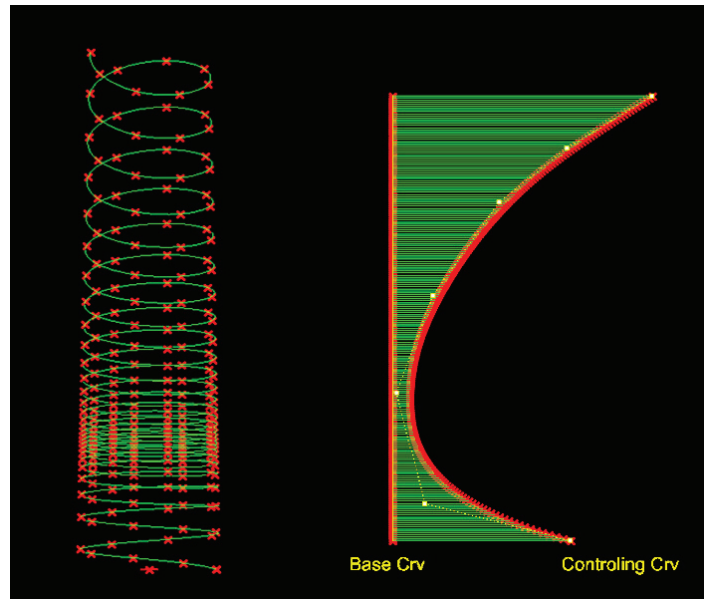
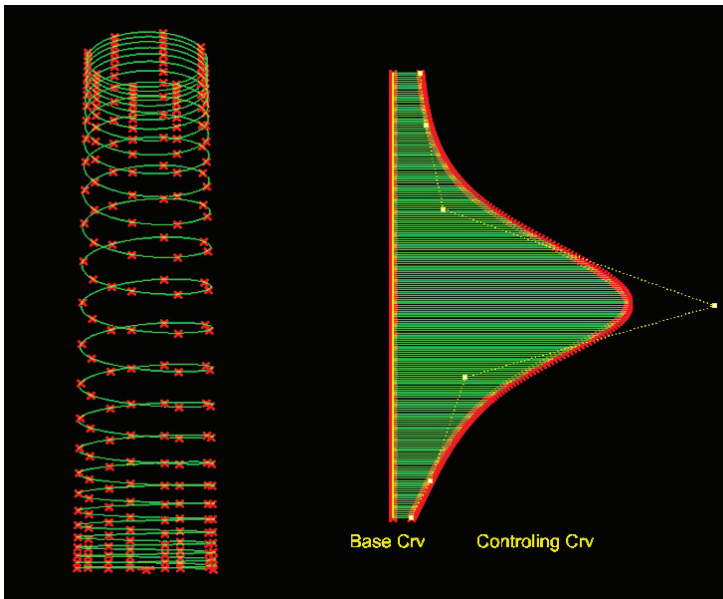
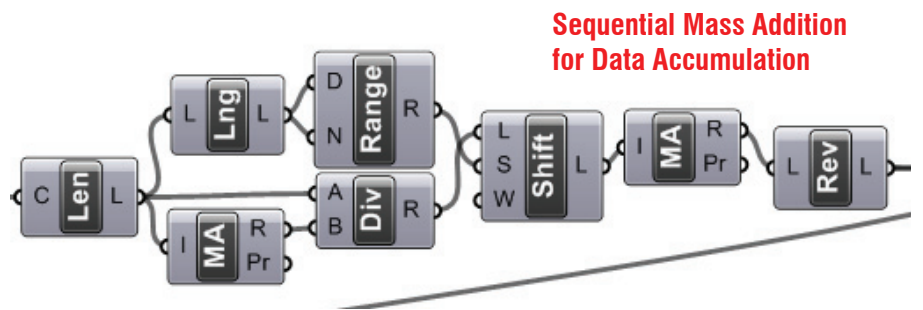
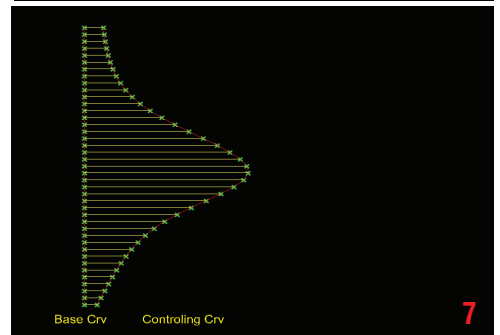
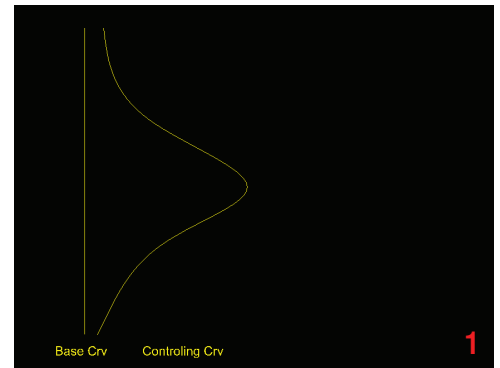


5_2 DENSITY SPIRAL



Step1 : Geometry Controlling Density

1. **Curve** (Params/Geometry/Curve)
 - Draw a Line on XZ plane(front view) in Rhino Scene
 - "Base Crv" : Right click and Set one curve
2. **Curve** (Params/Geometry/Curve)
 - Draw a Curve on XZ plane(front view) in Rhino Scene
 - "Controler Crv" : Right click and Set one curve
3. **Slider** (Params/Special/Number Slider)
 - "Number of Points" : Integers, Lower limit=0, Upper limit=500, Value=226
4. **Divide**(Curve/Division/Divide Curve)
 - C : Curve("Controler Crv")
 - N : Slider ("Number of Points")
5. **PI** (Vector/Plane/Plane Normal)
 - O : Divide(P)
 - Z : XY plane (P)
6. **PCX** (Intersect/Mathematical/Curve | Plane)
 - C : Curve ("Base Crv")
 - P : PI (P)
7. **Ln**(Curve/Primitive/Line)
 - A : PCX(P)
 - B : Divide(P)
8. **Len**(Curve/Anaysis/Length)
 - C : Ln(L)
9. **Lng**(Log/List/List Length)
 - L : Len(L)
10. **Range**(Logic/Sets/Range)
 - D : Lng(L)
 - N : Lng(L)
11. **MA**(Scalar/Util/Mass Addition)
 - I : Len(L)



12. **Div**(Scalar/Operator/Division)

- A : *Len*(L)

- B : *MA*(R)

13. **Shift**(Logic/List/Shift List)

- L : *Div*(R)

- S : *Range*(R)

14. **MA**(Scalar/Util/Mass Addition)

- I : *Shift*(L)

15. **Rev**(Logic/List/Reverse List)

- L : *MA*(R)

Step2 : Density Spiral

16. **Data** (Params/Primitive/Data)

- "Evaluated Data from Geometry Controller" : *Rev*(L)

17. **Slider** x 3 (Params/Special/Number Slider)

- "Bottom Circle Radius" : Floating point, Lower limit=0, Upper limit=20, Value=10

- "Height" : Floating point, Lower limit=0, Upper limit=200, Value=85.0

- "Spiral Fineness" : Floating point, Lower limit=0, Upper limit=1.0, Value=1.0

18. **Cir**(Curve/Primitive/Circle)

- P : default

- R : *Number Slider* ("Bottom Circle Radius")

19. **Eval** (Curve/Analysis/Evaluate Length)

- C : *Cir* (C)

20. **Lng**(Log/List/List Length)

- L : *Data*("Evaluated Data from Geometry Controller")

21. **Range**(Logic/Sets/RANge)

- D : *Lng*(L)

- N : *Lng*(L)

22. **Div**(Scalar/Operator/Division)

- A : *Pi*

- B : *Number = 4*

23. **Mult**(Scalar/Operator/Multiplication)

- A : *Slider*("Spiral Fineness")

- B : *Div*(R)

24. **Mult**(Scalar/Operator/Multiplication)

- A : *Range*(R)

- B : *Mult*(R)

25. **Rotate**(XForm/Euclidian/Rotate)

- G : *Eval*(P)

- A : *Mult*(R)

Step3 : Move to z-direction and Connection

26. **Mult**(Scalar/Operator/Multiplication)

- A : *Data* ("Evaluated Data from Geometry Controller")

- B : *Slider*("Height")

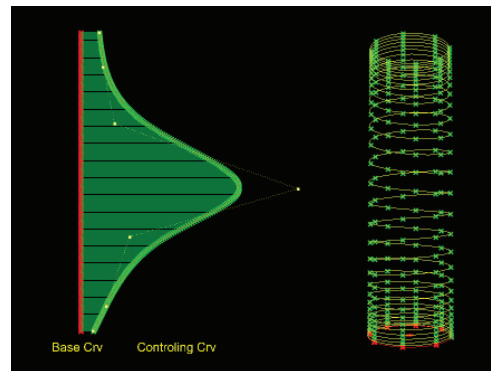
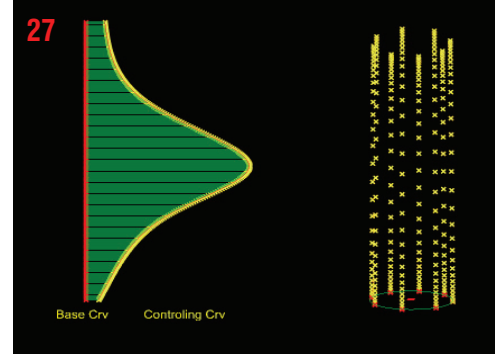
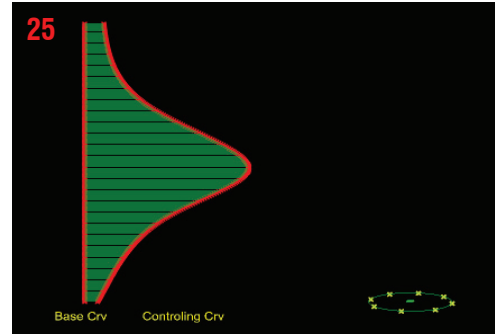
27. **Move**(XForm/Euclidian/Move)

- G : *Rotate*(G)

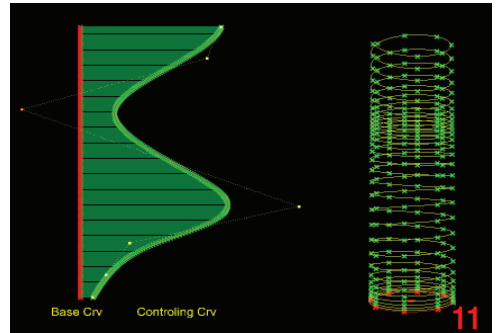
- T : *Unit Z* from *Mult*(R)

28. **IntCrv**(Curve/Spline/Interpolate)

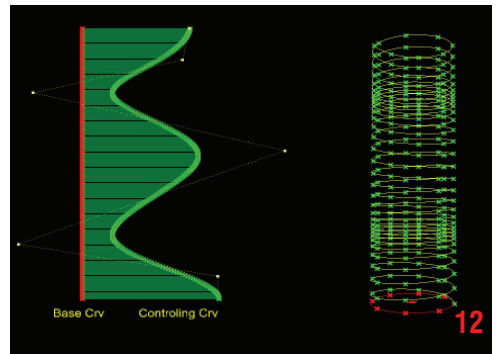
- V : *Move*(G)



Control Crv 1



Control Crv 2



Control Crv 3

Appendix
- Definition map

