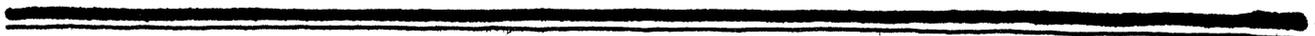
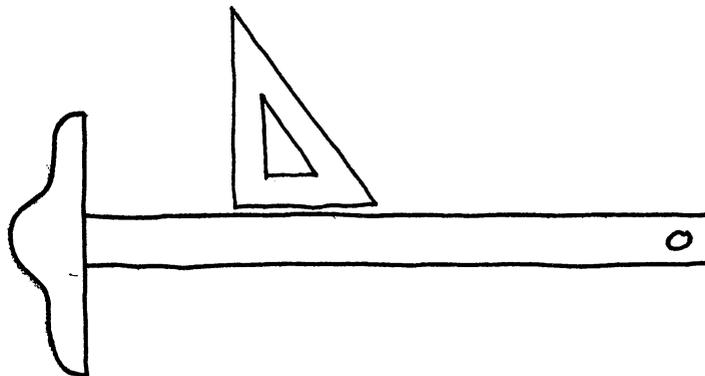
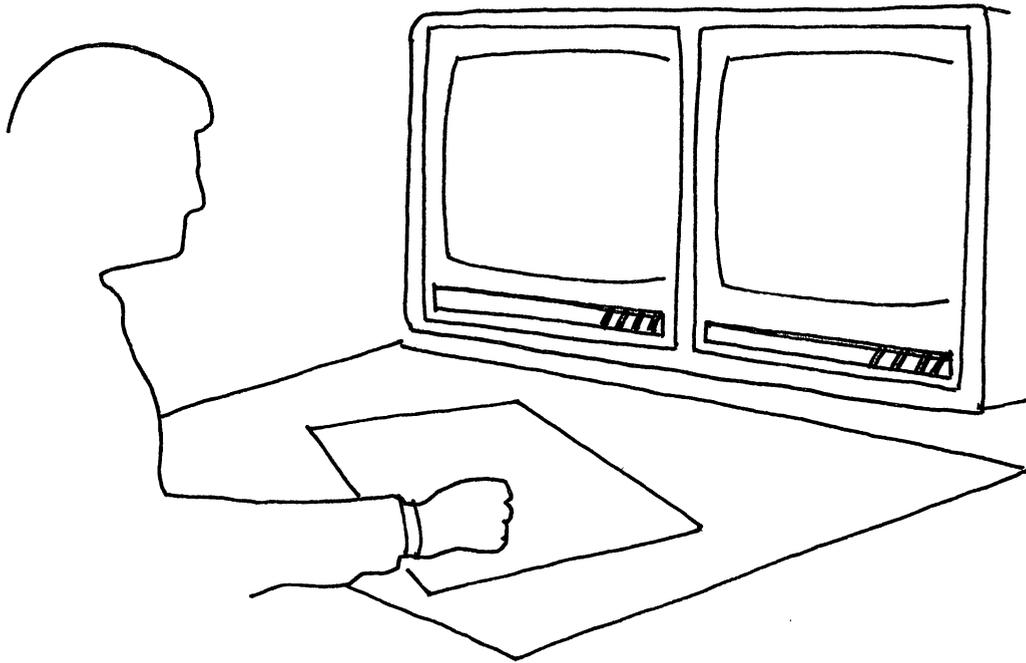


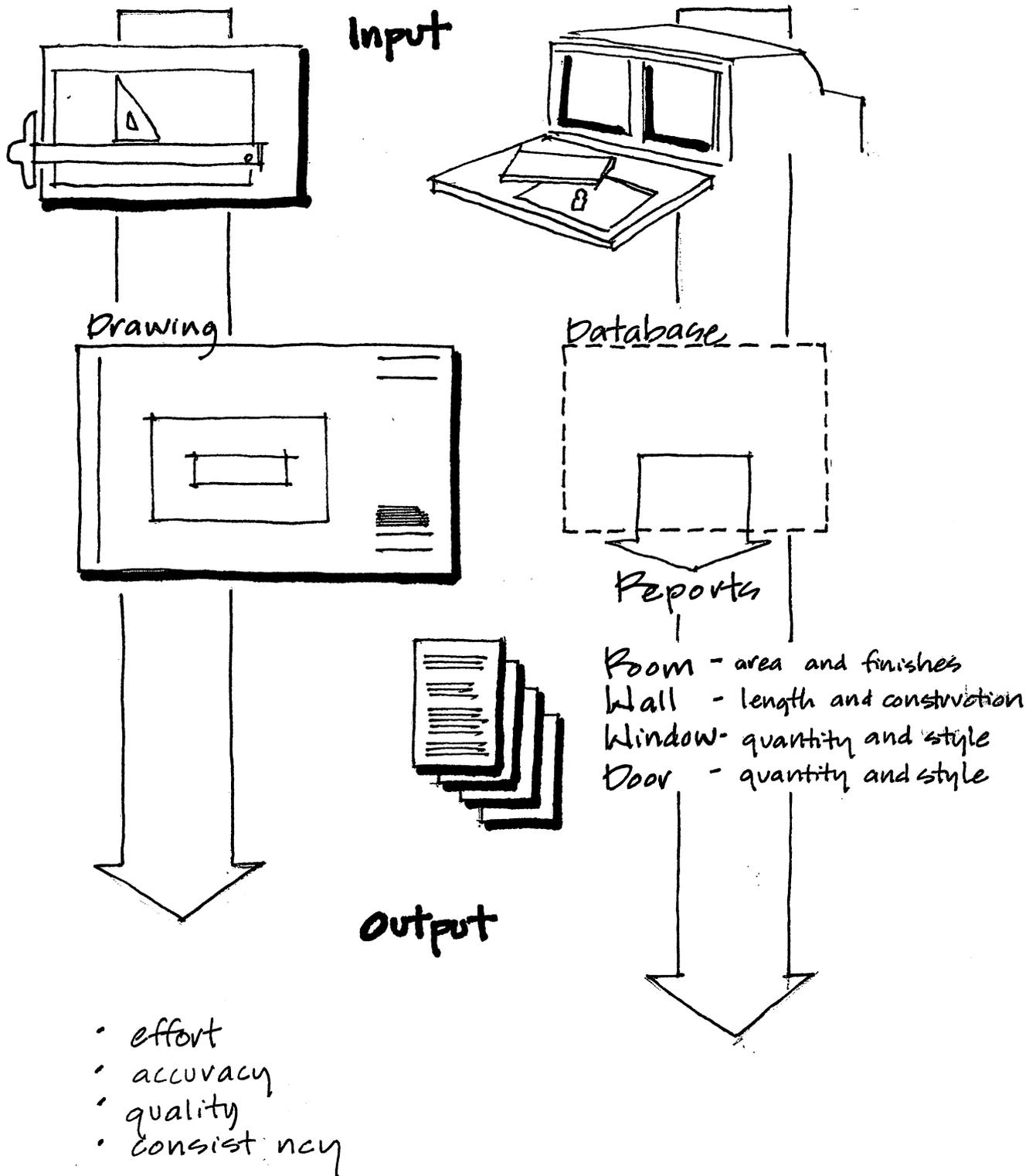
Intergraph / CAD

Training Notes:

HEERY



Manual Drawing vs. CADD Drawing



- effort
- accuracy
- quality
- consistency

INTERGRAPH

ARCHITECTURAL MODELING

MODELING COORDINATE SYS				
ACTIVE FLOOR ELEVATION	ACTIVE WALL ORIGIN	PLAN ANGLE	SLOPE ANGLE	REFERENCE PLANE FLOOR WALL SLOPE

COLUMN GRID			WALLS		
LABEL SETUP	PLACE PLACE COLUMN				
HORIZ GRID	VERT GRID	PLACE COL AT INTER			

FLOORS & CEILINGS			WINDOWS & DOORS		

ROOF SYSTEMS			SITE		

ACTIVE COLOR TABLE			
1	2	3	4
5	6	7	8

REFERENCE SYMBOLOLOGY					

LEVEL DISPLAYS							
LEVEL ON	COLUMNS	DOOR OPNS	WALLS	ROOFS	PERSP OUTPUT	PEOPLE	①
ACTIVE LEVEL	HORIZ CENTER LINES	DOOR CELLS	FLOORS	SITE	SECTION OUTPUT	DIT CELLS	②
LEVEL OFF	VERT CENTER LINES	WINDOW OPNS	CELSHES			DIT CELLS	③
ALL	FRESH FLOOR LINES	WINDOW CELLS	HATCHED MODELS	MASS MODELS		ADD WALL	④
SHET BORDER	NOTES	REF SYMBOLS	MATCH BREAK CENTER LINES	GENERAL DIMS	SCALE NORTH ARROW	SPG LENGTH	⑤

VIEW MANIPULATIONS			
TRV	WALK AROUND		
ABS REL	ABS REL		
NAMED VOLUMES	REF PLANE		
DEFN RECALL	REVIEW		
DEPTH	STV		
ACTIVE DISPLAY	VI-FRONT	VI-RIGHT	

CUT		
PLACE GENERAL NOTES	PLACE SPEC NUMBER	

3D CONSTRUCTIONS			
PROJECT SURFACE OF REV			
MATRIX COPY	GENERAL SURFACE		
CAP/UNCAP	PROJECT TO REF PLANE		

SCREEN MENUS		
WINDOW DOOR COLUMN	2-0 CELLS	3-0 CELLS

TUTORIALS		
VIEW ROTATION	MLINE	PERSPECT
COLOR TABLE EDITOR		MFG'S CATALOG

AUX COORDINATE SYS			
CONST PLANE ORIGIN	REF PLANE ORIGIN		
RECALL	VIEW ALIGN	MOVE	AUX COORD
			AUX DELTA

REFERENCE FILES			
ATTACH LEVELS ON/OFF	SNAP ON/OFF		
DETACH LOCATE ON/OFF	DISPLAY ON/OFF		
ROTATE SCALE MOVE			
BOUND CLIP FRONT BACK			

DIMENSION/ANGLE INPUT											
135	120	90	60	45							
DL=	$\frac{\square}{\square}$	7	8	9	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$		
AA=	X	4	5	6	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$		
MEM	+	0	.	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$.				
	=	FT	ENTER	MEG	CLEAR	CALCULATOR					
225	240	270	300	315							

MEASURE			
AX, & Y	RADIUS	AREA	DEF ELEN
DISTANCE ALONG	ANGLE BETWEEN LINES	1 TO LINE	DEF RADIUS
HEIGHT			DISTANCE CLM

LOCKS			
AXIS	UNIT	SNAP	GRID
TEXT	MOVE	KEYPT PROJ	ORIG
LOCATE	IF LINES	FENCE CONTENTS	LEVEL
		INSIDE	OVERLAP

ATTRIBUTE MANIPULATION							
DEFINE ACTIVE ENTITY	ATTACH SINGLE	ACTIVE FENCE	ENT SINGLE	CHANGE ATTR VALUE	FENCE SINGLE	REMOVE ATTRIBUTES	FENCE SINGLE
	ACTIVE OWNER			SET OWNER		AUTO DELETE ENTITY ON/OFF	DELETE ON/OFF
CHANGE PARENT	CHILD	CLEAR	SINGLE	FENCE		AUTO ATTACH ON/OFF	COPY
REVIEW SINGLE	REPORT	ATTACH	SINGLE	FENCE	GENERATE	ATTR	

FAST DISPLAY ON/OFF				DISPLAY ON/OFF			
CURVE ARC	TEXT	FONT	CELL	WEIGHT	PATTERN	TEXT MODE	ENTER DATA FIELD
BLIP						GRID	LEVEL SYMB

VIEW CONTROL				VIEW SCALE			
DELAY L	VIEW ON	COPY R	SWAP	ZOOM IN	FIT	WINDOW	ENTER VALUE
				OUT		AREA	

PATTERNS		SCALE/ANGLE	
LINEAR SOLID	AREA	AS=1	$\frac{\square}{\square}$
SEGMENT MULT	SINGLE ON/OFF		

DIMENSIONING				USER COMMANDS			
POINT	ARC	ANGLE BETWEEN LINES	SIZE	LOCATION	LABL LINE	DIMENSION SETUP	101 102 103 104 105
RADIUS	DIAMETER	MOVE OF LINE	TEXT	WITNESS LINE	SEGMENT LINE		106 107 108 109 110
				ADD DELETE OFFSET	SEGMENT RESTORE		

GRAPHIC ELEMENT PLACEMENT											
ARC	FILLET	PWNB	ELLIPSE	CIRCLE	CHAIN	LINE	LINE STRING	SHAPE	CURVE	CELL	
RADIUS	MODIFY ANGLE	AXIS									

WORKING SET	
DROP	ADD TO WORKING SET ORIGINAL COPY

ELEMENT MANIPULATIONS					
COPY	MOVE	DROP	PARTIAL DELETE	DELETE	INSERT VERTEX
MODIFY	MIRROR ORIG	V H L	MIRROR COPY	V H L	DELETE VERTEX
SYMB	ROTATE	ORIG COPY	SCALE	ORIG COPY	MOVE SEGMENT
CHANGE SET	ORIG COPY		COLOR	CHANGE SET	CLEAR ENTER
WEIGHT	CHANGE SET				

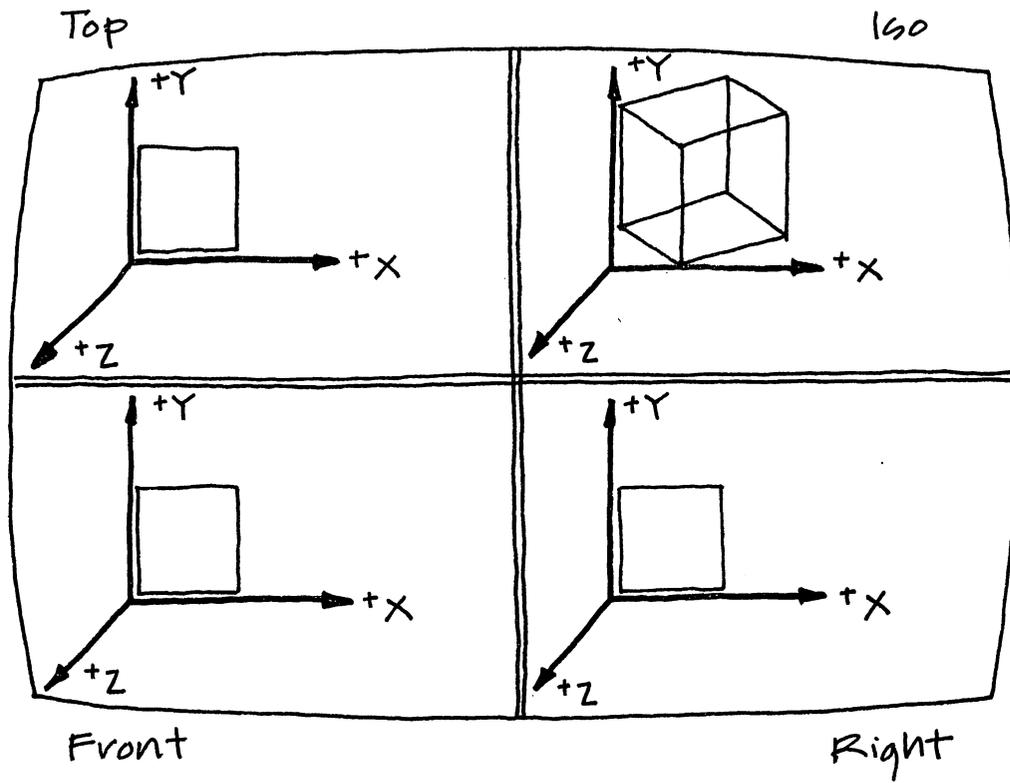
EXTEND LINE		TEXT		ENTER DATA	
		PLACE		FILL IN	COPY
		FIT		SING AUTO	JUSTIFY
		EDIT	SIZE	MODE	L C R

FENCE CONTENTS MANIPULATIONS		
PLACE	ROTATE	
	ORIG COPY	
MOVE	SCALE	
	ORIG COPY	

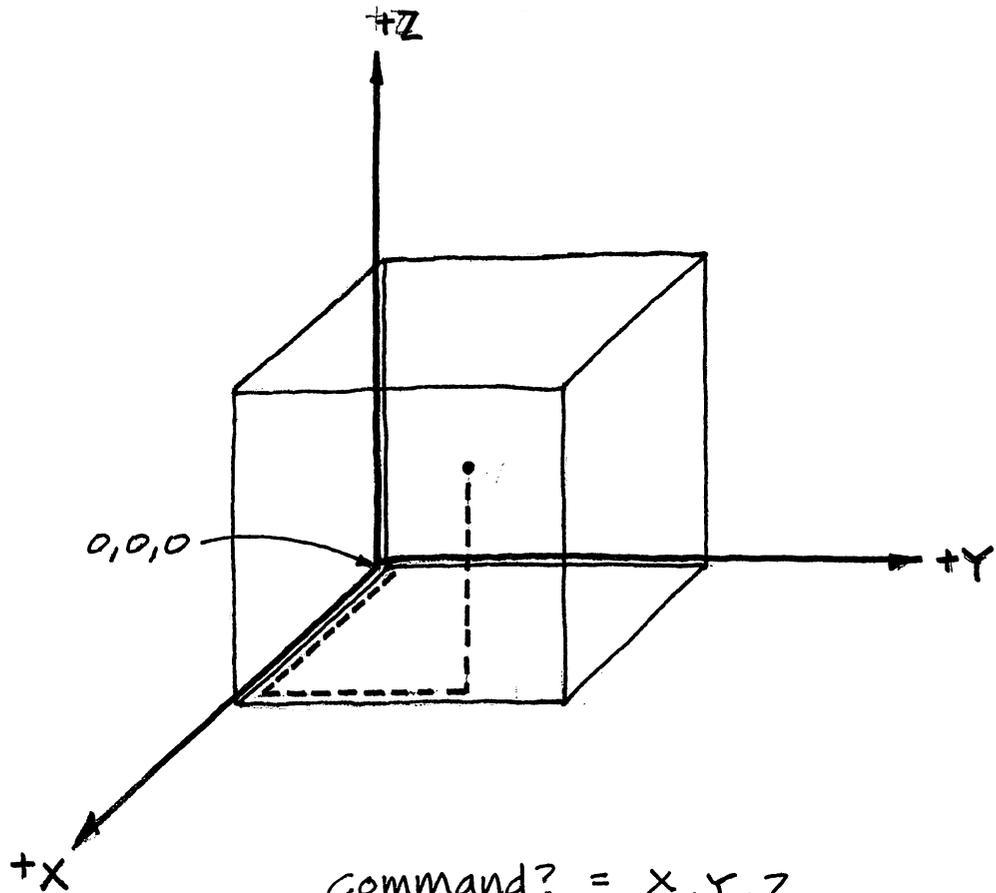
CONSTRUCTION COMMANDS					
LINE	LINE AT AN	TAN CIRCLE	POINT		
LINE BETWEEN ELEM	BISECTOR	TANGENT ARC			

TEXT JUSTIFICATION		
"XX	XX	XX"
XX	XX	XX
.XX	XX	.XX.

MENU	
ATTACH	ADD CELLS
DIGITIZER SETUP	PLOT REQUEST
TUTORIAL VIEW	



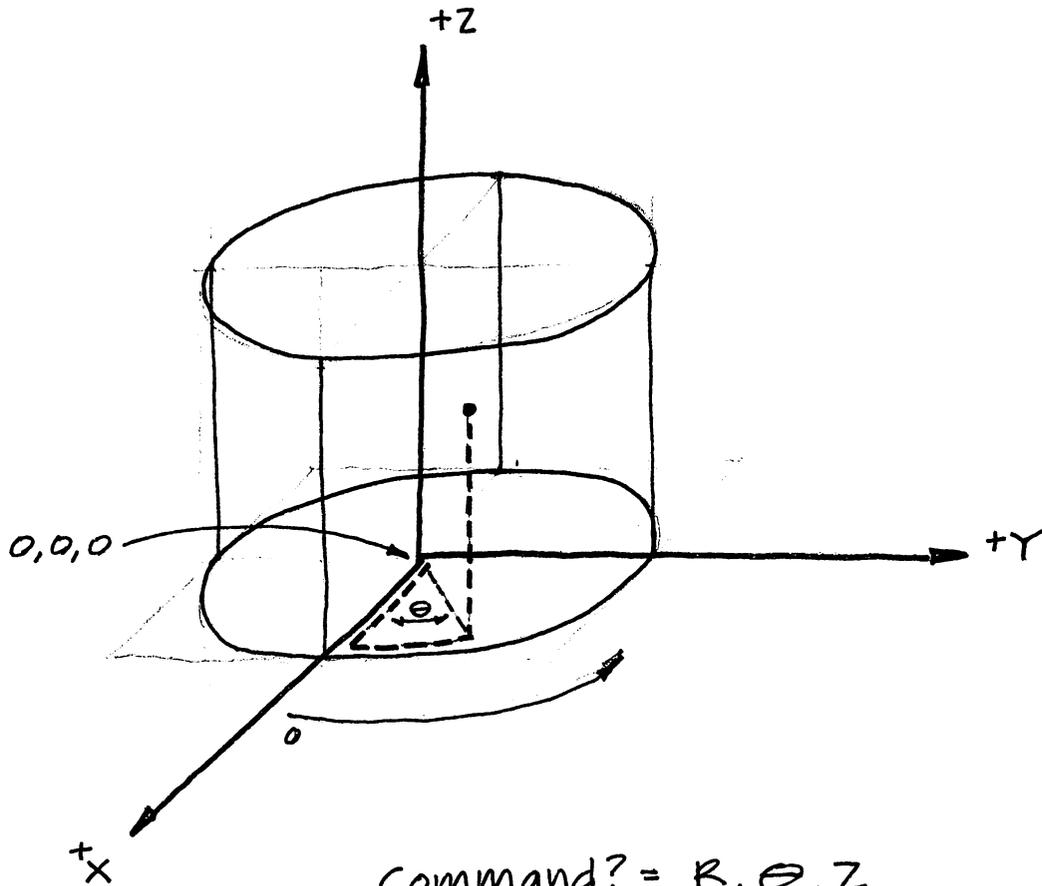
View Coordinate System



Command? = X, Y, Z

- X = distance along X-axis
- Y = distance along Y-axis
- Z = distance along Z-axis

Rectangular Coordinate System



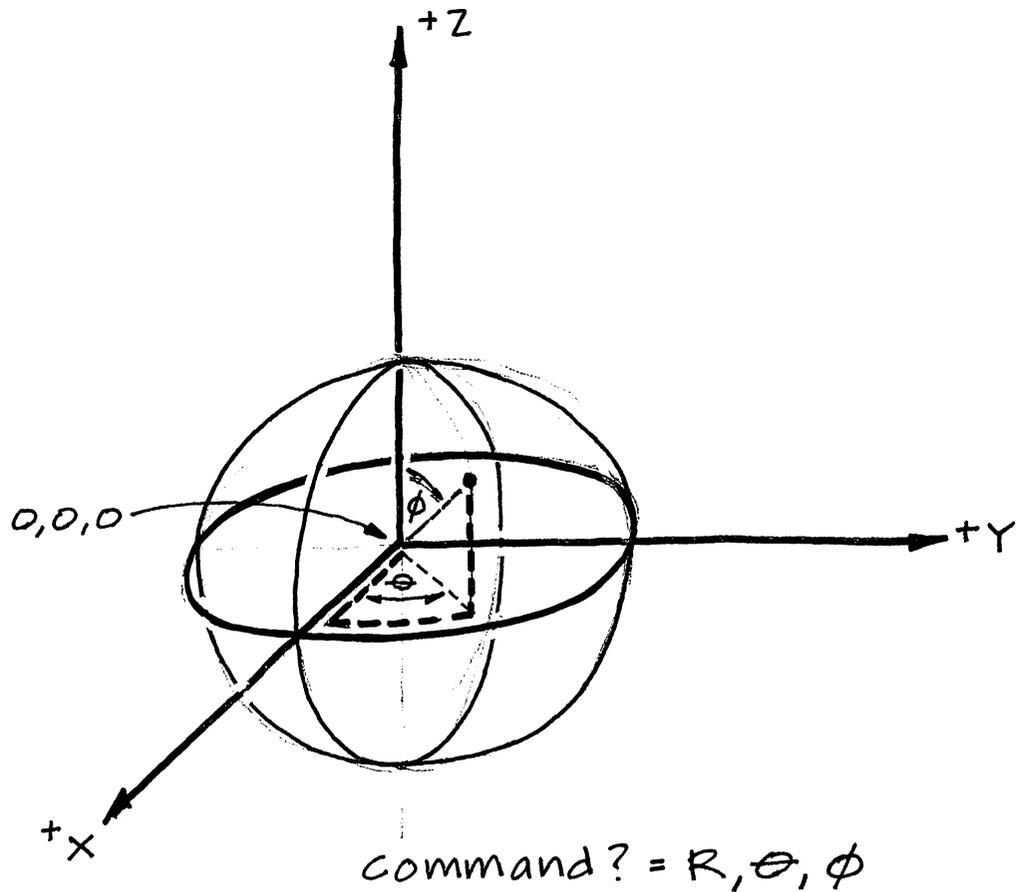
Command? = R, Θ, Z

R = radial distance along x-axis

Θ = degrees from x-axis (0-360)

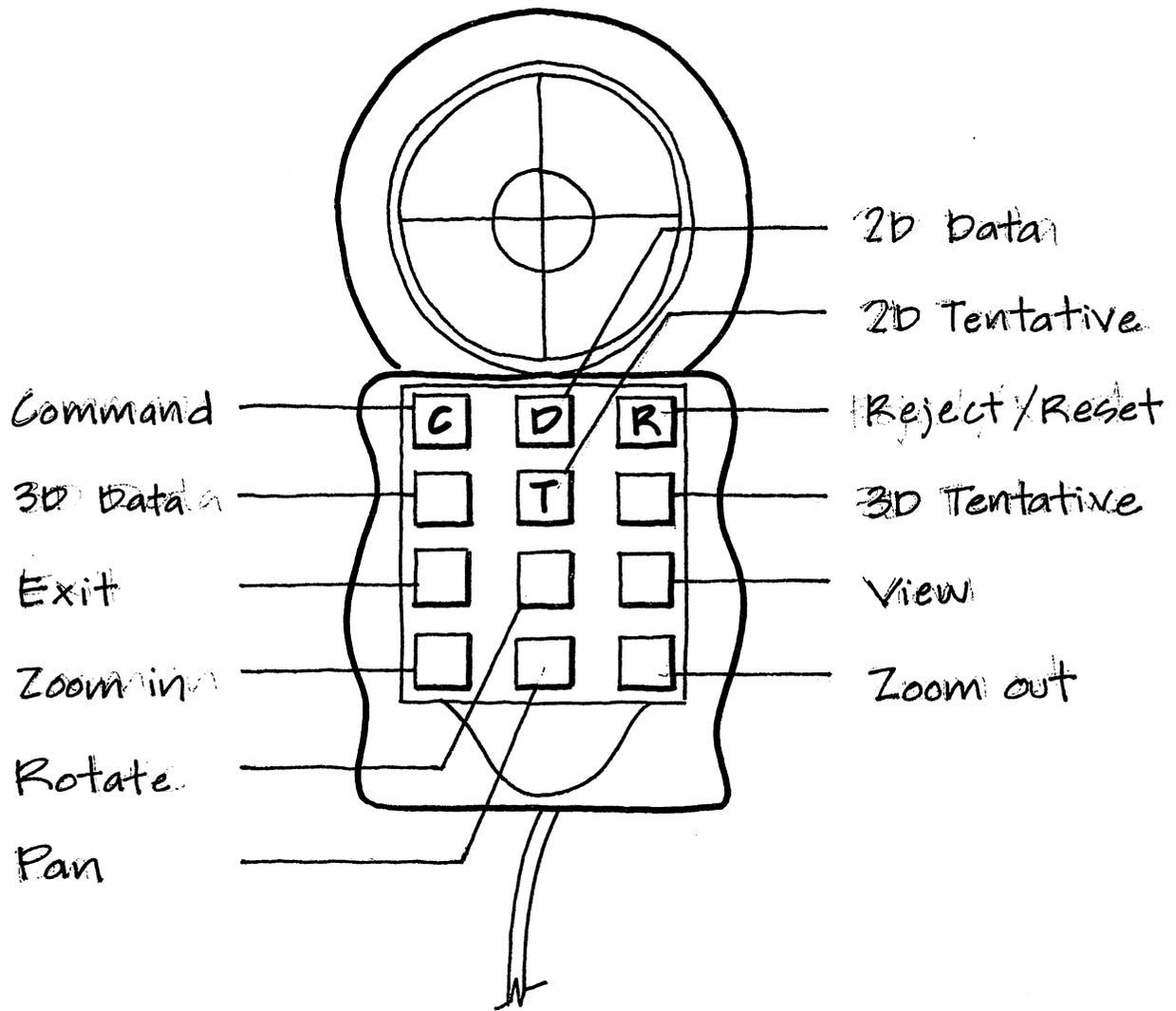
Z = distance along z-axis

Cylindrical Coordinate System

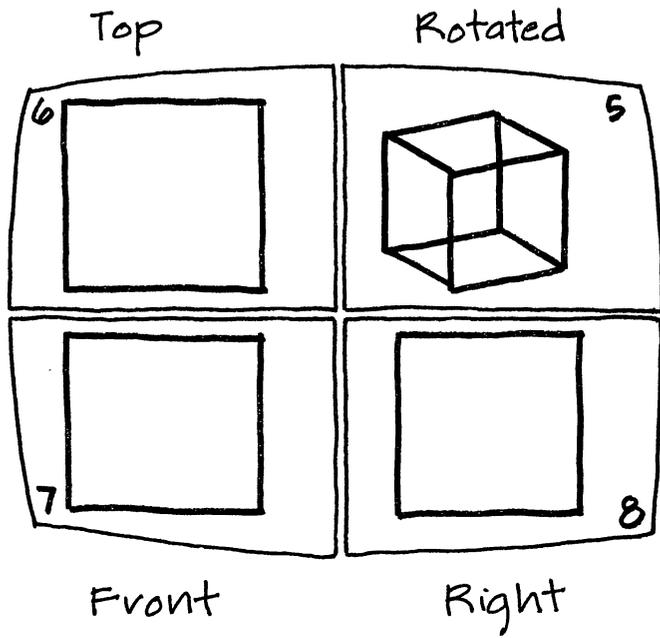


- R = radial distance along x-axis
- θ = degrees from x-axis (0-360)
- ϕ = degrees from z-axis (0-360)

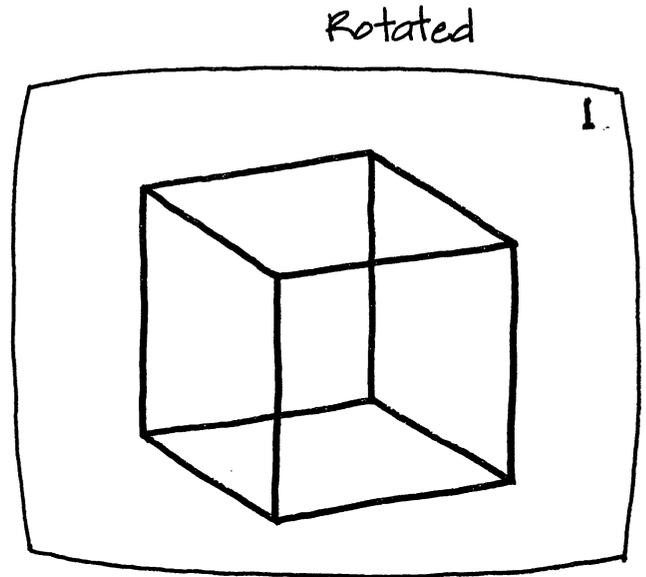
Spherical Coordinate System



CURSOR BUTTONS

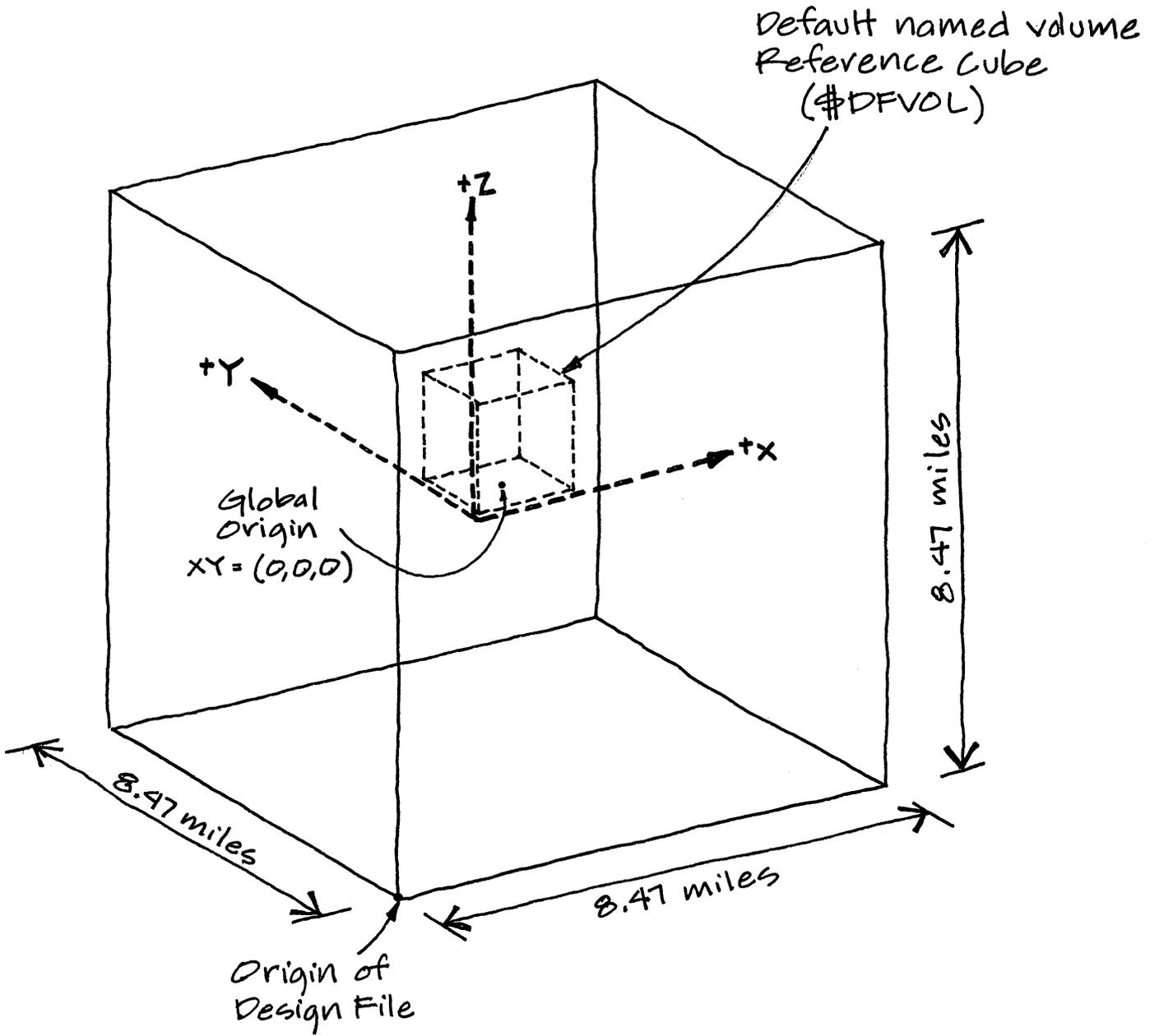


Left Screen.

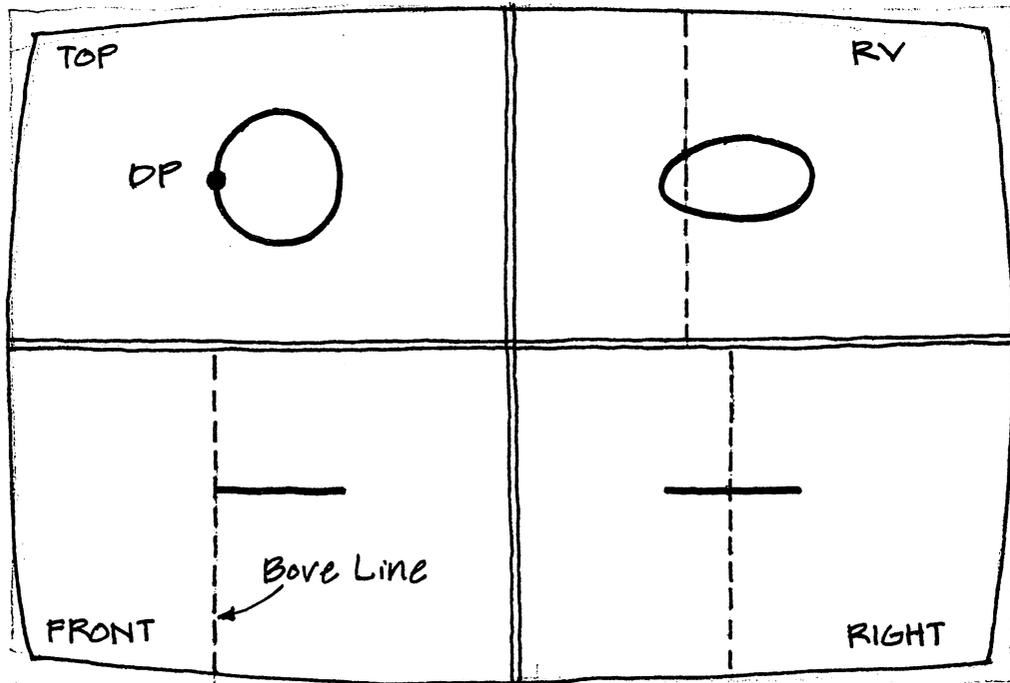


Right Screen.

Standard Views



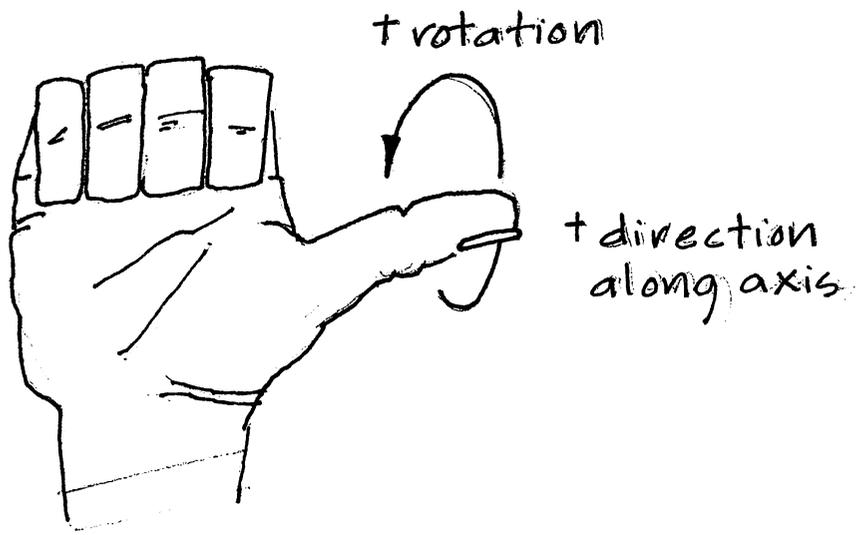
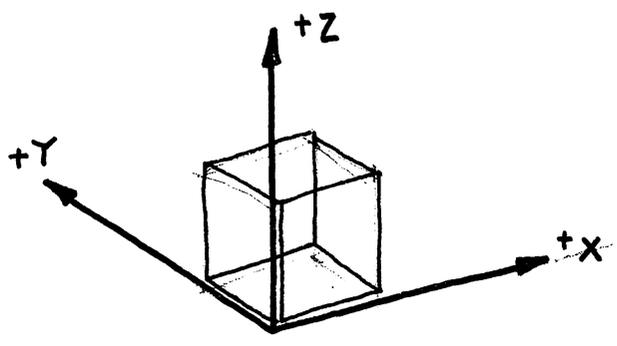
Design File - AMOD



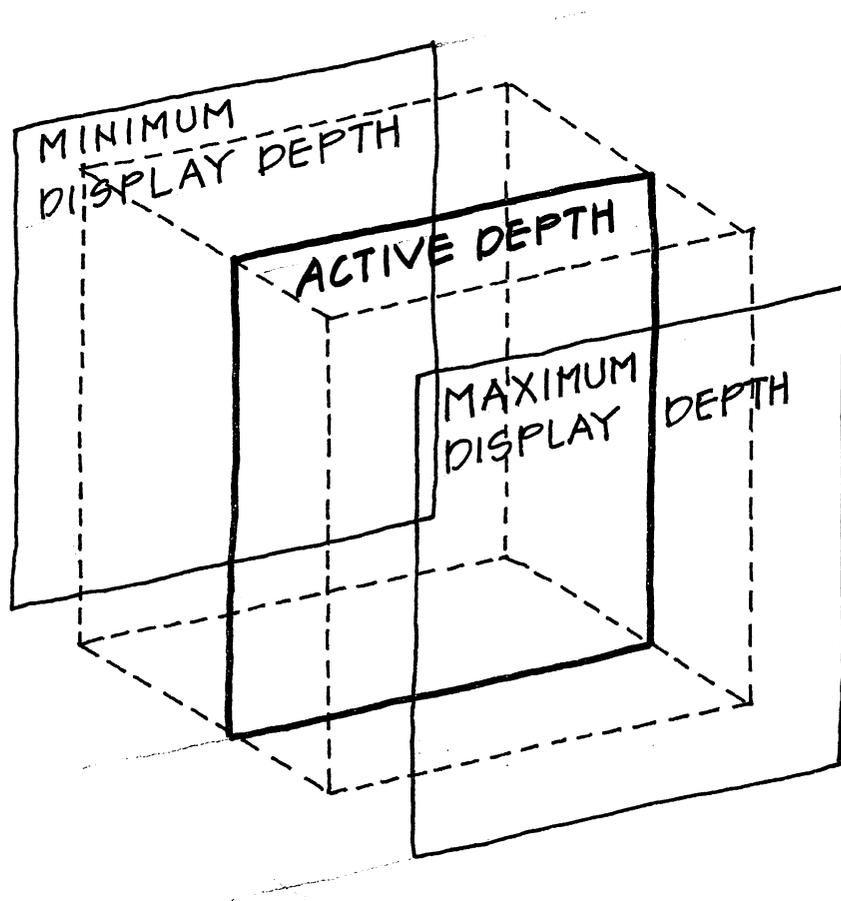
Three Dimensional Bore Line

Rotate View

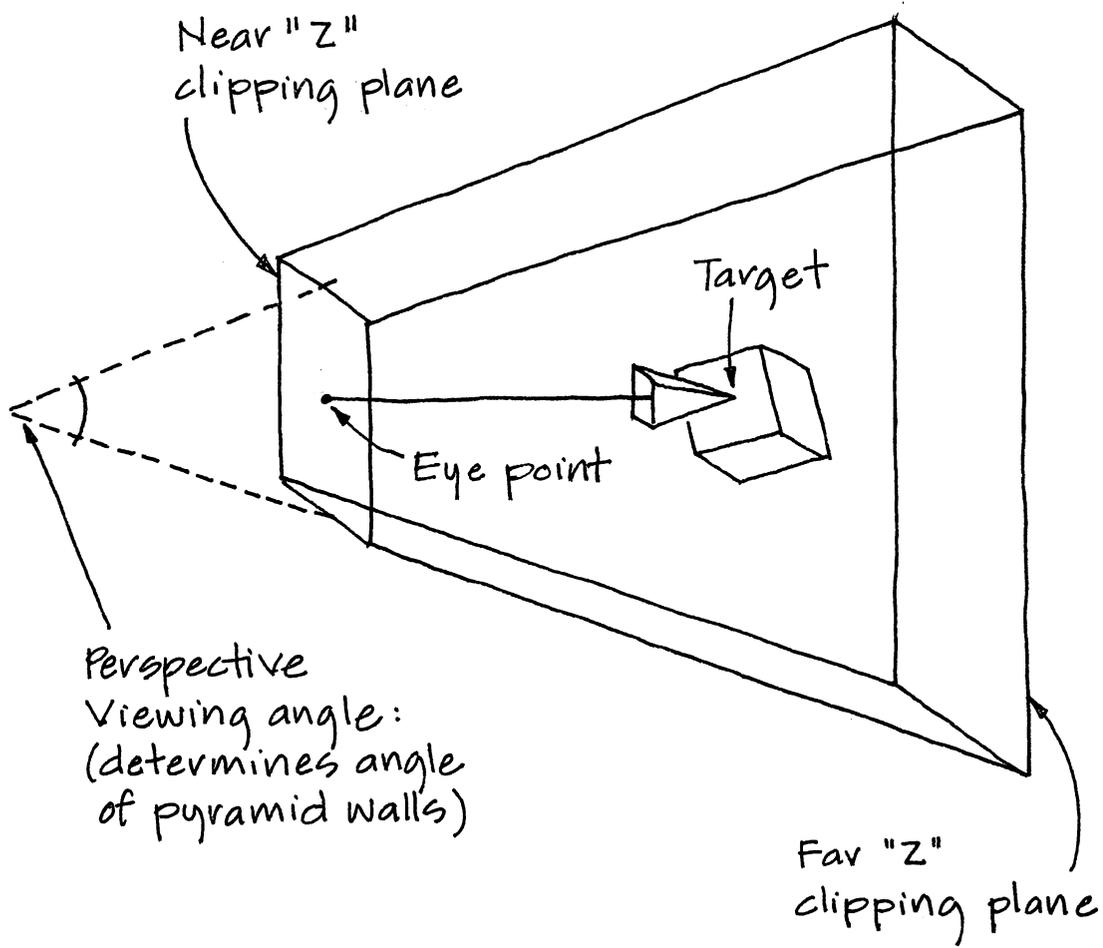
$RY = X, Y, Z$



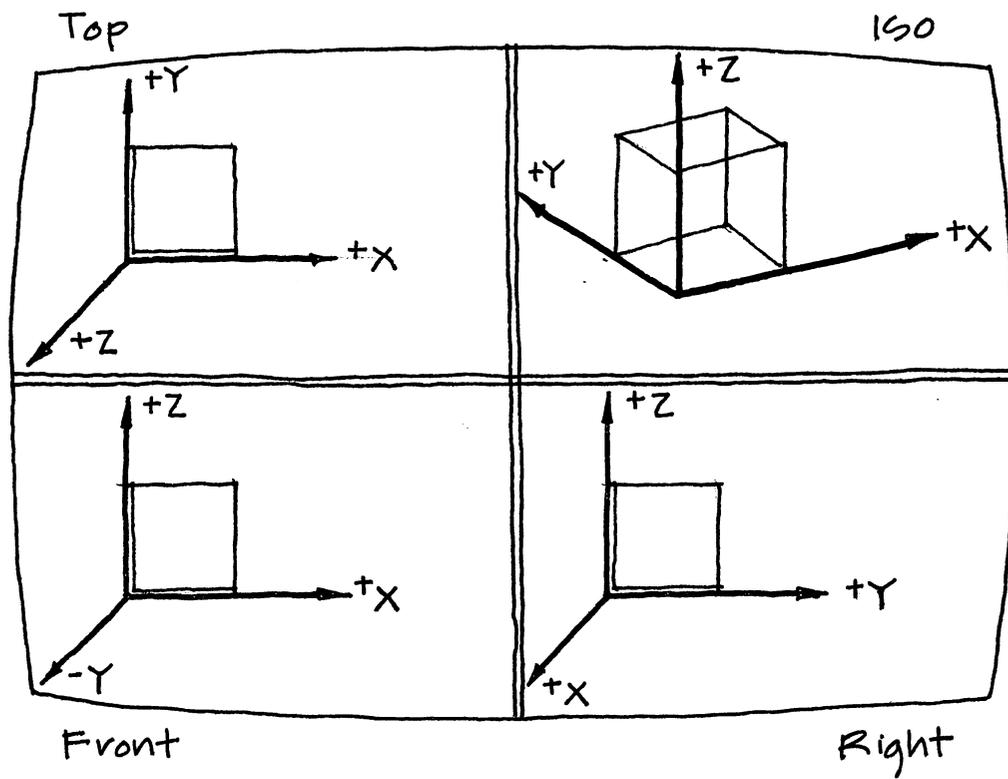
"right-hand rule"



Active Depth and Display Depth



Perspective View Parameters

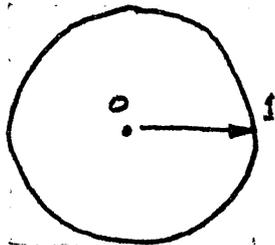


Model Coordinate System

HSV Color Model

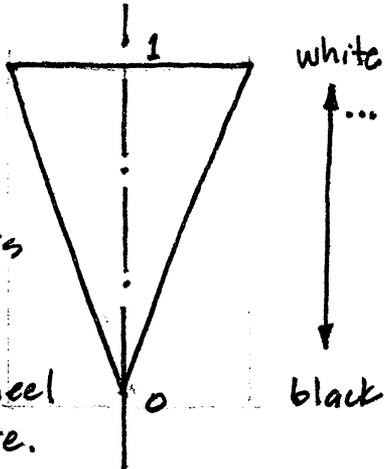
... hue, saturation and value.

SATURATION



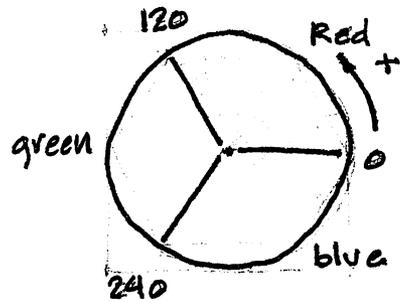
- ... when saturation is \emptyset the hue is irrelevant and is called UNDEFINED.
- ... colors close to the center are pastel and those closer to the perimeter move pure.

VALUE



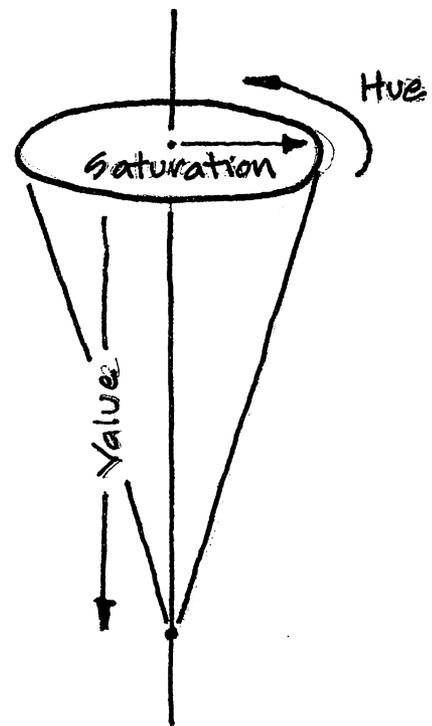
- ... the bottom of the cone is pure black.
- ... the center of the color wheel is pure white.

HUE



- ... color wheel.
- complementary colors are offset by 180° from each other.

HSV Color Model.



Color	Angle
Red	0
Yellow	60
Green	120
Cyan	180
Blue	240
Magenta	300