or romance icon that will pop up over the heads of the characters. (all social interactions are categorized as Romance or Friendship.) The friendship icon is TBD but the romance icon is a heart.

There will be a + or – sign to the right of the heart and friendship icon to indicate the direction of movement of the latest interaction. We will drop the flashing icons that are currently implemented because they don't work well. If the = or – doesn't work, we can try the happy-neutral-sad face Will has recommended.

Romance in Relationships

Romance between characters can occur if the relationship between them is > +50. It is at this point that the menu items begin to include romantic interactions. Relationships can be romantic one-way and two-way (of course). One character may reach a >+50 relationship and may initiate a romantic interaction without the other character up to the same level. In fact, it is this difference in relationship values that will make it interesting to watch because a romantic interaction may be reciprocated OR may be flatly refused. If a refusal or rejection drives the initiating character's relationship with the refuser to plummet, there will be no more opportunity for romance until the relationship value is boosted up again to >+50.

Relationship scores can go to the max (+100) with or without a romance between characters, thereby reflecting the difference between best friends and lovers. The relationship panel reflects the state of the relationship.

Same Sex and Opposite Sex relationships

To be outlined in 9/30 Live Mode deliverable.

Currently the game only allows heterosexual romance. This will not be the only type available – it just reflects the early stages of implementation. Will is reviewing the code and will make recommendations for how to implement homosexual romance as well.

The Romantic Benefit

There is a strong benefit to having romantic interactions because every point above +70 is added to the mood score. Since the mood score is an average of all the motive scores, the addition of the straight romance points is a BIG WIN.

The same color that indicates "romantic territory" in the social motive bar should indicate the mood points attributed from romance. (We'll try this and see if it works. It may be too hard to tell the effect of an individual interaction on the motives since they are simultaneously being controlled by other effects too)

When a romantic interaction causes an increase in the social motive, the amount of that increase is added to the mood score, but only when the social motive exceeds 70.0, and only to the extent that the increase increased the score over 70.0. For example, an increase of 10 points from 62 to 72 would only add 2 points to mood, but an increase from 73 to 83 would add 10 points to mood).

Relationship Panel

The relationship panel should be changed in the following ways because player testers do not understand the colored backgrounds behind the heads. So:
The heads will have a small "gas gauge" type rectangular bar under each of them. This will fill up as the relationship gets better and will go down when the relationship score decreases.

There will be a heart outline that will encircle the head when there is a romance going on with that character. We have dropped the idea of the thickness of the heart outline changing due to size constraints. Charles, maybe we use small hearts in the gas gauge: the more romance the greater the number of hearts?

TBD Design – There is an anticipated problem of how to display the flip from declining romance into friendship when the relationship points are high. Does the friendship icon display after interaction, in the middle of interaction, or what?

Live mode Art Notes

3D Animation

- There will be one skeleton model for all adult characters
- Child-sized skeletons are under discussion as a result of meetings with Pet Fly Productions and Ron Cobb
- There will be ?? number of skins
- Naked skins are required – each character will have one set of clothing, one naked set. Each character has only one set of clothing and hair style to maintain consistency and make it easier for the player to recognize individual characters.
- Bathing suits/underwear under discussion

- Upper and lower body scheme?
  The current art plan calls for two complete sets of animations where we will need sitting and standing versions.

Sprites

- Some animated (duck) others not (baby)

Design-a-Family Feature

Design

- **Will be included in game**, particulars of interface and if applicable to story are TBD.

Simulation

- Designer family members can act as neighbors, but will not be used in level play.

People at Work

- **Newspaper/job will be included in game.**
- Carpool with vehicle outside to pick up character is TBD

People Voiceover

Several experiments (using Freshness tool for speech) and discussions with EAC sound department (to provide tools to support real language) have proven that we will have to use our fallback option of unintelligible speech or an obscure language for character language.

The possibilities here are to use:

- An obscure language (like Navajo or Esperanto) for entire “script”
- Use a more scripted and directed version of Charlie Brown speak than we were able to provide in June milestone.
- Other possible languages: West African (Nigeria) or Bahassa Indonesian.

Will favors using four voices: adult male and female and child male and female.

We can explore using pitch shifts or other tricks to try to expand the voices to be different for each character but this is not expected to be successful. Rather, the personality of the character will determine the “sound bites” that they will tend to say more often i.e. a happy person will make happier sounds and a grumpier person will make grumpier sounds.

Control Panel –

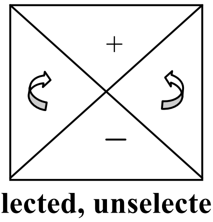
The Control Panel consists of 4 main sections: the View Controls, The Game Controls and the general and specific mode tools. The game controls and view controls are common to all modes. The mode tools change by mode.
Dimensions of CP are: 100 pixels high by 800 pixels in 800 x 600 resolution and 100 x 1024 pixels in 1024 x 768 resolution.

Mouse activation

In all the Control Panel buttons, the action is always taken on mouse down.

View Controls

- **zoom in**
- **zoom out**
- **rotate world 90 degrees right**
- **rotate 90 degrees left.**

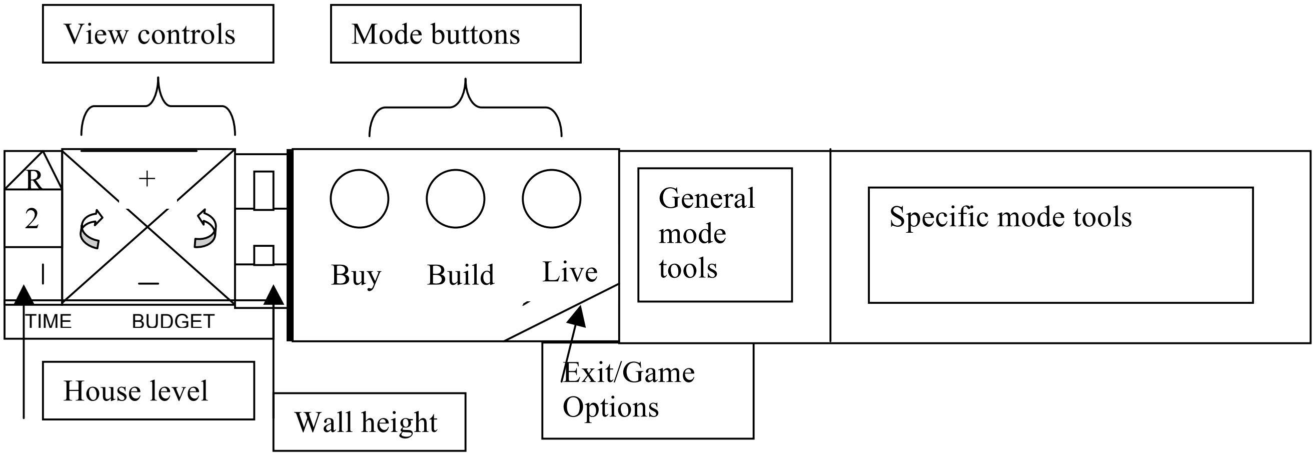


The View controls need to indicate states: selected, unselected, rollover. An additional state, temporarily unselectable for zoom in and zoom out. Zoom in is temporarily unselectable when game is in largest zoom; conversely, zoom out is temporarily unselectable when game is in farthest zoom.

Game Controls

- **Time**
- **Budget**
- **Wall Level**
- **House level**
- **Mode buttons: Buy, Build, Live, Game Options (this mode is smaller and less important visually than the others but it does include EXIT)**

Button states discussed in each section below.



Time

Time is a readout of the game time. It is also a button that accesses the Speed Control in the game. A rollover highlight on Time indicates something else is there and that is Speed Control (so sorry for the awkward language!). When the Time button is pressed, SFX plays, the text "Time" hilights and takes over the Budget space next to it. In the Budget space the speed control is displayed with a slider. Slider has 5 positions to set game speed from slow to fast. 3 would be real time, 4-5 is fast. 1-2 is slow time. The game cannot be paused here. The slider can be clicked and dragged across the five positions but it will also move along the scale if the player clicks inside, at either end of the slider box. It moves in the direction of the clicked cursor by one click at a time.

Click anywhere on CP or in the World to dismiss the Speed Control. Also dismissed by just moving out of Control Panel into World (no selection necessary).

Keyboard shortcuts – only work in Live mode.
P = pause
1 - 5 = game speed settings

Pause
Game is paused automatically in Build and Buy mode. Game can also be paused by hitting the P key. Hitting it again unpauses the game. When the game is

paused for any reason, there will be a red box outline with a diagonal line drawn through it that will sit over the Time button. The button will still be active and will bring up the Speed slider. The speed can be modified in any mode, except that the results will only be visible in Live mode when the people are moving.

Pause will also be indicated with the text "Paused" displaying over the World (in Live Mode only).

> **ART**
> **The Time button needs a regular and a rollover state. It also needs a "pause" state with the red box and diagonal over it.**

Budget

Budget is readout only and displays the amount of money in the household account. Budget can never be negative. It is displayed with commas and 8 digits for a total of 10 characters. Internationalization issue: Different countries use different delimiters. There should be a library function that formats the string.

In the section, Selling an object, the Budget amount displays a highlight define "highlight" please?. But for the purpose of CP functionality only, Budget is readout only.

Walls, Mode and House level

The following controls need to display three states: Wall level, Mode buttons and house level. Their states can be unselected, selected, or rollover-highlight.
In addition, Walls (no wall and cutaway) and House level (2nd floor) also each require a temporarily unselectable state. They will be unselectable in the following conditions: roof view in any mode allows no walls other than high walls and house level 2nd floor cannot be available in Live mode if there is only one level.

For example, in Build mode when roof mode is selected, high walls only are displayed. Cutaway and no walls are temporarily unselectable.

In another example, if no 2nd floor has been built, go to Live mode, people live on 1st floor, so 2nd floor icon on CP is temporarily unselectable. If player then goes to Build mode, 2nd floor icon is now selectable, and 2nd floor is ready to be built.

Walls display three states available for selection: no wall, cutaway walls, high walls. Default position is cutaway walls. Only the walls of the current level are effected by the wall selection. Walls on the lower level are drawn at full height.

House Level also has three states available: first floor, second floor, roof. Default is first floor level. Keyboard shortcut is TAB key. Note: the tab key is currently

used for scrolling. Press down tab and move the cursor to scroll. We should come up with another method of easily scrolling.

The Look

The overall style will be in accordance with Charles's international iconic style.

The common non-mode specific items in the control panel will all be placed in two blocks, of approximately equal size, starting at the left end of the control panel. Mode specific items will be placed in two blocks in the center and right sides of the control panel.

General - In the World UI

The view controls can be displayed in the World by clicking the right mouse button when cursor is in the World. One exception to this rule is when the mouse is held down for rotating an object (see Rotating an Object), it is not possible to also click right mouse for in the World view controls.

The view controls purposely look very similar to the CP so that the player does not have to learn yet another interface element. But, they operate slightly differently than in the CP. In the world, they first center on the cursor point. This is okay as implemented. But there needs to be a change to the way the view controls are currently implemented, specifically, the zoom in and zoom out should have a state of temporarily unselectable, discussed in View Controls section. The rotate navigation should rotate around the center of the screen. Zoom in and zoom out should zoom to cursor location.

Memory in Modes

Each mode (Buy, Build and Live) will remember the tool/room/function submenu the player was using prior to switching modes. For example, if a player has been using the wall tool and then switches to Buy Mode, when he returns to Build mode, the wall tool and its submenu is selected. The memory will not go so far as to remember the slide-up info panel that could have been up for any particular tool. It also does not remember global view controls like zoom, rotation and level.

Mode-Specific Tool Info
Each mode has tool info. For a description of this feature, see the section Object Info Panel in Buy Mode.

Buy Mode - Objects

Vocabulary:
<u>Control Panel</u> (CP) is all buttons, text, etc below the Control Panel top line.

The World is the entire simulation area above the Control panel.
Catalog Subtools are the specific objects to buy (i.e Green Chair, Red Chair).
General Mode Tools are Functions (Seating, etc.) or Room (Kitchen, etc.)

Please refer to the Object List (Word and Excel files) on Elmo for specifics on each object.

Control panel UI

Buy Mode is the section of the game where the player purchases and places objects into the house/environment. The player is limited by the money in his household budget. During Buy Mode, the simulator pauses and time does not pass. There is no penalty for staying in Buy Mode for any period of time. All objects are sorted in two ways: by Room and by Function. Moving between Room and Function Sort is described in the next section. The Open hand cursor is the default cursor in the world. When the cursor is pointing at an object, the open hand is displayed. When it is not pointing at an object, the cursor looks like…? (currently a standard pointer arrow cursor). There are hotspot issues about the hand. What is the hotspot you're pointing with when the cursor is not over an object? The pointer cursor has an unambiguous hot spot, so it's good for pointing. An open hand is ambiguous, because it could be any of the fingers or the palm (it is actually around the middle finger knuckle now). We have a pointing hand cursor that would be ideal to use, but I don't believe the hotspot is exactly at the finger tip as the user would expect. It is important that the hot spot be consistent on all hand cursors so it does not jerk around when you switch between hand cursors. So if the tip of the index finger of the pointing hand is decided to be the most important hot spot for pointing, then the other cursors should have their hotspots in the corresponding location so the hand is steady when it points and opens and closes to grab. It is possible to simply move objects around and not buy anything in BUY mode.

ART NOTES

The size of the Control panel objects are assumed to fit in a 45 x 45 pixel square. This assumes a fit within the trimmed down 100 pixel Control Panel that runs on the bottom of screen. These numbers are estimates and will be altered during Charles' layout of CP.

The Objects should appear with no shadows in CP.

The objects displayed in the UI will be a separate set of graphics tailored to fit the size of the UI CP space. (45 x 45 is estimate.)

Selecting Buy Mode and the BUY sort

Click on the BUY button. The Function sort is the default sort. Function icons display to the right of the mode buttons. The function default will be the upper left function icon. There will be no object catalog default selection. The default cursor is the open hand cursor.

Clicking on the BUY button again while in Buy mode switches the sort to the Room sort. The upper left room icon will be the default and again, there is no catalog object default.

NOTE: the Room sort is supposed to be hidden. It is not necessary for game playability and therefore does not deserve extra room on the interface. It is a surprise that the player can find on their own. Great supporting comments about the intent behind the interface design! Put more stuff in like this!

The room icons and function icons act as buttons to call up that room's specific objects. The original idea of using text for room and function sort has now been dropped and the icons Charles has designed are accepted. (Particularly since Tooltips are now implemented, the text label on the permanent UI is not needed.) Ditto, good supporting rational!

Room categories are Bedroom, Dining, Bathroom, Study, Kitchen, Miscellaneous, Family Room, Outdoor.

Functional categories are Seating, Surfaces and/or Storage?, Appliances, Electronics, Plumbing, Decorative, Lighting, Miscellaneous.

Since Miscellaneous appears in both Room and Function, but have different objects in their catalog, a visual treatment has been devised. The … ellipsis with closed dots will be used for the Room sort. Open dot ellipsis will be used for Function sort.

When player leaves Buy Mode to visit Build or Live Mode, then returns to Buy Mode the last sort is displayed, and the last selected general mode button is highlighted (i.e. Seating would be highlighted, but not Green Chair from catalog.) Since the Info Panel closes with the selection of another mode, that Panel will never be displayed on return to Buy Mode.

Selecting a Room or Function

Rolling over the room icon (substitute "function" for "room" throughout – for the function description) will highlight the icon. Mouse down on the room icon will select the room and the icon will assume the "selected" color. A double row of objects appears to the right of the room icons. Or as many rows as will fit given the screen width. At the rightmost end of the row, there will be an arrow displayed only if there are more objects to be viewed. Mouse down on the arrow will bring up another two-row set of objects in the same layout or as much of a row as is needed. Objects do not scroll one at a time. Object sets are motored

into catalog space to help players remember on which "page" a particular object is found.

There will be an arrow on the left side to allow the player to get back to the previous set. The price of the object will appear as a hot label when the cursor rolls over the object; no object name (i.e. "Antique Mahogany Table") is displayed, only price. The price hot label may not obscure its object, but can obscure any other neighboring objects. Fixed location tool tips? Or do they pop up near the cursor but not over the object. It would be easy to make an algorythm or table of fixed locations for the catalog item tooltip popups that looked neater than just popping up near the cursor. Popping it up to the left of the catalog item will always work.

Selecting an Object to Buy

To select an object to buy, click its graphic on the catalog area of the Control Panel. Object is selected on mouse down. There is one way to move it into the world that will be supported:

Click-release to select and pick up, move-into-world, click to drop.

Drag and drop is not supported in Buy Mode. The scheme for rotating an object in the World precludes the use of drag and drop.

Once an object is selected, the cursor changes to a grabbed hand holding a smallest zoom size version of the object. As soon as the cursor+object moves into the world, the object in the cursor changes to match the zoom level of the world and becomes monochromatic (gray scale). There will be two versions of gray-scale to indicate whether an object is over a valid location and can be placed. Darker gray-scale indicates an invalid location while brighter gray-scale indicates a valid location. As soon as an object is placed, it becomes full color.

If selected object is moved over View and Navigation controls, object disappears and turns to arrow cursor. As soon as arrow slides back to Mode or catalog area, selected object reappears.

Buying

Good specification, with lots of important details to help the programmers! Thanks!

To buy an object, place it in the world. This is the only way to buy an object -- selecting the object from Control Panel does NOT purchase the object. THE OBJECT IS BOUGHT WHEN IT IS SET DOWN. The budget is decreased by the price of the object when the object is placed. The object becomes full color when it is bought /placed in the world.

When an object is placed, ka-ching SFX plays, budget amount readout highlights displaying first the current budget amount in bold, then the new decreased amount in bold, then goes back to unhighlighted, unbolded state.

Spending Beyond your Means

You cannot place an object that you cannot afford. If the object costs more than is in the budget, the price in the hot label will appear in red and the object picture in the info panel will have a red band or some other indication over it that the object can't be bought. In fact, player cannot select an object to place if funds are too low. The cursor will not change to a grab hand with object if funds are too low.

Buying Multiples of the Same Object

To buy more of the same object without having to go back to the CP and choose it, hold down the Shift key while placing the object. Another identical object will be attached to the cursor.

If bank account is too low to buy the additional object, player will be prevented from getting another object on cursor, and can't-do-that SFX plays. Open hand cursor displays (empty-handed!)

Slide up Info Panel

When player selects (with a mouse down and up) on an object in the CP catalog, an info panel will slide up if the mouse remains over the catalog object for 1 second without moving (timing to be playtested.) This panel will display the price, and medium zoom level size of the object with a short (less than 50 words, two sentences or less) text string with hints on the motive or other benefits of this object. This text string will reveal only some of the benefits the object provides – it is not meant to give total object information, nor should it be too specific (will not say "this aquarium will give +5 environment points.") Some medium zoom objects may be too large to display on Object Info Panel. For these, the small zoom graphic will be used. The database will list which size object graphic to use in Info Panel.

The width of the Object Info Panel slides up above the catalog area of the CP objects.

Sliding over to adjacent object in catalog and clicking once on that object will replace the first batch of info on the Slide Up Info Panel with that second object's medium zoom size graphic and text.

As soon as cursor crosses over from the Control Panel into World, or over the Object Info Panel, the info panel will slide down. It will slide down it leaves the catalog subtools area.

Returning Before Buying

The player can return an object before buying it. Here is the sequence of actions:

Select object from UI CP by clicking once, grab hand cursor displays on object. Move up into the World, and without placing object in World, user can move the selected object back to any position over the CP to return (except over Navigation and View control where the arrow cursor is displayed). Click once and on mouse down object will be replaced (no dollar amount in bank account needs to change, since object is not bought until it is placed in World). It not necessary to put back exactly in it's "home' spot on the CP UI.

While the object is being moved around in World, its catalog CP equivalent retains its highlight until the object is placed, or the object is returned to the CP.

Objects in the World UI

Selecting

To select an object in the World, click on it with the open hand cursor. The selected object displays its monochrome state. The cursor becomes a grab hand holding the monochrome object. Now the object can be moved or rotated. Presently instead of the object displaying monochrome, it's displayed with a yellow grid underneath it. Do we lose the yellow grid or not? Also here's a couple arguments for displacing the moved object vertically upwards a bit: If the object is big on the tile, you will still be able to see the yellow grid (or whatever the mouse cursor looks like) underneath it, if it's raised up a bit. If you don't raise the selected object up, the visual cue is ambiguous and misleading, when you place multiple objects by holding down the "shift" key, after you've placed one object and are now moving another, but holding it the same place as the one you just set down. In reality there is one brand new object there, and an identical object drawn in the same place, plus a yellow cursor underneath, plus red X's showing that the object you're carrying can't be placed there (because there's another one already in the same place). But it looks identical to the situation where you're trying to place the first object but can't for some mysterious reason (you can't tell that there are two object there, since they're drawn in the same place, and there is no positive visual feedback that the first one you placed ever got there. But if you lift the one you're moving up a bit, you can obviously see that there are two object there, one in color in place, and one in monochrome floating above.

Another issue is that the red "X"'s are really ugly. They tend to visually break up the multi tile objects. They are often hidden inside of objects by the Z buffer. We need to design a nice visual way of feeding back

placement error conditions, that gives the user some idea of what's causing the problem, and what to do to solve the problem.

If there is one tile blocking a multi tile object, all red X's are displayed in all the multiple tiles anyway, the feedback does not tell you which tile had a problem. In order to do that we would have to make the CanPlace function try harder and set flags on the objects indicating error status. CanPlace is lazy and once it finds one reason not to place a multi tile object, it says the whole thing is unplaceable instead of trying to find more reasons not to place it. This is good since CanPlace is called A WHOLE LOT.

What can be selected in Buy mode?

Objects that are bought in BUY mode can be selected.
We need a bit that we can set on objects that tells the move tool if an object is a piece of architecture or not. So the move tool can disallow moving architecture when in buy mode.
The open hand cursor can also select BUILD mode elements. BUY mode objects can be sold. BUILD mode objects can be deleted, not sold. The hand tool works identically in both modes. The only difference is that in BUY mode the hand is the default cursor in the world and in BUILD mode it must be selected from the CP.

Moving

An object can be moved by:

Click to select from CP and pick up, move-around-in-World, click to drop. I would call this "buying" an object. Moving is picking something up that's already there, such that you don't get charged when you drop it in the world, and you're prompted with how much it's worth when you move into the control panel, and you get a refund if you click in the control panel. Buying is selecting it from the control panel, such that when you enter the world, you are holding it in your closed hand, and when you drop it, you are charged, and if you move back into the control panel you aren't prompted with its worth, and don't get a refund. "Dropping" something you have not bought in the control panel does not refund any money. Clicking in the control panel while buying an item from the catalog either deselects the thing you're buying so you're back in move mode not holding anything, or selects another thing to buy because you clicked on a catalog item).

Drag and drop is not supported (because of conflict with rotating scheme.)

To move an object already placed in the World screen, in open hand mode, click on the object to select it, it changes to its monochrome state, the cursor changes from open hand to grab hand, then move it to the desired location and click to set down. The grab hand cursor now changes back to an open hand cursor and the object returns to colored state. If you try to set an object down in an invalid location (when it has the red “X”’s displayed or whatever we decide on), you get the “boop” sound and it is not dropped, instead it keeps following the cursor as if you had not put it down. You can still rotate it with the usual gesture around in an invalid location.

Moving a selected object around the selected object on cursor to change monochrome state depending on whether it is a valid location to be placed. Huh? I don’t follow ☺? Is this translated from Japanese??! There will be two versions of gray-scale of the object to indicate a valid or invalid location. Darker gray-scale indicates an invalid location while brighter gray-scale indicates a valid location. As soon as an object is placed in a valid location, it becomes full color.

A technical test of this idea is necessary. Can program interpret object’s RGB value to support light grayscale version and dark gray scale version? If possible, Will suggests we try this with a small object and a large object to see how well it reads. Gray scale versions of the object can be computed dynamically by another custom blitter. We could just as easily display a NEGATIVE gray scale image to indicate you can’t place an object! That would certainly convey the message.

If the object is clicked to set down in an invalid location, a text string displayed next to the object appears with brief explanation of why object cannot be placed in that particular spot. SFX will play and this text string will display on mouse down. There will be a set of six (or so) generic explanations for invalid placement. The text string displays for less than 5 seconds (timing will be tuned with playtesting) Why not display it until the user moves the cursor, like other tool tips? This is the same type of text string that is used in Build mode that indicates why a particular architectural element cannot be placed.

There are some complications about giving error message feedback for placement problems. There may be several reasons why you can’t place an object somewhere. CamPlace is lazy about checking if you can place an object, which is good, because it’s called A LOT! It bails and returns false on the first problem, even though there may be several problems, some possibly more important to the user than the first. The order it tests for problems may be arbitrary with respect to what the user cares about, so we can only feed back one of several possible problem conditions which may not be the “most important” one. Multi tile objects magnify this problem, because the user might wonder which tile of the multi tile object is causing a problem.

Staircases in particular are a bitch, because you’re downstairs placing them, and they have an upstairs tile for the landing that you can’t see,

since everything upstairs is invisible. The landing has a wall prohibition that keeps you from placing it so you'd have to walk through an upstairs wall, but you can't see the upstairs tile or wall that might be causing the problem. Right now the placement error feedback simply makes all of the tiles of a multi tile object have red "X"'s, giving no indication of which tile is (or tiles are) causing the problem, or even what the problem is. Somehow we need to organize and prioritize the placement failures, and if placement fails, then test for the most important problem and feed that back to the user.

Rotating

Thanks to Don, we have a rotating scheme that should work more easily than previous designs.

Select object in the World, on mouse down the gripping hand cursor is displayed with four arrows around it pointing in the different grid directions an object could face [note: four arrows will always display, it's not smart enough to supress arrows for invalid rotations], and the object is in monochrome state. Yellow grid mouse cursor underneath? Raised object? While still holding mouse button down, move away from selected object and slide cursor around. The selected object will be pinned in its original location and rotate, following the cursor. Just The arrow in the direction you're facing the object displays next to the gripping hand cursor. On mouse up the rotated object is set down, changes to its colored state and open hand cursor displays (or the arrow pointer [or pointing hand?], if you're not pointing at an object).

If the object does not fit into the rotation place (i.e. a multitile object that needs space to rotate), object look in the immediate area (2-3 tiles around it) and move to the place that allows the rotation. If the large object needs more room than that, it will jump to the next legal rotation space. This is pretty hard to implement, and may result in very suprizing and unstable behavior. It will certainly disorient the user by abruptly moving the object away from the cursor grab point. If you got it in the right spot, but then needed to rotate it around to the right rotation, but during the rotation it moved, you would find the experience very frustrating and unpredictable. [cf "the principle of least astonishment"]

Right now if an object cannot be placed at a rotation, it is simply displayed with red "X"'s, is not dropped, and keeps following the mouse cursor, as I described above. This behavior allows the user to leasurely try different rotations and positions independantly, without them interfering with each other.
Double clicking on an object does not rotate the object. Done!

< > keys will also rotate selected object.

Selling an Object

To get rid of any object that has been bought, the player must sell it. The longer the time between when the object is bought and sold, the higher the depreciation on it and the less the player can recoup of the original value. If an object is sold in the same Buy Mode period as it was bought (that is, the player has not switched to Build why does build mode devalue objects? or Live Modes) why not simply base it on time passing so switching to build mode and back does not devalue objects?, the object loses no value upon resale. The depreciation schedule only takes place in Live Mode, and is calculated monthly, so it is possible for a player to buy an object, go to Live mode for less than a month, return to Buy mode, sell the object and get full value for it since its depreciation hadn't kicked in yet. Oh, I guess it is based on time, so please edit the first part to be consistent.

There are two ways to sell an object:

1. Select the object that has been placed in the World by clicking once. The object turns into its monochrome (selected) state. The grab hand appears over object. A new temporary button (alpha-blended? Eww yucky! That would be hard and ugly. Please make it a nice easy to read opaque overlapping window that covers the entire non-view part of the control panel) appears over the room/function buttons in the CP that says "Sell this sofa for $380?" Move the selected object to this temporary button and click to release. On mouse up the object is sold. No confirmation dialog is displayed. Dollar amount is added to bank account display. Budget highlights momentarily with new amount.

2. Select the object that has been placed in the World by clicking once. The object turns into its monochrome (selected) state. The grab hand appears over object. A new temporary button (alpha-blended?) appears over the room/function buttons in the CP that says "Sell this sofa for $380?" Hit the Delete key on keyboard. No confirmation dialog is displayed. Dollar amount is added to bank account display. Budget highlights momentarily with new amount. Might be nice to mention the delete key (or the word "delete") in the nice big confirmation dialog.

When selected item is moved down across the line of CP and the world, it changes from its World size to the catalog object size.

If the selected object is not moved to the temporary Sell button, but crosses over into the Navigation and View Controls area of the CP, the cursor changes to an arrow. When it crosses back into Sell button area or catalog area, cursor changes to selected item.

Build mode objects are deleted, not sold, but they work exactly the same way with just a different message string (Delete this pool ladder?) in the alpha

blended button. Can you type “y” or “n” from the keyboard as well as “del”? Does “esc” do the same as “n” (dismiss the dialog and put the object back in its original place)? Or is there no way to answer “no” to the dialog or cancel it, you just have to put the object down somewhere in the world, and the tool need not remember where you picked it up from, since it won’t need to put it back. This might be a problem if we have keyboard shortcuts for switching modes or quitting the game, since they would have to cancel the movement command, which would need to either put the object back in its original place or delete it. As soon as a bug is fixed, you will be able to quit the game by pressing alt-f4 or clicking the windows “X” close button in the upper right hand corner, and the game may have to go through an “save/quit without saving/don’t quit” dialog. But if the user was moving an object, then hits the “X” button to quit, then selects “save and quit”, what state should the game be saved in? Where will the object the user was moving be? Should the movement tool be canceled and the object returned to its original position before putting up the save and quit dialog, so the world can be saved in a consistent state? Or should the object you’re moving be silently deleted (and you refunded whatever it was worth) before the game is saved? It’s not possible to save the state that you’re moving that object, since the mouse cursor cannot be saved, and it would be crazy anyway. So this is an argument that the object movement tool should remember where the object was picked up from, so that it can put it back there in the event it’s canceled abruptly (as opposed to setting down in the world or refunding). And of course the game quit logic should cancel the active tool (and any active pie menus) before putting up the dialog. It might make the user happy if the “refund” panel also had a “put back” button that canceled the movement command and put the object back.

MISC NOTES

This design eliminates the following permanent interface buttons: Function, Move, Sell and Info. Move, Sell and Info interface replacements are discussed in above section.

How does the “Info” functionality work? Does picking up an object get info about it? How about double clicking (pick up and drop down in the same place), that is currently not being used for anything, and seems like a great way to find out more about an object.

The player in 1024x768 mode will be able to see more columns of objects without having to use arrow buttons. If there are still more objects to be displayed, the right arrow will appear on the extended CP.

SFX - Buy Mode Control Panel

Sfx of “ka-ching” is played every time an object is bought. When selling object back by Delete key or by moving it back to CP, the addition of dollars back into account will play a different, money-related SFX. **Budget highlights momentarily with new amount. Font size could momentarily expand when you were refunded money, and momentarily shrink when you spent money! What does ka-ching sound like backwards? ☺**

CP and in the World object SFX will be specified when all game interface issues are set.

Need to work out a good set of sound effects for pie menus, including the view control pie menu. Different sound effects for selecting different items would be really great. Pitch could indicate up and down, pan could indicate left and right. Rotation sounds could pan from left to right or right to left. Zooming in sound could get louder and/or lower, zooming out sound could get softer and/or higher. Speed control slider could play a sound indicating the speed, so you could hear the notches.

Quitting the game: See notes above about quitting with the “X” button, and canceling tools and menus.

Quit dialog: Instead of a series of yes/no dialogs (really quit? save game?), collaps quitting confirmation and save into one dialog with three buttons: quit without saving, save and quit, don't quit. Make keyboard shortcuts so you can type "q" or "y" to quit, "s" to save", "n" or esc to cancel, etc.

You should be able to quit even if a modal dialog or pie menu is up,
since you can always press the "X" button (or type alt-f4).
So the quit dialog may have to cancel whatever other modal dialog is up,
or properly unwind the stack somehow. This is another reason to avoid
modal dialogs. We could simply make the quit dialog (and all others)
non-modal.

Build mode - Architecture

Vocabulary:
Architectural Elements are all the structural building tools that cannot be moved, i.e. walls, floors, windows, doors, etc.
Architectural Objects are all the objects that can be picked up and moved (Fireplace, Staircase, Pool ladder, etc.)
Architectural Tools are the CP icons for all the Architectural Elements and Objects

Control Panel UI

The Build CP will include the common View Controls and Game Controls shared by all modes. The Architectural Tools listed in the table below will be icons. They will appear in a block containing two rows of six tools. When the player clicks on any of them (except Hand), the specific tool choices in that category will appear in the catalog area. For each tool selected, the cursor will change. The Arch Tools will have names displayed in Tooltips.

Architectural Tools on the Control Panel

Tool	Tool Choices	Cursor in world	Function	Shift + Cursor (Extended Function)
Terrain*	1. Hill with up arrow 2. Hill with down arrow 3. Hill w/ horizontal arrow	1. Hill with up arrow 2. Hill with down arrow 3. Hill with horizontal arrow	1. terrain up 2. dig 3. level terrain	Changes radius to smooth out or raise larger area
Water*	1. Water drop with up arrow 2. Water drop with down arrow 3. Pool 4. Diving board 5. Pool ladder 6. Pool filter	1. Drop with up arrow 2. Drop with down arrow 3. Pool in hand 4-6. Floating object in grab hand	1. raises water level (only works on water) 2. lowers water level 3. Drag out a pool 4-6. Place each object	1. None 2. None 3. None 4-6. Place multiple pool objects
Plants	5 trees 5 shrubs 4 flowers	Floating selected plant in grab hand	Place plant	Place multiple plant objects
Floor*	X flooring styles	Arrow	Place floor	Fill entire room with selected floor.
Wall*	1. Wall - 1 2. Fence & - 7 Balustrade – 3 3. Columns - 4	1. Pole (hammer removed) 2. Small pole for fence/balustrad 3. Floating column in grab hand	1. Drag out a room 2. Drag out fence/balustra 3. Place column	1. Drag out a wall only 2. None 3. None
Door	X door styles	Floating selected door	Place door in a wall.	None
Window	X window styles	Floating selected window	Place window in a wall.	None
Wallpaper*	wallpaper styles (8 inside, 8 outside)	Looks like door frame until hits wall – then displays pattern	Place wallpaper on a wall.	Place wallpaper on all walls in the room.
Stairs	8 stair styles	Floating selected stair in a grab hand	Place stair	Place multiple

				stair objects
Fireplace	X fireplace styles	Floating selected fireplace in a grab hand	Place fireplace	Place multiple fireplace objects
Roof	5 roof styles: gable, dormier, shed, flat, pitched with 2 shingles styles each for 10 total.	None	Roof style applied automatically then pops house into outside view (roof).	None
Hand (Move Objects)	None	Cursor changes to open hand.	To move objects in the world.	None

***Have a running total. See Rollover Cost section below.**

Please refer to the Object List on server for the latest numbers on object type. (i.e. " what is current decision on number of stair types?")

NOTE: the order of architectural tools in this table is not necessarily the order in which to display their graphic in the CP. Will will consult with Charles to finalize the order.

Double click could operate some tools in "room" mode. Double click floor tool to fill room with floor tiles. Double click wall tool to duplicate walls of room downstairs. Double click wallpaper tool to paper entire room.

What happens after you place a door / window / staircase / fireplace / plant? Is it consistent with buy mode, in that you go back to "move" mode afterwards, and have to use the "shift" key to stay in that mode and place more than one? Should the mode switch back to the hand tool if you don't hold down shift while placing door, etc? I think it should be consistent.

Does placing trees allow you to position them at any location (not snapped to tile center)?

Can you move bought objects in architecture mode? Can you move windows, doors, stairs, etc with the hand tool in arch mode, but not in buy mode?

How similar to the move tool should window, door, and staircase placement be? When you're in architecture mode, should you automatically get another window to place, after you put one down? Then how to you move windows that are already placed? Can you move windows and doors with the hand tool in arch mode? What about stairs? After you place a staircase do you get another one to put down? Is this consistant with windows, doors, and buy mode? Or are you able to pick up any object at any time, no matter what you just put down?

Perhaps the behavior of the move tool should depend on the object that you have picked up, so there is one "smart" move tool instead several of subclasses of it for buying, placing stairs, windows, doors, etc. So you can use the same tool to pick up a window, move it with special window behavior, set it down, pick up a staircase, move it with special staircase behavior, set it down, pick up a chair, move it normally, etc. Any objects that you create in architecture mode or buy mode are "one shot", you don't stay in "stair mode", that only lets you move stairs around. But you can hold down shift when you place the object to get another one, consistently. It's a pain to have to go into a special "window mode" to move windows, then "door mode" to move doors. After you place the stairs (or whatever), the hand tool should automatically be selected, unless you hold down shift. Shift would mean repeat the same object creation tool, thus creating another object, and letting you place it too. Not holding down shift would revert to the normal hand tool mode, so you were not holding or creating anything, but could then pick anything up, or click on the palette to create another object.

Slide up Info Panel

In Build mode, the info text displayed on the slide up panel is on a tool-by-tool basis. Some of the Arch tool info will include how to use the tool, any CTL key functionality, or motive effects a tool or object might provide. Like the Object description, this Arch Info panel will be brief, 50 words or less. High level natural language summary of unusual object placement rules (like staircases must not have walls in the way, and trees must be on the ground outdoors). Objects in the catalog with such constraints should also mention them (like toilet and picture against wall). This would argue for lots of room for text in catalog description as well as slide up info panel.

Also, as in Build mode, the Info panel will slide up if the mouse rests in the catalog area for 1 second. Less than that! The mouse can rest on any catalog object, not just the selected object. The Info panel will not slide up if the player has chosen a catalog object and immediately moved it into the World.

Build mode Defaults

Upon first entering Build Mode, the following are the default view selections:

- **First story**
- **Cutaway walls**

Build mode does not have its own view selection defaults. View mode selections are global, you already have a view state before you enter build mode, which should not be changed.

Upon returning to Build mode after having played and left it for another mode, the game will remember any submenus that were in use when Build mode was exited.

Rollover Cost and Running Totals

Each tool will display a unit cost (but not the name of that catalog object) when rolled over in the catalog area of the control panel. Unit costs are expressed as single unit price ("$25 ea", not "$25 per square foot"). Additionally, some tools will display a running total as part of the cursor when they are being stretched out in the World. These are marked with an * in the Architectural Tools table above.

Tool Tips

Each tool will display its name when the mouse rolls over and waits 1 second. (or whatever timing is speced in playtesting) SinceTooltips cannot be turned off, we will be sure to keep the Tooltips as brief as possible.

Undo and Redo

These two buttons need to be added to the left of the general Build tools. The two current suggestions for look are:

1. **Write them in vertical text**
2. **Make them icons like the undo/redo buttons in Word.**

Charles needs to design when working on the entire layout.

Rotating Architectural Objects

As in Buy mode, Architectural Objects must be selected and with mouse still down, can be rotated. [Please reword the preceding sentence.] There are a few exceptions:

- Pool ladder, diving board and filter can only be placed on a pool edge tile, so won't be rotated. Pool objects will snap to their legal pool edge place.
- Plants and trees will be symmetrical, so rotate is not necessary. Boo! Plants are not currently symmetrical, and if they were they would look quite ugly and repeatitive. The tree tool should (if it does not already) put them down with random rotations so they look a bit different.

Deleting Architectural Objects

To delete an architectural object in the game, select the Hand tool from Arch tools CP, click on the object in the World you wish to delete to select it, then hit the Delete key or move the object down into the Sell/delete button on the CP. In Build Mode you can delete architectural objects as well as all objects bought in Buy mode.

Another way to delete a door or a window, would be to draw a wall over it. If you try to place a new wall on top of an old wall that has a door or window in it, the door or window is destroyed, and the wall either keeps its wallpaper (for

user convenience), or gets its wallpaper reset to the drywall state (to simulate knocking out that part of the wall and putting up a new one).

Deleting Architectural Elements

To delete an architectural element, the tool used to create it must be used. The following list describes the tools and their deletion dependencies: Owch this sounds inconveniently restrictive. Above you said that the hand tool could delete doors and windows (and presumeably stairs and fireplaces) too. So it's not strictly true that the tool used to create it must be used.

Deleting Walls

Ctrl+wall tool	**deletes a wall or fence section and any doors or windows in them**

- **Dependencies: Walls cannot be deleted if they have anything hanging on them. Help message will display "cannot delete wall because there is an object on it." How about just deleting the object please? And also, as described above, you could use the "constructive" wall tool to put a new wall in place of an old wall with a window or door, effectively deleting the window or door.**

Deleting Doors

Ctrl+door tool	**deletes a door**

This may be tricky if the door tool is supposed to behave like the move tool, siuce you will be moving a new door on top of an already existing door, and see the red "X"'s that say you can't put another door there. Should the door and window tool be as similar as possible to the move tool, or not? Would it make sense to delete a chair, by selecting a chair from the catalog, and control-clicking on a chair that exists? What should the feedback look like to indicate what will happen when you click the button, that would not be confused with other consequences? This "control-click to delete object" is troublesome… (Not for walls or wallpaper, just for actual objects that exist on tiles, like windows, doors, stairs, etc. Do you have to have the same rotation when you control-click a window tool over another window to delete it? Stairs amplify the problem: it's a real pain to exactly position one staircase over another and control click in order to delete a staircase. The staircases have to match, as well as have to have the same rotation, very unwieldy!

- **No dependencies**

Deleting Windows

Ctrl+window	**deletes a window**

See discussion above.

- **No dependencies**

Deleting Wallpaper

Ctrl+Wallpaper	**deletes a wallpaper section**
Ctrl+Shift+Wallpaper	**deletes a whole room of wallpaper**

This is cool. Since double-click wallpaper tool could wallpaper the whole room, then control-double-click wallpaper tool could un-wallpaper the whole room.

- **No dependencies**

Note: Removes down to the drywall

Deleting Floor

Ctrl+Floor	**deletes a floor tile**
Ctrl+Shift+Floor	**deletes the floor in a room**

This is cool. Since double-click floor tool could floor the whole room, then control-double-click floor tool could un-floor the whole room.

- **Dependencies: on first floor a floor tile can always be deleted down to the grass. On second floor a floor tile cannot be deleted if there is any object or architectural element on it. This does allow for hovering objects if all second floor tiles around the object-occupied floor are removed. When the second story floor is deleted, the second story grid is exposed.**

Deleting Water

Ctrl+Water tool	**inverts the selected water tool**

- **No dependencies**

Ctrl+Pool	**deletes entire pool**

- **No dependancies**

Deleting Terrain

Ctrl+Terrain tool	**inverts the selected terrain tool - has no effect on Level Terrain tool**
Ctrl+Shift+Terrain	**Smoothes a larger area**

Do terra-forming tools indirectly move water around? Gravity and conservation of H2O?

- **Dependencies: the terrain cannot be raised or lowered if there is anything built on it or if any object rests on it, with a very few exceptions. The acceptable terrain type for objects will be specified as an object attribute in the object database. (ex: Architectural Trees can live on raised terrain tiles.)**

Locked tiles? Roads and sidewalks. Can't mess with terrain outside of property.

Deleting staircase and fireplace

Hand tool	**deletes like all objects**

Good call, since control-clicking problems are amplified with staircases. I say punt on control-click to delete tile objects that can be picked up and thrown

away. Only need control-click on walls, wallpaper, tiles, water, and terrain, because you can't pick them up!

Should placing a staircase or fireplace knock holes in the upper level floors for you?

All dependencies will have an error message that pops up to describe the error. [See above discussion about the problems of feeding back multiple placement error messages…]

Roofing the House

After the player selects a roof type and shingle set, the program will automatically roof any areas of the house that have a supporting structure. The roof does not have to be over a "room" but can appear over a single wall. It is possible to have multi-level roofs. If a supporting wall is removed, the roof disappears. Roofs have no impact on game play and they are free. They are visible in only two ways:

- **when the player selects Roof view on the CP**
- **when the player views the house from the outside because a selected character has gone outside.**

How can you prevent roof from covering a balcony? Can you have houses with flat tops? Lower level flat roof and upper level pointy roof? Big area of floor tiles on the second level outside to walk around on, without a roof? Do you need to put rails around the areas you don't want to be roofed, so they're outdoor rooms with their own Ids?

Note: if a selected character has gone outside and behind the house so that he is obscured from the player, the cutaway wall function should cut away all walls in the house to reveal the character.

The algorithm which calculates the roof will run

- **when a player chooses the Roof view in the View controls or**
- **the player leaves either Buy or Build mode.**

In the second case, the values will be stored for later use.

If a player selects roof view and has not selected a roof and shingle type, the default will be the first choice in row one.

In roof view, the cutaway and no-wall views are inactive. Only full walls are seen. When player returns to other house level view, game reverts walls to previous selection.

Second Stories

It is possible to build a second story on a house but a house can have no more than two levels plus a roof. In order to build a second story, a first story is necessary.

To build a second story over a first, click on the Level 2 icon in the view control. A grid will be drawn over the first floor over all areas that can support a second level. The grid will extend out one tile over the existing supporting structures although it is possible to build out up to two tiles from an existing support if the first tile out is floored. A supporting structure is a wall or column.

Any architectural elements that currently "cannot be placed outside" is the distinction we're making cannot be placed on the second floor, i.e. trees, plants, pool, etc. We might want a separate bit that means "cannot be placed above ground" as well as the "cannot be placed outside" bit we currently have. Stairways cannot be placed on the second floor either. You should be able to move them around from upstairs, though, and switch up and down stairs while you're moving them, and they should (unlike other objects) stay on the same levels but let you move them from a different handle.

Deleting walls and columns on the first floor after building a second floor is allowed. If the supporting structure is removed, the second story will float. This will definitely create some very strange structures floating in air but it is felt that the alternative would require too much logic and animation.

Being able to "trick" the game into unusual states (that don't crash) is entertaining and an interesting topic for an "inside the sims" easter egg guide. (Which I volunteer to help write!)

Special Architectural Element/Object Rules

Pool

The pool must be placed on flat terrain. The pool placement tool allows it to be stretched just like a floor. The pool can have a ladder, filter and diving board. These pool elements must be placed on a pool edge tile. The pool is only one water depth and it cannot be changed with the water tool.
Can you drain and fill a pool? New pools could come empty, and you need to use the water tool to fill and drain them. Should the water tool charge for how much water you use, so it's expensive to fill the pool? Seasonal problems associated with having the pool filled during winter (and it cracks) or empty on the 4th of july (and somebody dives in and splits their head open).

> **Art note: The pool will be constructed of x number of edge tiles and 4 kinds of center tiles that can display up to four levels of scumminess.**

People get into the pool via the diving board and get out via the ladder. Without the right pool accessories, it is possible not to be able to get in the pool or not be able to get out. You could have a hell of a pool party that way!

The pool filter cleans pool scum. Scum is randomly distributed over the center pool tiles.

Bathing suits? Dressing / undressing? Changing room?

Privacy: Bedroom, bathroom, dressing room. Could certain objects be marked with a "privacy" bit, that require you to (or suggest that you) clear all other people out of the room before performing certain actions? It could inhibit use of the object while others were around, and somehow shoo other people in the room away (who you weren't intimate with) if somebody wanted to do something that required privacy. Toilet, shower, tub, dresser, bed, exercise machine, skinny dipping in the pool, etc.

Stairs

There are 8 types of stairs. They require 4 - 7 tiles (depending on stair type) on the first floor + one for the first floor clear spot in front of the staircase, and 1 floor tile on the second floor for a landing. The stairs are open style-not a closed area beneath the stairs-but it is not possible to place anything below the stairs even though the area looks free. Also, the stairs erase the floor tiles above them (to leave room for the ascending heads of characters). The Floor Fill function will have to recognize that the area above the stairs is illegal and not fill it in.

Water

Water will have a simple hydrological model that will allow it to flow downhill, Will to design.

Miscellaneous Architecture Issues

- **Will advocates supporting the intellimouse input device in this way for Architecture Floor selection mode: each " turn" of the intellimouse wheel will put up an Arch level. Starting on the first floor, click one will put up walls on the first floor, next click will put on floor of second floor, then second floor walls, then roof. Reversing the wheel will take off each of those layers.**

- **Jim advocates using the Intellimouse in this way: click the wheel to switch among function. Choices would be multistory select, zoom level, rotate view, rotate object. You can also press and release the wheel as well as turning it. Pressing the wheel could pop up a pie menu of several functions to bind**

turning the wheel to, including zoom, view rotation, speed, level, object rotation, selected person, etc, etc (to make 8).

- **No shearing of terrain. Please define shearing in this context. No non-level terrain indoors? Discontinuities?**

- There will be 255 levels of terrain and water.

The Storyline

A unifying story for The Sims is being sought on several fronts;

- Will and Jim story
- Pet Fly productions as game design and story collaborators
- Ron Cobb as occasional, drop-in consultant

Neighborhood

Art

- **Houses will be actual representation of player-built house; the artist will create thumbnail-sized set of architectural objects for programmatically built neighborhood scene.**

Design

- **Success/failure of game is reflected graphically in nbhd screen**, but not yet designed. Also not yet designed, but will be included in game are: saved games display differently than unplayed houses, how to evict families, or to place a homeless family, explore/preview modes.

Other game elements

Disasters

- Fire – do objects have a combustible score? Do objects need a burnt, charred graphic state? Hard problem!

- Other disasters: Blackout, others to be designed
- Electric usage model. Electric bill. Water usage model. Water bill. Cold water supply. Hot water supply. Hot water heater resevoir with certain capacity. Showers and tubs and washing machines and dishwashers and sinks all compete for limited but renewable hot water supply. Hot water heater uses electricity. No plumbing or wiring for user to worry about, just keep track of resource supply and demand.

Events

Events such as marriages, etc. will be included in game, not yet designed.

Autonomy (from Jamie D.)

The idea at the core is simple:

- A person has a data field which is their degree of autonomy, from 0 to 100.
- Each interaction (Sleep, Make Bed, etc) has an autonomy threshold, from 0 to 100.
- When the **find best action** primitive is called, it ignores interactions with threshold above (greater than) the person's current autonomy.
- People always call **find best action**. When their autonomy level is low, they usually won't find anything.

Cool!

Conceptually, we have something like this today. A person has a binary degree of autonomy, always 0 ("manual") or 100 ("autonomous"), and all interactions have an autonomy threshold of 100.

The initial switch over is easy:

- All interactions that have not had their threshold set will get an automatic default value of, say, 50.
- Give people the data field and change the main loop to always call **find best action.**
- Change the manual and autonomous interactions to just set the data field.
- In the code, add the autonomy threshold field to the interactions, bump up the tree table save version to detect old ones, and dole out the default value.
- Change the find best action primitive to do the threshold test in addition to the other tests.

Can check trees bump up the autonimy level? Would that make sense?

Eventually, we'll have to assign more meaningful threshold values, such as ~0 for the group meal.

I'm not sure how we're going to hook up the degree of autonomy, but it may progress with the game level.

We may also trigger other things off of the degree of autonomy.

One problem may be the interaction of this scheme with the contribution curves, which determine how a person's motives factor into the decision. A person who is really full may still avoid the group meal, because the hunger contribution levels off.

Interruptibility

Vocabulary
Player directed is when player gives character instruction
Other character initiated (OCI) is other character in game interaction with selected character

Interaction priority system

1) player directed interrupt of selected character
2) other character interrupt of selected character
3) autonomous behavior

When player directs character interaction

- The player may queue up as many interactions as they wish. There is virtually no limit to the number of interactions in the queue. These interaction, however, are not visible to player.
- Interaction routes and completes one action and then moves on to the next player directed interaction.
- If there is no player directed interaction in the queue, the current interaction loops, decreasing the priority on each loop, until the priority is less than that of the other character initiated interaction in the queue

When other character initiates interaction

- A player directed interaction can interrupt a current OCI during routing or after completion of action.
- A player directed interaction flushes OCI in the queue.

- The interaction routes, completes on action, loops decrease the priority on each loop until the priority is less that of the next OCI in the queue.

Routing interruptibility

- If character is routing to a player directed interaction, then routing is not interruptible.
- If in autonomous mode, a character is interruptible.
- If other character has initiated interaction, no selected character routing is required; the other character has routed him/herself over to the selected character to have the interaction.

Thought Balloon as Visual Feedback

Originally the Visual Queue feature was thought of as a mechanism to acknowledge that the selected character “got the message” from the player of what to do. Since the display size, editability, icon choices and other thorny problems could not be solved to our satisfaction, the alternative of pie menu animated “yes” of the selected characters head will serve much of the same purpose in a simpler way.

- When the player gives a command to go do an interaction (i.e. eat), the selected character’s head in pie interaction menu will shake head “Yes” to indicate that they have understood the command. (this way , if the character is routing to player's first command, there is no mid-route thought balloon that breaks in momentarily. The acknowledgment of command lives in the pie menu.)

When do they ever shake their head no? They could perform one nod on pointing to the item, and another nod on selecting the item, so they didn't stay up as long, and gave nodding feedback earlier and more often. Pointing to disabled items should shake the head and maybe give a tool tip explaining why something isn't allowed (or at least giving a hint). Some actions could be disabled instead of hidden, so the user could see them and point to them to get a shake of the head and a hint about what they need to do to enable it.

- As the selected character is routing to go do that interaction they will display the Do all actions of all items have refrigerator icons??! in a thought balloon. The thought balloon should have a different shape than the motive balloons. Only selected character carry around (display) their thought balloons while routing. Neighbors and other family members do not show their thought balloons in the same way. What about magic and invisible objects like portals, go here destinations, interpersonal objects like kisses and jokes, etc? I think each Action should have its own icon (or there should be a standard library of icons for actions to select from, plus the ability for an object to have its own plug in action icons). The feedback could be much more precise and useful that way. Objects may be spoofing each other, so the icon of that object might be misleading or inappropriate. I.e. food preparation chain: display food? Counter? Microwave? Need a level control in tree code, to select any standard or custom thought icon, like generic "food train" icon for whole food prep process.

- The icons in this thought balloon will use the catalog size object graphics (no larger than 45 x45 pixels).

Advanced Interruptibility feature

For those advanced players who wish to flush the player directed interactions, a keystroke will be noted in the manual**.**

Feedback

Sound design

SFX

- Objects and their animations in World will use .wav files.
- People, Architecture and Objects Control Panels will have some shared SFX for unified UI, and some specific SFX.

Some gonzo sounds exist. We should be using our own sound resource scheme, instead of the gonzo stuff. Pie menu clicks and other ui sounds are using the limited gonzo sound scheme that has the file names hard wired (not from those weird resource files). Get rid of them and use file names in code instead, it's so much simpler!

Music

- Freshness will be considered for music track.
- Sample rate 22 Khz, stereo, 16bit

Voice

- 22Khz, 16 bit, mono

We will use either :

- a more thoroughly scripted version of the Charlie Brown speak that was used in June milestone. I like that. Expressive emotions, no verbal content. Like how pets understand people talking, only the little people are **your** pets!
- An obscure language (Urdu, esperanto, Navajo) for entire script

Professional voice talent will be used.

Before the storyline is set, it is difficult to say how many voices we'll require for characters. Currently, we are assuming one adult male, one adult female, one kid boy, one kid girl for VO. This assumes that all onscreen characters that are adult men will have the same voice.

I think having lots of different voices would improve the personalities of the people in the game a lot. You could even hear people far away talking over the phone through that tinny phone band pass filter!

Open technical Questions

Will game run in both windowed mode and full screen? Or one mode exclusively? Both I hope! Remember multiple screens in windows 98. Test on multiple screen configurations. What happens? Is there a way to choose? Is debugging easy?

Localization

When localized version are produced, the Buy Build Live icons text labels will not be translated, and the icons will be read without text on the CP.

Tooltips will be translated.

The Basket of Ideas

Here are some features that have been discussed and if there is time in development of version 1.0 of the Sims, we will revisit them. If not, this list can be considered for version 2.0.

5. Add 3rd floor to design. Pretty straightforward. Keep the "door" open for this in the code.
6. Use real speech (English) for character. Hard hard problem, will never sound good. Better to have lots and lots of charlie brown blablabla with different voiced and moods.

Great design document, it's been a pleasure reviewing it!!! It's really crystalizing!

-Don