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#### **Introduction to Special Codes:**

This section allows you to substitute the existing predefined special codes and characters with your own. Draw Field to Finish recognizes several special codes. A special code is placed before or after the regular code with a space separating the code and special code. The Append Desc Auto Space option applies to the special codes that control the point description label. This option sets whether to insert a space in the description label when appending to the description.

Here is a listing of the default special codes and characters. You can find the Special code by selecting 'Code Table Settings'

DAT	TA'C: op\Carls	on knowle	dge\Dwg\Special codes.c	rd CODE	a asconstruct	ed lavers for adac-	codes fid			
ategories		ode Defir								
0 😑 🖉 🐴 🕹		Code	Full Name	Symbol	Linetype	Entity Type	Layer	Raw De	sc Color	-
AIR	Edit	AA	ANCHOR	SPT9	BYLAYER	Points Only ~	AIR	Both	~	
BDY	Edit	ACOL	Ascon Col	SPT9	BYLAYER	Points Only ~	Ascon	Both	~	
BUILD	Edit	AD	BLAST DEFLECTOR	SPT9	continuous	Points Only ~	AIR	Both	~	
ONTL	Edit	AI	WIND INDICATOR	SPT9	BYLAYER	Points Only ~	AIR	Both	~	
RAIN	Edit	AL	LIGHTS RW	SPT9	BYLAYER	Points Only ~	AIR	Both	~	
ENCE	Edit	AM	LINE MARKING	SPT9	continuous	Points Only ~	AIR	Both	~	
AS	Edit	AN	NAV/HAZ BCN	SPT9	BYLAYER	Points Only ~	AIR	Both	~	1
SEOTECH HYDRO	Edit	AP	WITNESS PST	SPT9	continuous	Points Only ~	AIR	Both	~	1
AT	Edit	AR	RUNWAY	SPT9	continuous	Points Only ~	AIR	Both	~	
/IS DRIGINAL MARKS	Edit	ASLAB	Ascon Slab	SPT9	BYLAYER	Points Only ~	Ascon	Both	~	
PARK	Edit	AT	TAXIWAY	SPT9	continuous	Points Only ~	AIR	Both	~	-
RAILWAY	× 4	***		ODTO	DVI AVED		4.10	<u></u>	Ð	
ode Table			Code Definitions			Feature Settings	5			
Code Table Settings				olu	mn Options		Tree	Setup		
Sort Table			Select All	Mov	e Category		Pipe	e Setup		
Report Codes/Points			Add		Сору		Edit	Points		
Code Table by	Points		Delete		Search			ole		
Save	Save As		Move Up	M	ove Down	Help				



## Then selecting 'Special Codes'

Code File	C:\Users\Gareth\Desktop	Carlson knowled	ge\AsConstructed codes ir	nto drawing\Au	stralia Asconstru	et	
Coding Method	arlson Coding	Split Multiple Co	ides Ione OPrompt	Use Mult	iple Codes Linework	and Points 💌	
-	andXML Coding agle Point Coding	Imp	port SurvCE Codes		Export SurvCl	ECodes	
O Process SI		Imp	port Trimble Codes		Import Eagle Po	oint Codes	
O Process C/	AiCE Coding	Import L	and Desktop Desc Keys		Import TDS	Codes	
EC NCE S		Import C&G Description Table			Import Topcon Codes		
		Import Civil3D Codes			Merge Code File		
YDR( AT IS		Import GIS Feature Codes			Import EFB Codes		
		Spreadsheet Editor			Import Text/ASCII Codes		
Draw Field C	odes Without a Suffix as Po	ints Only	Max Delta-Height fo	or Linework	1000.00		
Stop Linewor	rk At Gap In Point Numbers		Max Length for Line	work	20000.00		
			Default Distinct Poir	nt Layer	Prefix	Suffix _PNTS	
Skip 1st/2nd	Symbol Control When Miss	ing 3rd Control	Use MText f	or Linework De	scriptions		
Skip Multiple	Z Labels For Linework At S	ame Z	Z Tolerance 0.10	0 Dist	ance Tolerance 10.00	00	
Stop Linewor	rk For Different Point Groups		Point Group Filter				
Use Precedi	ng Special Codys	Interpolate No I	Elevation Points for 3D Pol	ylines			
Snecia	al Codes		Substitution	n Codes	Eagle Point Spe	eist Codes	

Here is a listing of the default special codes and characters. Some codes will need to be changed. (See highlighted)

Special Codes							
General Special Codes NE Code (No Elevation)	NE NOS	Code (Non-Surface)	NOS	Linework Special Codes BEG Code (Begin Linework)	+7	END Code (End Linework)	1.7
YZ Code (Yes Elevation)	YZ ZO C	ode (Elevation Only)	ZO	PC Code (Start Curve)	PC	PT Code (End Curve)	PT
\ Character (Prefix Description)	\\\Cor	de (Prefix Field Code Desc)	W	CTOG Code (Curve Toggle)	CTOG	NEAR Code (Nearest Found)	NEAR
/ Character (Append Description)	/ // Cor	de (Append Field Code Desc)	//	CLO Code (Close)	CLO	RECT Code (Close Rectangular)	RECT
Bar Separater (End Coding)	/// Se	parater (Replace Desc)		OH Code (Offset Horiz)	OH	OV Code (Offset Vertical)	OV
Code Separater (Space)	- MUL	T Code (Multiple Field Code)	MULT	OFL Code (Offset Left)	OFL	OFB Code (Offset Both L/R)	OFB
Substitute Characters + (Plus) +	- (Minus) - * (Ast	erisk) * _ (Underscore) _		CIR Code (Circle)	CIR	JPN Code (Join to Point Name)	JPN
Point Symbol/Attribute Special Codes				SMO Code (Smooth)	SMO	JOG Code (Extend By Distance)	JOG
ROT Code (Rotate)	ROT SZ C	ode (Symbol Size)	SZ	GAP Code (Gap)	GAP	LTF Code (Linetype Flip)	LTF
AZI Code (Azimuth)		Code (Distance)	DIST	AFIT Code (Fit Arc)	AFIT	LTW Code (Linetype Width)	LTW
Multi-Point 2ND Code		Point 3RD Code	3RD	BFIT Code (Best-Fit Line)	BFIT	RAMP Code (Curb Ramp)	RAMP
PHOTO Code		EL Code	LABEL	XSCT Code (Template)	XSCT	PARKING Code (Parking)	PARKI
COLOR Code	COLOUR			3D Face Special Codes			
PHOTO Link	OFB Offset Width			FACE3D Code (3D Face)	FACE3D	HOLE3D Code (3D Hole)	HOLE3
	Double Opli	t		BLOCK3D Code (3D Block)	BLOCK3E	WALL3D Code (3D Wall)	WALL3
2-Point Circle	Append Desc Auto Sp	pace					
Radius     ODiameter							
OK Cancel Help	Load Default						
and the second second							



# **1** Special Characters

The characters (\*, -, +, /, and \_) can be used and substituted in Draw Field to Finish. The way these characters are used is that when the file is processed the description field is searched for these characters. If the "+" symbol was changed to "-" then the program would look for "-" and change it to "+". This is useful when a particular data collector may not have all the symbols available. With these substitutions you can make a character that is provided on the data collector generate the symbol needed. Multiple characters can also be used. For example, "--" can be used to in order to produce a "/" character or any of the characters listed above.

#### 2 Joining points with lines/polylines (Example 1 & 2)

There are two different methods for connecting linework. One method creates line work by connecting points with the same code. The linetype is defined by the code as either points only (no line work), lines, 2D polylines, both 2D and 3D polylines, or 3D polylines (breaklines). Distinct lines with the same code are defined by adding a group number to the end of the code name in the data file. With this method, all points with the description CODE1 will be one line while points with CODE2 will be another line. Both CODE1 and CODE2 use the definition for CODE. For example, the code RP could be a code for edge of road pavement that is to be connected as 3D polylines. If there are two separate edge of pavement lines on the left and right sides of a road, all the points for the left side could have the description RP1 and the points on the right side could be RP2. Besides having the number after the code, the number can be used as a prefix by defining the code with a # special character. For example, when the code is defined as #CODE, then the points with descriptions 10CODE and 20CODE get matched to this code.

The second method is the PointCAD format. This method also connects points with the same code. The difference is that instead of using a number after the code for distinct lines, you use the same code with an additional code for starting and ending the line, a space is used to separate the code and special code. For example, +0 is used to start a line and -0 to end, so the coding for a segment of edge of pavement could be RP +0, RP, RP, RP -0. Another special code that has been added to Field to Finish is +7, -7. These 7 codes will use the linetype definition of line, 2D polyline or 3D polyline defined by the Draw Field to Finish



code. For example, if RP is defined as a 3D polyline, then the coding RP +7, RP, RP, RP -7 will create a 3D polyline. Otherwise, codes like +0, -0, which is defined as start and end line, will draw RP as a line. Other PointCAD special codes are: +4 starts a curved 2D polyline, +5 starts a 3D polyline, +7 starts a line whose type is specified by the field code definition, +8 starts a 2D and 3D polyline combination. //, followed by a field code, concatenates that field code's description on to the point's description. For example, OAK//04 might become LIVE OAK TREE 4m if the field code OAK translates to LIVE OAK TREE and the field code 04 translates to 4m.

The advantage to the PointCAD method is that you don't have to keep track of line numbers. For example, if you are surveying 50 kerb lines, the first method would require you to use 50 distinct kerb numbers. The advantage to the first method is that you don't have to use the start and end codes. Also, the Nearest Found connection option applies to the first method.



# **3 Special Codes**

## 3.1 "/": Append Description (Example 3)

Carlson points in the drawing have point attributes including a description. When Field-to-Finish draws the points, the point description from the coordinate file is processed to match a code. The code then defines the description that is drawn with the point. For example, consider a code of "SM" with a description of "MANHOLE" and a data point with the description "SM". The data point description "SM" would be matched with the code "SM" and the point would end up being drawn with the description "MANHOLE". A special character "/" (the forward slash or divide key) can be used for an unprocessed description to append. Everything after the "/" is added directly to the point description and is not considered a code and no further substitution is done on it. For example, a data point with the description "SM / 1050" with the same



# code "SM" definition above would be drawn with the description "MANHOLE 1050".

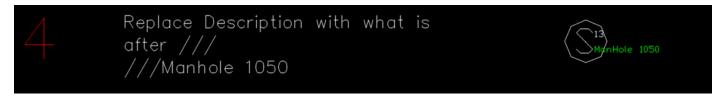


Use Description in drawing only if 'Use Raw Description" is OFF /1050 adds 1050 after Description



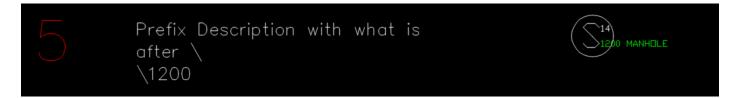
3.2 "///": Replace Description (Example 4)

This special code takes the part of the description after the "///" and uses it as the point description label.



# 3.3 "\": Prefix Description (Example 5)

This special code takes the part of the description after the "\" and puts it as the prefix before the point description. For example, a data point with the description "SM  $\ 1200$ " and a "SM" code definition with a description of "MANHOLE" would be drawn with a description of "120 MANHOLE".



# 3.4 "//": Append Field Code Description

This special code causes text after the "//" to be interpreted as a field code. That field code's description is then appended to the first field code's description. For example, if the field code 02 has the description *2m* and the field code OAK has the description *oak tree*, then 02//OAK will result in the point having the description of *2m oak tree*. If the "/" character has been replaced with a different character, for example with a & character, then the "//" code would become "&&".



## 3.5 "\\": Prefix Field Code Description

This special code is the same as "//" except that field code's description is then prefixed instead of appended to the first field code's description.

## **3.6** "|": End Coding

The bar separator indicates the end of coding. Everything after the bar is ignored for Field-to-Finish processing.

#### 3.7 MULT: Multiple Field Code

This code applies when the Split Multiple Codes under Code Table Settings is set to None and you want to override this setting and explicitly spilt selected codes. Multiple codes apply to points with dual code definitions for drawing two different style points or for connecting different linework to the same point. For example, if a point is both a footpath and driveway corner, then the point description could be "FP MULTDR".

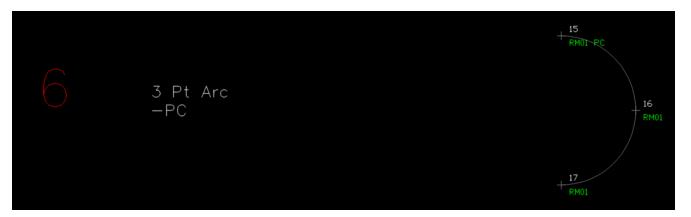
#### **3.8 PC: Start Curve (Example 6)**

This code begins a three-point arc or a curved line when used with the "RM" code (see below). The point with this special code is the first point on the arc. The next point with the code is considered a point on the arc, and third point with the code is the arc endpoint. For example (in point number, X, Y, Z, description format),

- 15, 2000, 1994, 0, RM PC start curve
- 16, 2002, 1992, 0, RM second point on curve
- 17, 2000, 1990, 0, RM end point of curve

\*See example next page





#### 3.9 PT: End Curve (Example 7)

This code can be used with "PC" to define a curve with more than three points or a tangent two-point curve. Starting at the point with the "PC", the program will look for a "PT". If the "PT" is found, all the points between the "PC" and "PT" are used for the curve which is drawn as a smoothed polyline that passes through all points and only curves the polyline between points. If no "PT" is found, then the regular three-point arc is applied as explained above. If no points are found between the "PC" and "PT", then the point prior to the "PC" and the point after the "PT" are used to create tangents for the resulting curve.

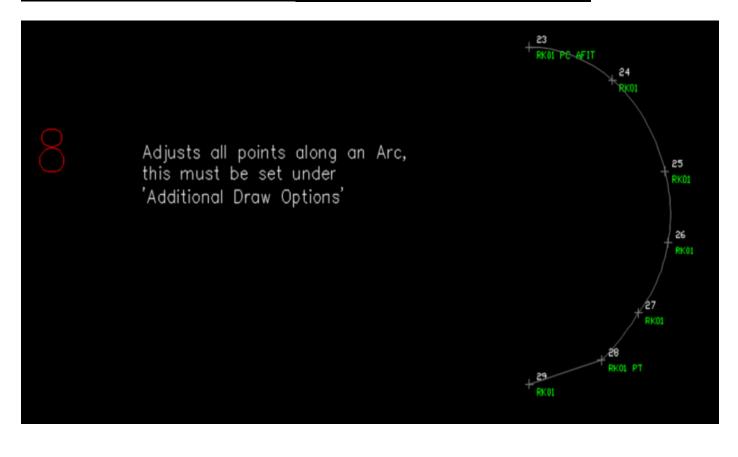




## 3.10 AFIT: Fit Arc (Example 8)

This special code adjusts the PC/PT points for the current arc to make the arc tangential. This special code is a way to individually control this tangential arc adjustment. To adjust all arcs within a specified adjustment tolerance, use the Adjust PC/PT setting under the 'Additional Draw Options' from the first Field-To-Finish dialog.

		langle Additional Draw Options	$\times$
Draw Field to Finish Draw Options Highest point number: 89	×	Point Label Settings     Elevation Label Settings       Point Numbers     Elevations       Descriptions     Label In Inches       Point Notes     Prefix and Suffix By Code	
Range of Points     ALL     All     Point Group       Entities to Draw           ✓ Points     ✓ Lines     ✓ Symbols     3D Faces	, mil	C Attribute Labels Prefix Use '-' C Locate Points on Real Z Axis On Off By Code	
Draw within Polyline Distance Window/Coordinate Range		Locate Linework on Real Z Axis <ul> <li>On</li> <li>Off</li> <li>By Code</li> </ul> PC-PT Curve Type	
Layer Prefix Additional Draves	зu	Bezier     Sequential Arcs     Best Fit     Sequential Arcs     Best Fit     Tolerance 1.000     Creating Point Groups     Automatically By Code     Jignore Code Suffix     Pity Code Definition     Group Name Prefix	
Code Table: Ca asconstructed layers for adac- codes.fld Coordinate File: Cop\Carlson knowledge\Dwg\Special codes.crd GIS Table:	Set	Correcting Point Notes Create Drawing Description Notes Create Special Code Notes Keep Lavers Frozen	
Edit Codes Report Codes/Points OK Cancel Help		Output Carler TSS File     Output Carler TSS File     Flip Text for Twist Screen     Pause on Undefined Codes     OK Cancel Help	





#### **3.11 BFIT: Best-Fit Line (Example 9)**

This code creates a best-fit line using the points for the linework. This feature can be used when you have multiple points on a feature that you know is a straight line such as a footpath and you want a single line to be drawn. Each of the points that you want to include in the best-fit need to have the BFIT code.



#### **3.12 CTOG: Curve Toggle**

This special code toggles curve mode on and off. Instead of using PC to start a curve, you can use CTOG. Likewise, instead of using PT to end a curve, you can use CTOG. This only work if the code is a polyline.

#### 3.13 CLO: Close (Example 10)

This code forces the lines drawn between a series of points with the same code to close back to the first point with the same code. For example, shots 35-38 all have the RM03 description with the exception of point 38. Its description is RM03 CLO. This will force the linework drawn for the RM03 code to close back to point 35 which is the first point with the description of RM03.



# 3.14 GAP: Gap (Example 11)

This special code makes a single segment break in the current linework. For example, if you have a kerb polyline that you want to break to skip over a driveway, then you could add the GAP code at the start of the driveway and continue the kerb as normal on the other side.





#### **3.15** NE: No Elevation (Example 12)

This code represents no elevation. A point with this special code is located at zero elevation.



## **3.16** YZ: Yes Elevation (Example 13)

This special code locates at the point entities at the coordinate elevation and overrides any other setting for locating the point at zero elevation.



## 3.17 NOS: Non-Surface

This code indicates that the point should be "non-surface"; that is, that it should be ignored when contouring or creating surfaces. This can also be controlled per-field code by turning on the Non-Surface toggle in the Edit Field Code Definition dialog box.

## 3.18 ZO: Elevation Only

This code represents elevation only (Z-Only). A point with this special code is used at part of a 3D polyline for elevating the 3D polyline without effecting the horizontal position of the polyline. For example, this code could be used on a grade break point along a cube where only the elevation should change and not the horizontal alignment.



#### 3.19 РНОТО

This code attaches a photo file to the point. The name of the photo file should be right after the PHOTO code. The PHOTO Link setting controls whether the photo is attached using a Carlson-format link or a CAD Hyperlink. Use the Image Inspector command to view photos attached to points by either link method. To use the Hyperlink, you can Ctrl-click or right-click on the point entity.

In addition to the PHOTO code, Field-to-Finish will also automatically create the photo links for SurvCE photos. The program looks for the photo database from SurvCE which should have the same name as the coordinate file with an extension of .phdb. This photo database file should be in a sub-folder of the coordinate file folder and called Pictures\_X where X is the name of the coordinate file. For example, if your coordinate file is C:\Projects\Job1\Job1.crd, then the program looks for C:\Projects\Job1\Job1.phdb.

#### **3.20 LABEL:**

This code controls the point attribute format using a number after the code. This number uses 0=attribute block, 1=text, 2=both, 3=none. For example, LABEL1 means draw that point using text attributes.

#### 3.21 COLOUR

This code sets the entity colour. The colour is specified after the 'COLOUR' code by either a CAD colour number (1 to 256) or colour letter. The colour letters are R=red, Y=yellow, G=green, C=cyan, B=blue, M=magenta, W=white. For example, COLOUR1 means use CAD colour 1 (red) and COLOURB means use colour blue.



#### **3.22** Offsets: OH, OV, OFL (Example 14a & 14b)

The codes "OH" and "OV" stand for offset horizontal and offset vertical. These offset codes apply to 2D and 3D polylines. A single set of offset codes can be used to offset the polyline a set amount. For example,

49, 2000, 1946, 10, RK04 OH.5 OV-.8

50, 2004, 1946, 11, RK04

51, 2006, 1946, 12, RK04

Offset line/Polyline -OH(Horizontal amount) -OV(Vertical amount)

This would create a polyline connecting points 49,50 and 51 and an offset polyline with a 0.5 horizontal and -0.8 vertical offset. The direction of the horizontal offset is determined by the direction of the polyline. A positive horizontal offset goes right from the polyline direction and a negative goes left. The horizontal and vertical offset amounts apply starting at the point with the offset codes until a new offset code or the end of the polyline. Only one horizontal and vertical offset codes can be used to make a variable offset. For example,

52, 2000, 1943, 10, RT OH.5 OV-.5

53, 2004, 1943, 10, RT OH.75 OV-1

54, 2006, 1943, 10, RT OH1 OV-1.5

This would offset the first point horizontal 2.5 and vertical -0.5, the second point horizontal 5.5 and vertical -0.75 and the third point horizontal 7.5 and vertical -0.75.





#### 3.22.1 Multiple Offsets (Example 15)

When there are multiple "OH" codes for the same point, the polyline is offset multiple times.

The "OFL" code stands for offset left horizontal. The only difference with the "OH" code is that you don't have to enter the "-" to go left.



#### 3.22.2 Offset both Left & Right (Example 16)

The "OFB" code stands for offset both left and right horizontal. For example, if the points follow the centerline of a road (RCL), the OFB code can be used to create the left and right edges of the road. There is a setting in Special Codes for OFB for whether the offset value is double or half width between the two offset lines. Also, there is a setting in each code definition under the Linetype tab for whether to create a closed polyline from the left and right offset polylines.

General Special Codes				Linework Special Codes			
NE Code (No Elevation)	NE	NOS Code (Non-Surface)	NOS	BEG Code (Begin Linework)	BEG	END Code (End Linework)	END
YZ Code (Yes Elevation)	YZ	ZO Code (Elevation Only)	ZO	PC Code (Start Curve)	PC	PT Code (End Curve)	PT
Character (Prefix Description)	1	\\ Code (Prefix Field Code Desc)	11	CTOG Code (Curve Toggle)	CTOG	NEAR Code (Nearest Found)	NEAR
Character (Append Description)	/	// Code (Append Field Code Desc)	//	CLO Code (Close)	CLO	RECT Code (Close Rectangular)	RECT
Bar Separater (End Coding)		/// Separater (Replace Desc)	///	OH Code (Offset Horiz)	ОН	OV Code (Offset Vertical)	OV
Code Separater (Space)	-	MULT Code (Multiple Field Code)	MULT	OFL Code (Offset Left)	OFL	OFB Code (Offset Both L/R)	OFB
Substitute Characters + (Plus) +	- (Minus) -	* (Asterisk) * _(Underscore) _		CIR Code (Circle)	CIR	JPN Code (Join to Point Name)	JPN
Point Symbol/Attribute Special Codes				SMO Code (Smooth)	SMO	JOG Code (Extend By Distance)	JOG
ROT Code (Rotate)	ROT	SZ Code (Symbol Size)	SZ	GAP Code (Gap)	GAP	LTF Code (Linetype Flip)	LTF
AZI Code (Azimuth)	AZI	DIST Code (Distance)	DIST	AFIT Code (Fit Arc)	AFIT	LTW Code (Linetype Width)	LTW
Multi-Point 2ND Code	2ND	Multi-Point 3RD Code	3RD	BFIT Code (Best-Fit Line)	BFIT	RAMP Code (Curb Ramp)	RAMP
PHOTO Code	РНОТО	LABEL Code	LABEL	XSCT Code (Template)	XSCT	PARKING Code (Parking)	PARKIN
COLOR Code	COLOR		·	3D Face Special Codes			
PHOTO Link	OFB Offset Wi	dib		FACE3D Code (3D Face)	FACE3D	HOLE3D Code (3D Hole)	HOLE3D
	Double	⊖ Split		3D Block)	BLOCK3E	WALL3D Code (3D Wall)	WALL3D
2-Point Circle	Append Desc	Auto Space					





Offset line/Polyline-Both sides -OFB(Horizontal amount)



# **3.23** Symbol Size (Example 17)

This code is used to set a different symbol size. There are several ways to use this code. It can take multiple scale factors for different dimensions by putting an ID character after the factor.

SZ: If nothing follows the SZ code, then the next point with the same field code as the current point will be used to determine the size. SZ#: The value of the new symbol size is specified after the SZ. This value is the actual size in drawing units. For example, SZ2 or SZ3



SZ#X: The value after the SZ is used to scale the symbol in the X dimension. For example, SZ2X.

SZ#Y: The value after the SZ is used to scale the symbol in the Y dimension. For example, SZ2Y.

SZ#Z or SZ#V: The value after the SZ is used to scale the symbol in the Z (Vertical) dimension. For example, SZ2Z.

SZ#H: The value after the SZ is used to scale the symbol in the X,Y (Horizontal) dimensions. For example, SZ2H.

SZ#S: The value after the SZ is a symbol size scaler that get multiplied by the drawing horizontal scale to determine the actual drawing units. For example, SZ0.2S.

The X, Y, Z, V and H can be combined. For example, to scale a symbol by 10 horizontally and 25 vertically, use SZ10H25Z. Or to scale a symbol by 2 in the X direction and 4 in the Y direction, use SZ2X4Y.



When multiple SZ codes are used in the same point description, the symbol is drawn multiple times at the different sizes. For example, a point description of "SM SZ5 SZ10" will draw the sewer manhole symbol twice. One symbol will be size 5 and the other size 10.

#### 3.24 ROT: Rotate (Example 18)

This code is used to set the rotation of the point symbol. If a point number follows the ROT code, then angle from the current point to this point number is used for the rotation. For example, "ROT45" would rotate the symbol towards point number 45. If there is no point number after the ROT code, then the rotation point is the next point number with the same code as the current point or a companion code for the current code. ROT can also be used to rotate towards an angle clockwise from north by using `+' or `-' in front of the number. For example, ROT+25 rotates the point symbol to the northeast and ROT-90 rotates the point symbol to the west.



## **3.25** SMO: Smooth (Example 19)

This code is used to smooth the polyline.



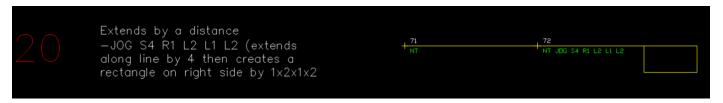


#### **3.26** AZI & DIST

The AZI and DIST codes are used together to offset the point. The AZI sets the offset azimuth and DIST sets the distance. The values should directly follow the code. For example, AZI25 DIST4.2 would draw the point offset 4.2 at an azimuth of 25 degrees.

#### **3.27** JOG: Extend by Distance (Example 20)

The "JOG" special code allows for additional points to be inserted into the line work at perpendicular or straight offsets. Only offsets should follow the JOG code. Positive numbers indicate a jog to the right and negative numbers indicate a jog to the left. Alternatively, "R#" and "L#" can be used where # is the distance to either the right or the left. Finally, "S#" can be used to make an offset straight ahead by using a positive # or behind by using a negative #. For example, "NT JOG S4 R1 L2 L1 L2" or equivalently "NT JOG S 5 1 2 1 2" advances 5 units and then draws a closed rectangle on the right-hand side of an existing line. The offsets are always done in the X-Y plane. If the current line is vertical, an offset to the right is along the positive X-axis.

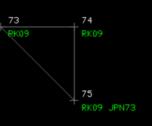


#### **3.28** JPN: Join to Point Name (Example 21)

The "JPN" (Join to Point Name) special code joins to the point named immediately after the code. For example, "JPN73" causes a line to be drawn from the current point to the point "73". JPN is designed to work for adding a segment at the start of linework. So, the point with the JPN code should be at first segment of the linework.



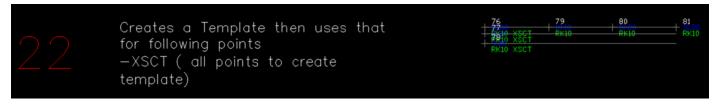
Joins to Point name -JPN70 (Joins the Line/Polyline back to point 70)





# 3.29 XSCT: Template (Example 22)

This special code defines a template from a series of points with this special code. This template is then applied like a template defined under Linetype for a code. This XSCT code is a way to define a template in the field instead of having a template with fixed dimensions defined in the code table. For example, you could have a code for RK for back-of-kerb. Then store three points with a description of "RK XSCT" for three points to cross section the kerb: back-of-kerb, top-of-kerb and flow line. After these three "BC XSCT" points, you could have single "BC" points along the kerb and the program will apply the template along these kerb points and draw three parallel lines.



#### 3.30 NEAR: Nearest Found

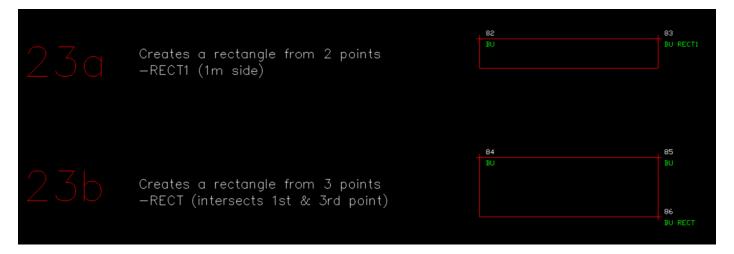
This special code sets the current polyline to Nearest Found connection order. This applies to codes that have the Connection Order set to Sequential and you want to override this setting to Nearest Found for the current polyline.

#### **3.31 RECT: Close Rectangular (Example 23a & 23b)**

The "RECT" special code creates a rectangle as a 2D or 3D polyline using one of two different methods. If a number follows "RECT" (e.g., "RECT10"), a rectangle will be drawn 10 units to the right of the last two points ending on the point with the "RECT" code. Use a negative offset to place the rectangle on the left side (e.g., "RECT-2.5"). For example, if locating the left side of a 10m rectangular concrete pad using the code conc for concrete, the description of the two left points would be (conc) for the first point and (conc rect10) for the second. If no number follows "RECT", then the polyline will be closed by shooting right angles from the first point of the polyline and the current point and creating a new point where those two lines cross. This method requires three points be established on the rectangle. In this method, the "RECT" code can be on any of the polyline points.

\*See next page for example





## **3.32** LTF: Lintype Flip (Example 24)

This special code switches the side for the linetype. This option applies to non-symmetrical linetypes like the treeline or guard rail for when you want the linetype to face the other way.



#### **3.33** LTW: Line Width (Example 25)

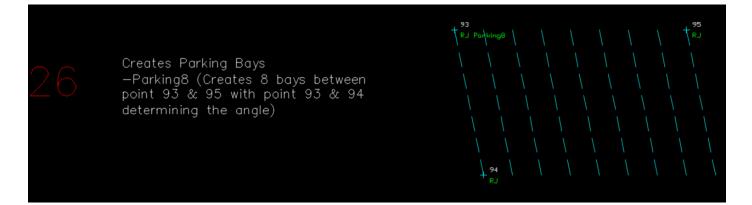
This special code sets the line width. The width value is entered after the LTW code. This width is applied to lines and 2D polylines.





#### 3.34 PARKING: Parking (Example 26)

This special code draws parking stall lines using three points. Points one and two are used to draw the first parking line and define the length and angle of the lines. The third point defines that position of the last parking line. A number needs to follow the PARKING code for the number of parking lines to draw. For example, PARKING8.



#### 3.35 RAMP: Kerb Ramp (example27)

This special code adjusts the 3D polylines to create a kerb ramp. The routine looks for parallel 3D polylines for the bottom of kerb, top of kerb and back of kerb. These 3D polylines can be created in Field-To-Finish by using a Template under the Code > Linetype definition (if using the Template method than that needs to be set)

	Edit Field Code Definition - [RKL]	×
left to Finish	General Symbol Linetype	
Categories	Linetype Name continuous SetLinetype Line Width 0.000 Linetype Text Style Linetype Text Scaler 0.050 Fip Linetype Smooth Polyline Mand Breakline Separate Offset Layer Loyer Name Set Label 3D Offset Elevations Closed Polyline for Offset Both Connection Order Sequential	ty Type solutions of the second secon
Code Table	Tie Open 💌	
Code Tab	Linework Description Set GIS Description Setup	etup
Sort	Template Edit Set Con knowledge\Special codes\Rkl.tpl	
Report Co	Use Template IDs as Layers	ints
Code Tab	Hatch Closed Areas Hatch Name ANSI31 Set	ints
Save	Hatch Scale 10.0 Layer Name HATCH Set	>



The lines can be also created using the offset special codes, or by having three separate 3D polylines. The ramp is centered at the point with the RAMP code. The dimensions of the ramp follow the code in order of width, depth and taper. For example, a description of "RKL RAMP 3 2 1" uses "RKL" for a bottom of kerb code then "RAMP" for the special code and 3 for the width, 2 for the depth and 1 for the side taper



## **3.36 CIR: Circle: (Example 28 & 29)**

The "CIR" special code causes the point to create a circle in one of three different ways. The first way uses just the current point as the center with the CIR special code followed immediately by the radius. For example, "CIR2" will create a circle centered on this point with radius 2 and at the elevation of the current point. The second method uses two points, the first point specifying the center and the elevation, and the second point specifying the radius. Only the first point has the "CIR" special code and the second point is the next point with a matching field code. Another variation of method 2 is using 2 points that are on the perimeter and define the diameter. For the 2 point method, whether the points define the radius or diameter is defined on the Code Table Settings > Special Codes dialog. The third method uses 3 or more points that specify the perimeter of the circle in 2D with the first point specifying the elevation. For this method, the "CIR" special code is only on the first point and the rest of the points are the next points with matching field codes.

The "CIR" code can be used with all of the linetypes including "points only". The circles are always parallel to the X-Y plane unless the code linetype is set to "3D Polyline". Then the circle is drawn as a 3D polyline. Any active linework for the code is ended before processing the "CIR" special code.

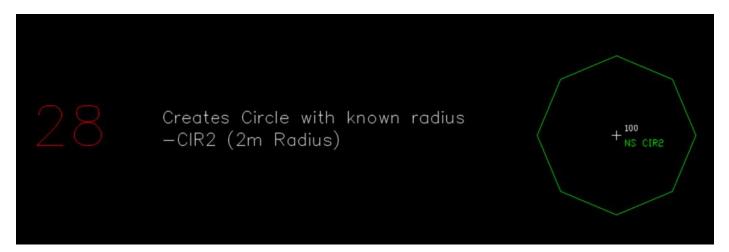
The next 2 methods can only be achieved if '**Radius**' has been selected in the 2-Point Circle section of Special Codes



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lacktrian Codes						×
General Special Codes			Linework Special Codes			
NE Code (No Elevation)	NE NOS Code (Non-Surface)	NOS	BEG Code (Begin Linework)	+7	END Code (End Linework)	-7
YZ Code (Yes Elevation)	YZ ZO Code (Elevation Only)	ZO	PC Code (Start Curve)	PC	PT Code (End Curve)	PT
\ Character (Prefix Description)	\ Code (Prefix Field Code Des	c) //	CTOG Code (Curve Toggle)	CTOG	NEAR Code (Nearest Found)	NEAR
/ Character (Append Description)	// Code (Append Field Code De	esc) //	CLO Code (Close)	CLO	RECT Code (Close Rectangular)	RECT
Bar Separater (End Coding)	/// Separater (Replace Desc)	///	OH Code (Offset Horiz)	OH	OV Code (Offset Vertical)	OV
Code Separater (Space)	- MULT Code (Multiple Field Cod	de) MULT	OFL Code (Offset Left)	OFL	OFB Code (Offset Both L/R)	OFB
Substitute Characters + (Plus) +	- (Minus) - * (Asterisk) * _ (Underscore	e) _	CIR Code (Circle)	CIR	JPN Code (Join to Point Name)	JPN
Point Symbol/Attribute Special Codes			SMO Code (Smooth)	SMO	JOG Code (Extend By Distance)	JOG
ROT Code (Rotate)	ROT SZ Code (Symbol Size)	SZ	GAP Code (Gap)	GAP	LTF Code (Linetype Flip)	LTF
AZI Code (Azimuth)	AZI DIST Code (Distance)	DIST	AFIT Code (Fit Arc)	AFIT	LTW Code (Linetype Width)	LTW
Multi-Point 2ND Code	2ND Multi-Point 3RD Code	3RD	BFIT Code (Best-Fit Line)	BFIT	RAMP Code (Curb Ramp)	RAMP
PHOTO Code	PHOTO LABEL Code	LABEL	XSCT Code (Template)	XSCT	PARKING Code (Parking)	PARKING
COLOR Code	COLOUR	L]	3D Face Special Codes			
DUDTO L' L			FACE3D Code (3D Face)	FACE3D	HOLE3D Code (3D Hole)	HOLE3D
	OFB Offset Width ● Double ◯ Split		BLOCK3D Code (3D Block)	BLOCK3E	WALL3D Code (3D Wall)	WALL3D
2-Point Circle	Append Desc Auto Space					

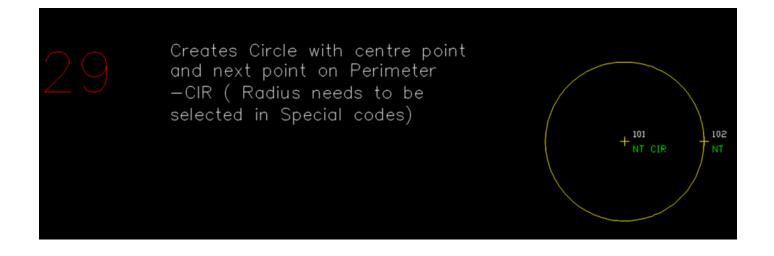
Method 1 (Single point at center with radius value(2m)) (Example 28)

#### 100 NS CIR2





Method 2 (Point at center plus point at perimeter) (Example 29)101NT CIR102NT

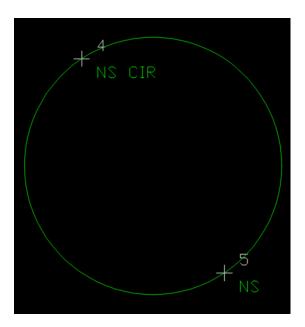


The following method can only be achieved if **'Diameter'** has been selected in the 2-Point Circle section of Special Codes.

left Special Codes							
General Special Codes				Linework Special Codes			
NE Code (No Elevation)	NE	NOS Code (Non-Surface)	NOS	BEG Code (Begin Linework)	+7	END Code (End Linework)	-7
YZ Code (Yes Elevation)	YZ	ZO Code (Elevation Only)	ZO	PC Code (Start Curve)	PC	PT Code (End Curve)	PT
\ Character (Prefix Description)	1	\\ Code (Prefix Field Code Desc)	//	CTOG Code (Curve Toggle)	CTOG	NEAR Code (Nearest Found)	NEAR
/ Character (Append Description)	1	// Code (Append Field Code Desc)	11	CLO Code (Close)	CLO	RECT Code (Close Rectangular)	RECT
Bar Separater (End Coding)	1	/// Separater (Replace Desc)	///	OH Code (Offset Horiz)	OH	OV Code (Offset Vertical)	OV
Code Separater (Space)	•	MULT Code (Multiple Field Code)	MULT	OFL Code (Offset Left)	OFL	OFB Code (Offset Both L/R)	OFB
Substitute Characters + (Plus) +	- (Minus) -	* (Asterisk) * _(Underscore) _		CIR Code (Circle)	CIR	JPN Code (Join to Point Name)	JPN
Point Symbol/Attribute Special Codes				SMO Code (Smooth)	SMO	JOG Code (Extend By Distance)	JOG
ROT Code (Rotate)	ROT	SZ Code (Symbol Size)	SZ	GAP Code (Gap)	GAP	LTF Code (Linetype Flip)	LTF
AZI Code (Azimuth)	AZI	DIST Code (Distance)	DIST	AFIT Code (Fit Arc)	AFIT	LTW Code (Linetype Width)	LTW
Multi-Point 2ND Code	2ND	Multi-Point 3RD Code	3RD	BFIT Code (Best-Fit Line)	BFIT	RAMP Code (Curb Ramp)	RAMP
PHOTO Code	PHOTO	LABEL Code	LABEL	XSCT Code (Template)	XSCT	PARKING Code (Parking)	PARKING
COLOR Code	COLOUR			3D Face Special Codes			
DUDTO	050.00	(		FACE3D Code (3D Face)	FACE3D	HOLE3D Code (3D Hole)	HOLE3D
	OFB Offset W <li>Double</li>	O Split		BLOCK3D Code (3D Block)	BLOCK3E	WALL3D Code (3D Wall)	WALL3D
2-Point Circle	Append Des	: Auto Space					
ORadius  ODiameter							
OK Cancel Help	Load	Default					
on Galicer Help	Load	/eldull					



Method 3 (2 Points on perimeter that define the diameter)
4 NS CIR
5 NS



Method 4 (Points on perimeter) can be achieved if either radius or diameter is selected. If doing more than one circle then strings need to be used to separate the different circles.

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BC01
BC01

10 BC01

