

Hidden Features / Tips and Tricks

❖ Starting A New Project From Windows Using a Prototype Project

(See attached **Sample ARRIS File Structure** diagram)

❖ Useful Environmental Variables in *arris.ini* file

GBIGTEXT=	If set to "yes", menu text will be 1.3 times larger. Used for better display of Asian font characters and poor eyesight.
GBOLDPROMPT=	If set to "yes", ARRIS will use Bold Face text in the prompt for easier vision.
GCAPLOCKOFF =	If set to "yes", ARRIS will start with the text cap lock default "off" instead of the usual "on".
GEDCOM =	Default External Text Editor. Unix, Windows
GPLOTACCT=	Directory for plot accounting file (plotacct.tx)
GRUSRS=	Establishes New User Home Directory (ex: C:\ARRIS_users)
GWINSIZE=	Beginning Window size (ex. 1024,768)
GNBUTTON =	Number of Mouse Buttons Windows
GSWAP=	Swap Directory (ex. C:\Windows\Temp)

❖ Using The Accounting Feature

ARRIS can keep track of useful accounting information such as when you started your ARRIS session, how much time you spent in each drawing and when you exited the ARRIS session by activating the *accounting* mode. This could be very useful for tracking billable hours. Once activated it will also allow you to enter the percentage of project completion and comments each time you save your drawing or sheet.

To activate this feature, type **acct** at the ARRIS prompt line and specify the name of an accounting file such *account.txt* or *std:account.txt* (which will write the file to your standards directory). Each time you open a new drawing or sheet a new line is added to this file which tracks all of the information mentioned above.

For easier viewing and printing, you can view the accounting text file you created using Excel and follow the prompts to format the *semi colon* delineated file.

You may wish to activate the accounting feature automatically by adding it to your *ustart* sigmac.

(Warning: This feature doesn't indicate how productive you were during your ARRIS session or how much time you spent talking on the phone or staring blankly at the computer screen!).

❖ **A Useful Masking Trick Using Solid Fill Crosshatching**

After drawing hundreds of pickets for a deck railing have you ever been frustrated with the amount of time it takes to remove the hidden lines behind each picket so they appear solid rather than see-thru? Here's a great trick that will speed up the process and save future editing woes.

When you're ready to draw your railing elevations, select a new layer and assign it the highest numbered layer in your drawing or viewport. Now draw all of your deck railing (and any other entities that will be covering up the elevation) on this new layer.

When you are finished, add another new layer and assign it a number that is lower than your deck railing layer but still higher than all of your other elevation layers in that drawing or viewport.

Now set your pen number to '0' and set your crosshatch pattern to a solid fill pattern of any color which will create a 'masking' element that will hide (cover) entities on any layer with a lower number when plotted.

Now crosshatch all the deck railing and picket elements. After hatching several pickets you can copy the group to the remaining pickets to speed up the process. Because they are placed on a lower numbered layer than the picket lines themselves, the picket outline boundaries will still be visible and plot just fine.

The next time you have to move a window, door or design element on the elevations you won't have to worry about whether they will still be hidden by your deck railing pickets because they are now totally independent of each other.

❖ **Converting DWG Files to Repeated Items**

There is an undocumented mnemonic command named ***dwg2ri*** which will allow you to convert all the .dwg or .dxf files in a specified directory to ARRIS repeated items. This is handy for importing fixtures or details from a 3rd party software manufacturer CD.

The ***dwg2ri*** command prompts you for type of file (dwg or dxf) you wish to convert, the directory name in which the files are located (you must type in the entire pathname – there is no MENU option) and the name of the new repeated item library to be created. Of course you will probably have to edit the newly created repeated items to the correct pen, color and/or origin point of your choice but it's still a big time saver!

A more sophisticated solution is available from Expert Infocad in the form of the *RILIB Translator* application which makes the task of managing large numbers of RI's and libraries even simpler.

❖ **Copy To Clipboard** (see demonstration)

❖ **Multi-line Trim/Extend Feature** (see demonstration)

❖ Using Up and Down Arrow Command History

in ARRIS 8 you can use the ↑ and ↓ arrows on your keyboard to cycle forwards and backwards through your keyboard input including mnemonics and names and descriptions of layers and use the ← and → arrows to move left & right without erasing text?

Here are some great applications for this command:

- Reusing layer names and descriptions when adding new layers
- Recycling commonly used values for chamfer and fillet commands
- Reusing similar room labels
 - Recovering text after a typo

❖ Another Use for the Zflat Command

Almost everybody has discovered that you can use the *zflat* command to quickly flatten elements with 3D coordinates (such as topo maps) into 2D coordinates with a Z value of 0. But did you know that you could also use the *zflat* command to quickly generate *foreshortened* elements in your exterior elevations?

Lets say you have angled bay window on your floor plan that you need to draw a front elevation of but you dread having to project all those angled window mullions down to represent the window(s) at a 45 angle. Instead, just draw the window (or place a window RI) on the flat X,Y plane. Using *Move/Sc/ Rot*, rotate the window about the Y-axis to represent the angle of your bay window (example: rotation = 0,45,0). (**Note** if you used an RI to represent your window, freeze the RI before continuing on to the next step).

Now type the *zflat* command, fence-in your rotated window element and accept the default value of 0. Voila! Your window has been “flattened” to the X,Y plane and can now be easily moved or copied to it’s proper new location. (Thanks to Keith Kirsch for this handy time saver).

❖ Turning Off Custom Lines in Smart Walls

Custom lines or poche patterns in smart walls can be toggled *on* or *off* for display. To turn off the custom lines, follow these steps:

- 1) Bring up the Layer Menu
- 2) Select the *Sublayers* button below the *Management* label
- 3) To turn *off* the custom line display for smart walls on *all* layers, select the *off* button at the bottom of the column labeled *Cust Ln*.
- 4) To turn *off* the custom lines for smart walls on a *single* layer, toggle the *Cust Ln* button *off* in only the row that corresponds to a specific smart wall layer.

Note: If the custom wall display does not turn *off* after performing the step above, it’s possible that custom lines for that smart wall were not created correctly in the *Custom Wall Designer*. Open the *Custom Wall Designer* menu for the wall type in question and locate the row where the custom line pattern is displayed. At the end of the row, toggle the *All* setting to *Cust Ln* then save the

wall and reload the wall catalog. Remember to answer *yes* to *update the database with changes*. Now the display should look correct.

❖ Push and Pop

Here are two old ARRIS mnemonic commands I still find very useful...

Let's say you are flipping back and forth between two ARRIS drawings because you can't remember some small detail from *Drawing A* which affects the completion of *Drawing B*, the one in which you are working.

Try opening *Drawing A* and zooming in to the area that contains the detail. Now type the *push* command. This will create a *screen save* of everything in the current screen display and store it in a buffer. This command has no prompts so you have to trust that something has been saved. Now open *Drawing B* and resume your task. The next time you need to recall a certain detail from *Drawing A*, enter the *pop* command and the screen you saved with the *push* command will instantly reappear. When you're done reviewing it, use the *redraw* command and the temporary image will disappear until you type the *pop* command again. (Note: The image you *push* will be updated (overwritten) each time you enter the *push* command again. Exiting ARRIS will clear the buffer until the next session).

❖ Using The ARRIS Calculator

Simple mathematical calculations can be performed at the ARRIS prompt line by typing in an exclamation point (!) followed by a numerical entry and +, -, *, or /. Here are some sample types of calculations:

!35+25.75+15.34	!165/5
!1829-1329	!(54+123)*4
!56*134	

❖ Accessing Favorite RI Libraries via the TOOLBAR Menu

You can easily map a button on your TOOLBAR menu that will quickly bring up the RI Pager menu and display your most commonly used RI library.

Just map the following command strings to any TOOLBAR menu button:

□ :ril;std:your_library_name.ri	[std: assumes library is in your <i>Standards</i> directory]
□ :mn_riselect;setup	[initiates RI Pager menu]
□ :mn_riselect;	[sets RI Pager menu
□ ='lib'	to <i>library</i> mode]

❖ Using The Offset Line Tool

Have you ever drawn a box and wanted to draw another offset box 2' larger without having to use *New Ref* with coordinates or (4) offset lines which have to be joined at the ends? There is a great *Offset Lines/Curves* button under the *Line*

Tools menu that will do the job faster. The *Offset* button (see icon below) has 3 prompts.



Offset Line/Circle Button

- 1) *Offset distance? positive value offsets to right, negative to left.* Enter [2] for a 2-foot offset.
- 2) *1st bndry pt (F4:chase, F:10 new offset):* [Select the right vertical line near the bottom corner using your F4 key]
- 3) *Select end point (F10 for auto-chase):* [Press F10 key]. A new box 2' larger than the old box should appear. If the new box was drawn 2' smaller (inside) the existing box, your cursor wasn't close enough to the lower half of the line. Just select *Undo* and try it again. With a little practice, you can get it right first time. Also try experimenting using [-2] for a box that is 2' smaller than the existing box. (**Note**this command will offset any combination of contiguous lines, circles or lines *and* circles (closed or open) not just boxes!

❖ Using Negative Scale Factors to Mirror X and Mirror Y Rotation

Many of us *old* ARRIS users having been using a cool trick for years that a few of you newer ARRIS users still might not know about. That is, using a negative scale factor (such -1,1 or 1,-1) to move or copy entities rather than using the *Mirror X* and *Mirror Y* commands from the Edit and Copy menus.

Here's how it works: Let's say you wanted to copy half of a roof section so that it would be mirrored on the Y-axis. You could go all the way up to the Copy menu and select the appropriate *Entity Type*, *Search Mode* and *Copy Mirror* boxes, then fence in the desired entities, ... **or** ...

You could hold down your left mouse button, drag it left (or right) until you captured the desired entities in a *dynamic edit fence*, then set the *Scale* box from the Match Entity menu to -1,1 then select the *Copy Scl/Rot* button from the Match Entity menu, give a reference point for the copy, and **presto!** the selected entities are mirrored in the Y-axis.

A scale setting of 1, -1 would have resulted in the entities being mirrored in the X-axis. And finally, a scale factor of -1, -1 gives you a double mirror (in both the X *and* Y axes).

If it seems backwards that a negative scale value in the X position will result in a mirroring along the Y-axis, it's because all of the selected points are being moved (or copied) from positive X values to negative X values which appears to move them from one side of the Y axis to the other. Still confused? Doesn't matter, just believe it!

Bonus Usage: If you want to mirror a 3D repeated item (or any 3D objects) using this method, be sure and include a positive 1 value in the Z-axis such as -1,1,1. This will serve to keep the Z-axis *heads up* so the depth (height?) of the 3D RI

doesn't get turned upside down when it's mirrored (you may have to experiment with this one to see what I mean).

❖ **Automatically Create Repeated Items From DWG Files**

dwg2ri will create a series of repeated items from a directory containing *.dwg* files and archive them to the RI library name of your choice. This can be very useful if you would like to quickly create a new RI library from a manufacturer's product CD such as plumbing fixtures, window or door elevations, fireplaces, construction details etc.

❖ **Setting View Orientation To Match Work Angle**

Did you know that after setting a new work angle, you can also rotate the current view to match the current work angle rotation? This is especially helpful if you find yourself with a stiff neck from tilting your head at a 45° angle to work on your drawing.

To set the *view orientation* to match the *work angle*, make the following button picks:

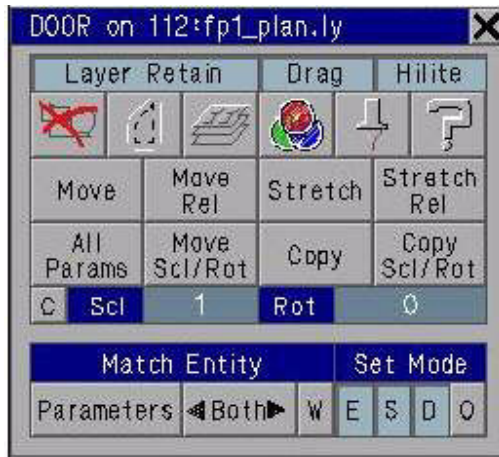
CAMERA icon → *to Workplane* → *Plan View (Floor Plan icon)*

The drawing will now orient itself so that the current work angle appears to be at *zero* rotation – and the cursor will no longer appear rotated.

To quickly return the *view orientation* back to the normal X/Y axis, simply *right-click* the *CAMERA* icon. A *right-click* again toggles the view back to the current work angle.

To quickly turn off the work angle, simply *right-click* the Work Angle icon. A *right-click* again toggles work angle back to its previous setting.

❖ **Match Entity Menu Timesavers**



❖ Alias Commands

For those users who love to type, ARRIS 8.3 contains 15 predefined one and two-letter alias shortcut commands. These single character commands can be typed at the keyboard followed by the *Enter* key:

a	(arc)	r	(rotate)
l	(single line)	t	(text0)
d	(distance)	z	(zoom)
c	(copy)	ci	(circle)
e	(erase)	bh	(cross hatch)
m	(move)	ri	(repeated item)
o	(offset)	tr	(trim/extend)

If you want to change the existing alias commands or add more, simply copy the *C:\Program Files\ARRIS 82\l\ sys_aliases.st* file into your *Home* or *Standards* directory and rename it *alias.st*. That way if you update your ARRIS software you won't run the risk of having your customized changes overwritten.

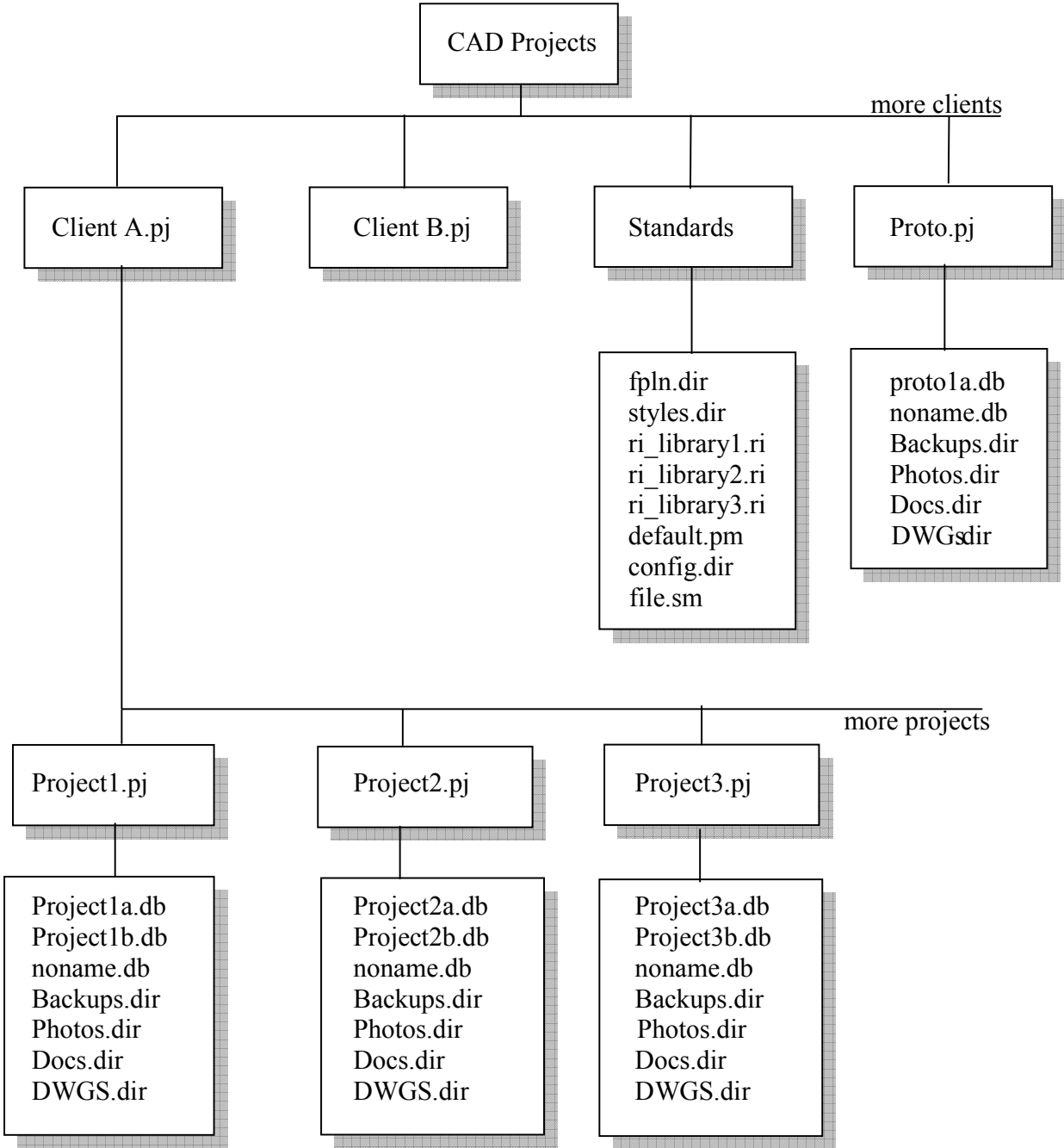
Below are two sample lines from the *alias.st* file. The first line describes the content for each field of the *alias* file and the second is a line which defines the alias command for *single line*. Notice each of the four fields are separated by a ; (*semi colon*).

```
#ALIAS;letters;description;command
ALIAS;l;SINGLE LINE;:mn__main;='LINE';:mn_line;='s'
```

1. Each new line must start with the word *ALIAS*
2. The next field declares the letter or letters to be used as the alias, in this case the letter *l* (el) for line.
3. The next field contains a brief description of the command such as *SINGLE LINE*
4. The last field contains the actual command being aliased, in this case *:mn__main;='LINE';:mn_line;='s'* which invokes the Line menu then the *single line* command.

Just modify any existing line to quickly change the alias character and/or command string associated with the alias. Or add new lines for more alias commands as the need arises.

Sample ARRIS File Structure



Paragraph Text Editing Commands

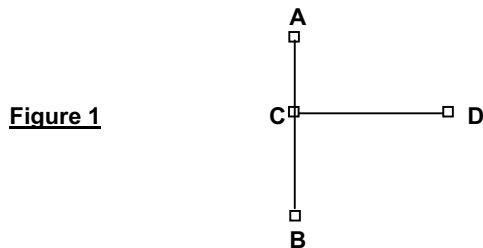
The following keys can be used to modify strings prior to terminating the text placement:

<CR>	Terminates a line of text and inserts the string into the work layer.
PARAGRAPH	Opens the next line of text. Two <CR>'s terminates input and inserts the string into the work layer. If a <CR> is used in the middle of a line, it will push the text from the cursor location to the end of the line onto a new line of text below. All other lines of text will be pushed down.
BKSP	Deletes one character to the left.
PARAGRAPH	If the cursor is at the beginning of a line, the text on that line is pulled up to the end of the previous line and all line below are pulled up as well.
INS	Terminates a line of text and inserts the string into the work layer. This can be used with any cursor location on the line.
DEL	Deletes one character to the right of the cursor.
TAB	Toggles a PAN/ZOOM mode <i>on</i> or <i>off</i> . Selecting a <CR> will also toggle <i>off</i> this mode.
PAN	After selecting the TAB key the left, right, up, and down arrow keys will pan the drawing or sheet.
ZOOM	After selecting the TAB key the +/- and - keys will zoom the drawing or sheet in or out.
←	Moves the cursor one character to the left.
→	Moves the cursor one character to the right.
↑	Moves the cursor up one line of text. The cursor will remain in relative position in the line of text as it moves down. The cursor cannot be moved beyond the bottom of the file, thus opening new lines of text.
↓	Moves the cursor down one line of text. The cursor will remain in relative position in the line of text as it moves up. The cursor can be moved beyond the top of the file.
HOME	Moves the cursor to the beginning of the line of text.
END	Moves the cursor to the end of the line of text.
PAGE UP	Moves the cursor to the top of a paragraph of text.
PAGE DOWN	Moves the cursor to the bottom of a paragraph of text.
CTRL-A	Merges (Adds) the text from the cursor position to the end of the line to the beginning of the line below.
CTRL-D	Deletes the text from the cursor position to the end of the line.
CTRL-F	Copies the text from the cursor position to the end of the line and places it into a copy buffer.
CTRL-V	Pastes the text in the copy buffer at the current cursor location.
CTRL-X	Deletes (cuts) the text from the cursor position to the end of the line and places it into a copy buffer.
CTRL-R	Reformats a paragraph of existing text based on the new wrap margins. All lines of text from the start of the paragraph to the end of the paragraph will be reformatted.

Smart Wall Cleanup – Tips and Tricks

In order to understand how to automatically "cleanup" the intersection of two walls, it is important to understand the difference between two types of intersection conditions in ARRIS: **affixed point** intersections and **inserted point** intersections.

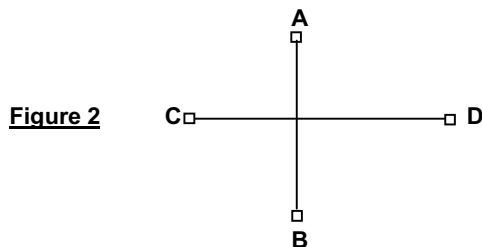
Consider the line intersection in **Figure 1** below:



In **Figure 1**, line **AB** and line **CD** were drawn so that point **C** is located somewhere along line **AB**.

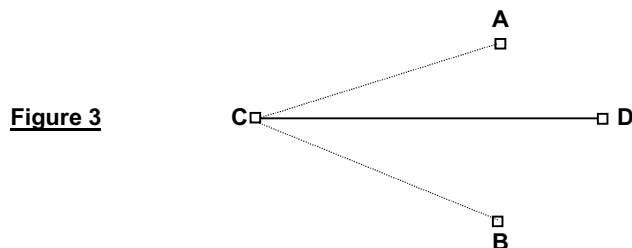
AFFIXED POINT

If point **C** were **affixed** to line **AB**, point **C** could be moved to a new location without affecting line **AB** similar to **Figure 2** below:



INSERTED POINT

If point **C** were **inserted** into line **AB**, moving point **C** would also affect line **AB**. That is, **inserting** point **C** would actually create 3 new line segments: line **AB**, line **BC** and line **DC**. Furthermore, if point **C** were moved to a new location, all line segments would be affected similar to **Figure 3** below:



As in **Figure 3** above, automatic wall cleanup only occurs when two intersecting Smart Walls share the same "insertion" point. That is, the endpoint of a new Smart Wall must be **inserted** into the existing wall line. As a result, it is important to learn which ARRIS Smart Wall tools you must use to make sure your walls contain **inserted point** intersections and not merely **affixed point** intersections.

Before reviewing the ARRIS Smart Wall tools, it is also important to remember that Smart Wall cleanup is also layer dependent. That is, intersecting Smart Walls must be placed on the same layer for cleanup to occur unless both layers are members of the same "wall group". For example, if you wanted your exterior layers to be on a different layer than your interior walls but still enjoy the benefit of the automatic wall cleanup, select the WALL GROUP menu from the bottom of the LAYER MODES menu and define both layers as being members of the same wall group.

WALL CLEANUP TOOLS THAT 'INSERT' POINTS

The following is a list of tools that will serve to **insert** a point at the intersection of two walls:

The F5 Key

The **F5** function key will snap to the nearest wall line and *insert* a point at a location where the cursor is nearest the wall. If **XY FORCING** is *on*, the point will be entered perpendicular to the last point entered.

This is very useful when used in conjunction with a *running wall* command when you wish to stop the running wall at another smart wall.

The **F5** key isn't as useful to *begin* drawing a wall since it is typically not associated with a precise coordinate (scaled) location. However, the **F5** key can be associated with a coordinate by using the **(x,y)@5** format. For example:

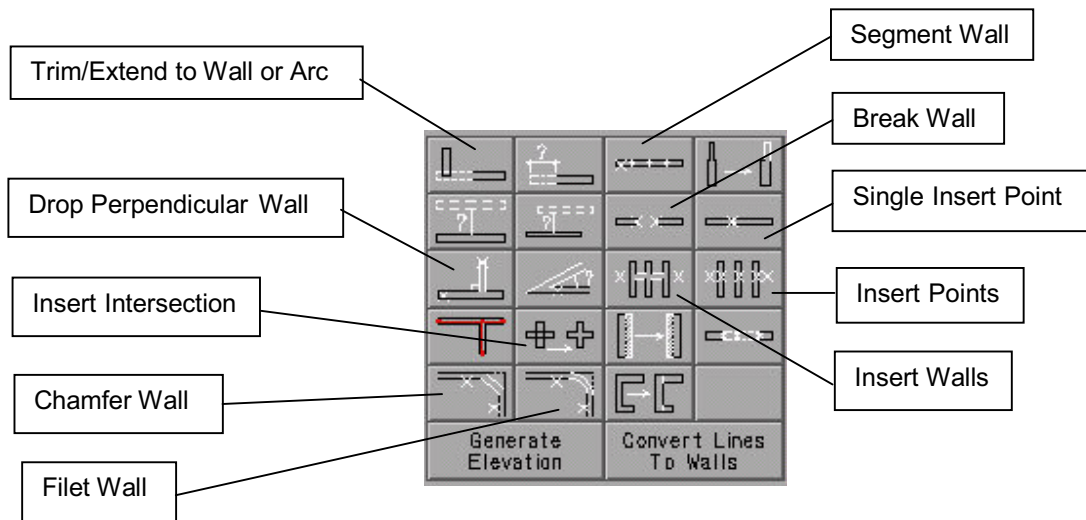
- (3)@5 *inserts* a point 3 units to the right along the positive X-axis from the current reference point.
- (,7.5)@5 *inserts* a point 7 1/2 units upward along the positive Y-axis from the current reference point.

Smart Wall Construction Tools

The following tools from the **Smart Wall Construction** menu can be used in various combinations to insert wall points:



Smart Wall Construction Tools Menu (Selections which 'insert' points)



Other useful options from the Smart Wall Construction Tools menu



Display Points — Displays wall justification line and all existing *insertion points* in wall



Heal Walls — Removes unattached wall points within a user-defined area



Flip Polarity — Reverses (flips) a Smart Wall's justification line from right to left or vice versa. This is useful for custom walls with distinct "inside" and "outside" material representation (i.e veneered walls).



Change End Closure — Allows wall intersection display to be either "closed" (butted), "open", or "automatic".



Align Wall — Aligns walls of a different thickness to be "flush" on one side



DB Points — Highlights all "database points" with a small "x". This is useful for determining addressable or erroneous points.



Trim/Extend Wall -Distance — Positive values *extend* (stretch) the wall endpoint nearest the cursor. Negative values *trim* (shrink) the wall endpoint nearest the cursor.



Angle — Draws a new wall at a specified angle relative to an existing wall. When selecting the existing wall, the endpoint nearest the cursor will be established as the beginning point of the new wall, and the opposite end will be considered as 'zero' rotation. All rotation will be positive in a counter-clockwise direction.

Useful Mnemonic Commands

The following mnemonic commands will also *insert* a point into a Smart Wall:

- sip — **s**ingle **i**nset **p**oint (same as *Break Wall* button).
- sii — **s**ingle **i**nset **i**ntersection (same as *Insert Intersection* button)
- ail — **a**utomatic **i**nset **l**ine (same as *Insert Walls* button)
- aip — **a**utomatic **i**nset **p**oint (same as "ail" above but does not connect insertion points with Smart Walls)
- cmfx — **c**omplex **f**ix (regenerates display list for Smart Walls entities only). This useful for quickly healing wall endpoints if you've deleted walls or openings without using the proper wall or opening edit commands.

Mnemonic Command Summary

Database Commands *

dbcl – **database clear** (removes graphics but leaves layers and names)
edb – **erase database** from memory
kill – removes database from disk
load – **loads** drawing
new – creates **new** database from current database
save – **saves** current drawing or sheet to disk

* These commands are very powerful and should be used with caution.

Set up Parameter & Utility Commands

bye – exits the ARRIS program
col – **color** number
clf – **clears** XY forcing for one entry (same as F2 key)
drp – **double reference point**
dsa – **distance absolute** mode
dsr – **distance relative** mode
dxy – **display xy** coordinate of point
lin – **line** type number
nrf – **new reference point**
nxy – **no xy** forcing (turns off XY forcing)
pen – **pen** number
rso – **reset database origin**
trp – **triple reference point**
vers – displays **version** of ARRIS and other important information
xyf – **xy forcing** (turns on XY forcing)

Display Commands

clr – **clear** screen
da – **display all** (zoom all)
drf – **display (flash)** current **reference point**

Text Commands

cts – **change text size**
ctj – **change text justification**
ctf – **change text font**
ctr – **change text rotation**
cts – **change text slant**
cct – **change color text**

Repeated Item Commands

riv – *repeated item view* – Darkens the screen and only redisplay entities which are repeated items. A *redraw* returns the previous display.
rid – *repeated item delete* – Removes specified repeated item from an RI library.
ricn – *repeated item change name* – Swaps the selected RI for the current RI.
rifx – *repeated item fix* – Recreates the display list for repeated items only. Often used after reloading a missing RI library.

Display Commands

dpeb – *display everything backwards* – Displays entities in reverse order from the highest layer number to the lowest. Useful for viewing stacked entities on multiple layers.

dpea – *display everything in area* – Redraws (refreshes) only the entities in a user defined box. Saves time by not having to redraw the entire screen.

drf – *display reference* – Flashes the screen location of the current reference point.

dpN – *display pen number* – Displays all entities drawn in pen number (*N*). This command is typically preceded by the *clr (clear)* command which first darkens the screen. For example: *clr <Enter> dp4 <Enter>* darkens the screen and displays only entities drawn in pen #4. For pen numbers higher than 8, use *dpen* instead.

dly – *display layer* – Displays all entities drawn on a specified layer. This command is typically preceded by the *clr (clear)* command which first darkens the screen. For example: *clr <Enter> dly <Enter> 3 <Enter>* darkens the screen and displays only entities drawn on layer #3.

dxy – *display xyz coordinate* – Displays the *x,y,z* coordinate of any point by selecting the point with the cursor or keyboard entry. Handy for locating *database origin (0,0,0)* in *distance absolute* mode or displaying the *Z heights* of selected points in a 3D model.