## **Wall-Related Methods**

AddWallStyle

* Signature: Guid AddWallStyle(string name)
* Description: Creates a new wall style and returns its Guid.
* Example: style\_id = va.AddWallStyle("MyWall")
* Notes: Check existence first with va.GetAllWallStyleIds() to list existing styles (returns list of Guids; use va.GetStyleName(id) to match names). Use va.GetWallStyleId(name) for direct lookup.

AddWallLayer

* Signature: Guid AddWallLayer(Guid wallStyleId, string name, double thickness)
* Description: Adds a layer to the wall style, returns the layer component's Guid.
* Example: layer\_id = va.AddWallLayer(style\_id, "Brick Layer", 0.1)
* Notes: Layers ordered from exterior to interior. Assign material with SetStyleComponentMaterialIndex. Set type with SetWallLayerType (Core/Normal). Set wrapping with SetWallLayerWrapping (locations: ends/openings). Core layers cannot wrap.

SetWallStyleHeight

* Signature: Boolean SetWallStyleHeight(Guid styleId, Double height)
* Description: Sets the default height for the wall style. Returns True on success.
* Example: success = va.SetWallStyleHeight(style\_id, 4.0)
* Notes: Applies to new walls created with the style. Existing walls may need individual SetWallHeight calls.

AddWallsFromCurves

* Signature: Guid[] AddWallsFromCurves(Guid styleId, IEnumerable`1 curves) # curves is IEnumerable<Rhino.Geometry.Curve>
* Description: Creates walls from a list of curves using the specified style, returns array of wall Guids.
* Example: import rhinoscriptsyntax as rs from Rhino.Geometry import Curve curve\_ids = rs.GetObjects("Select curves", 4) # 4 = curve filter curves = [rs.coercecurve(id) for id in curve\_ids] wall\_ids = va.AddWallsFromCurves(style\_id, curves)
* Notes: Curves should be planar and open for wall paths. Height and alignment default from style; modify post-creation if needed.

SetWallLayerWrapping

* Signature: Boolean SetWallLayerWrapping(Guid wallLayerId, WallLayerWrapping wrapping)
* Description: Sets the wrapping locations for a wall layer (e.g., at ends, openings, both, or none). Returns True on success.
* Example:  
   For Ends and Openings  
   success = va.SetWallLayerWrapping(layer\_id, va.WallLayerWrapping.Ends | va.WallLayerWrapping.Openings)  
   For None  
   success = va.SetWallLayerWrapping(layer\_id, va.WallLayerWrapping.None)
* Notes: [Flags] enum; combine with | (bitwise OR). Wrapping direction (Exterior/Interior/None) set at style level. Core layers ignore wrapping.

GetWallLayerWrapping

* Signature: WallLayerWrapping GetWallLayerWrapping(Guid wallLayerId)
* Description: Gets the wrapping locations for a wall layer.
* Example: wrapping = va.GetWallLayerWrapping(layer\_id) if wrapping & va.WallLayerWrapping.Ends: print("Wraps at ends")  
   Check combinations similarly

SetWallLayerType

* Signature: Boolean SetWallLayerType(Guid wallLayerId, WallLayerType type)
* Description: Sets the type for a wall layer (Normal or Core). Returns True on success.
* Example: success = va.SetWallLayerType(layer\_id, va.WallLayerType.Core)
* Notes: Core = structural, non-wrappable. Normal = finish, wrappable.

GetWallLayerType

* Signature: WallLayerType GetWallLayerType(Guid wallLayerId)
* Description: Gets the type for a wall layer.
* Example: layer\_type = va.GetWallLayerType(layer\_id) print(layer\_type) # e.g., Core

SetWallAlignment

* Signature: Boolean SetWallAlignment(Guid wallId, WallAlignment alignment) # wallId is instance Guid
* Description: Sets the alignment for a wall instance (Left, Center, Right relative to path). Returns True on success.
* Example: success = va.SetWallAlignment(wall\_id, va.WallAlignment.Center)
* Notes: Alignment is per instance; styles may have default (set via creation or UI). Left/Right depend on curve direction (e.g., Left might be interior if drawn one way; test orientation).

GetWallAlignment

* Signature: WallAlignment GetWallAlignment(Guid wallId)
* Description: Gets the alignment for a wall instance.
* Example: alignment = va.GetWallAlignment(wall\_id) print(alignment) # e.g., Center

SetWallAlignmentOffset

* Signature: Boolean SetWallAlignmentOffset(Guid wallId, Double offset)
* Description: Sets the alignment offset for a wall instance (fine-tune position relative to alignment). Returns True on success.
* Example: success = va.SetWallAlignmentOffset(wall\_id, 0.05) # e.g., 5cm offset
* Notes: Offset in document units; positive/negative depending on direction.

GetWallAlignmentOffset

* Signature: Double GetWallAlignmentOffset(Guid wallId)
* Description: Gets the alignment offset for a wall instance.
* Example: offset = va.GetWallAlignmentOffset(wall\_id)

GetWallLayerThickness

* Signatures (Overloads):
  + Double GetWallLayerThickness(Guid wallLayerId) # For style layer
  + Double GetWallLayerThickness(Guid wallId, Guid wallLayerId) # For instance layer
* Description: Gets the thickness of a wall layer, either from style or specific wall instance.
* Example:  
   Style layer  
   thickness = va.GetWallLayerThickness(layer\_id)  
   Instance layer  
   instance\_thickness = va.GetWallLayerThickness(wall\_id, layer\_id)

SetWallLayerThickness

* Signatures (Overloads):
  + Boolean SetWallLayerThickness(Guid wallLayerId, Double thickness) # For style layer
  + Boolean SetWallLayerThickness(Guid wallId, Guid wallLayerId, Double thickness) # For instance layer
* Description: Sets the thickness of a wall layer, either in style (affects all) or specific instance. Returns True on success.
* Example:  
   Style layer  
   success = va.SetWallLayerThickness(layer\_id, 0.15)  
   Instance layer  
   success = va.SetWallLayerThickness(wall\_id, layer\_id, 0.12)
* Notes: Instance overrides allow per-wall customization without changing style.

GetWallLayerThicknessSource

* Signature: ValueSource GetWallLayerThicknessSource(Guid wallId, Guid wallLayerId)
* Description: Gets the source for a layer's thickness in a wall instance.
* Example: source = va.GetWallLayerThicknessSource(wall\_id, layer\_id) print(source) # e.g., Style

SetWallLayerThicknessSource

* Signature: Boolean SetWallLayerThicknessSource(Guid wallId, Guid wallLayerId, ValueSource source)
* Description: Sets the source for a layer's thickness in a wall instance. Returns True on success.
* Example: success = va.SetWallLayerThicknessSource(wall\_id, layer\_id, va.ValueSource.Object) # Manual override

GetWallThickness

* Signature: Double GetWallThickness(Guid wallId)
* Description: Gets the total thickness of a wall instance (sum of layers).
* Example: thickness = va.GetWallThickness(wall\_id)

GetWallLayerBottomOffset

* Signature: Double GetWallLayerBottomOffset(Guid wallId, Guid wallLayerId)
* Description: Gets the bottom offset for a layer in a wall instance (e.g., for stepped layers).
* Example: bottom\_offset = va.GetWallLayerBottomOffset(wall\_id, layer\_id)

SetWallLayerBottomOffset

* Signature: Boolean SetWallLayerBottomOffset(Guid wallId, Guid wallLayerId, Double offset)
* Description: Sets the bottom offset for a layer in a wall instance. Returns True on success.
* Example: success = va.SetWallLayerBottomOffset(wall\_id, layer\_id, -0.1) # e.g., lower by 10cm

GetWallLayerBottomOffsetSource

* Signature: ValueSource GetWallLayerBottomOffsetSource(Guid wallId, Guid wallLayerId)
* Description: Gets the source for a layer's bottom offset in a wall instance.
* Example: source = va.GetWallLayerBottomOffsetSource(wall\_id, layer\_id)

SetWallLayerBottomOffsetSource

* Signature: Boolean SetWallLayerBottomOffsetSource(Guid wallId, Guid wallLayerId, ValueSource source)
* Description: Sets the source for a layer's bottom offset in a wall instance. Returns True on success.
* Example: success = va.SetWallLayerBottomOffsetSource(wall\_id, layer\_id, va.ValueSource.Style)

GetWallLayerTopOffset

* Signature: Double GetWallLayerTopOffset(Guid wallId, Guid wallLayerId)
* Description: Gets the top offset for a layer in a wall instance.
* Example: top\_offset = va.GetWallLayerTopOffset(wall\_id, layer\_id)

SetWallLayerTopOffset

* Signature: Boolean SetWallLayerTopOffset(Guid wallId, Guid wallLayerId, Double offset)
* Description: Sets the top offset for a layer in a wall instance. Returns True on success.
* Example: success = va.SetWallLayerTopOffset(wall\_id, layer\_id, 0.2) # e.g., extend by 20cm

GetWallLayerTopOffsetSource

* Signature: ValueSource GetWallLayerTopOffsetSource(Guid wallId, Guid wallLayerId)
* Description: Gets the source for a layer's top offset in a wall instance.
* Example: source = va.GetWallLayerTopOffsetSource(wall\_id, layer\_id)

SetWallLayerTopOffsetSource

* Signature: Boolean SetWallLayerTopOffsetSource(Guid wallId, Guid wallLayerId, ValueSource source)
* Description: Sets the source for a layer's top offset in a wall instance. Returns True on success.
* Example: success = va.SetWallLayerTopOffsetSource(wall\_id, layer\_id, va.ValueSource.Object)

GetWallLayerOffset

* Signature: Double GetWallLayerOffset(Guid wallLayerId)
* Description: Gets the offset for a wall layer (likely style-level lateral offset for layers).
* Example: offset = va.GetWallLayerOffset(layer\_id)

ExtendWallToObject

* Signature: Boolean ExtendWallToObject(Guid wallId, WallExtendDirection direction, Guid objectId)
* Description: Extends the wall to intersect/touch another object (e.g., roof/slab) in the specified direction. Returns True on success.
* Example: success = va.ExtendWallToObject(wall\_id, va.WallExtendDirection.Top, roof\_id)
* Notes: ObjectId can be any Rhino object; wall updates dynamically.

UnextendWallFromObject

* Signature: Boolean UnextendWallFromObject(Guid wallId, WallExtendDirection direction, Guid objectId)
* Description: Removes extension from a specific object. Returns True on success.
* Example: success = va.UnextendWallFromObject(wall\_id, va.WallExtendDirection.Top, roof\_id)

UnextendWallFromAllObjects

* Signature: Boolean UnextendWallFromAllObjects(Guid wallId, WallExtendDirection direction)
* Description: Removes all extensions in the specified direction. Returns True on success.
* Example: success = va.UnextendWallFromAllObjects(wall\_id, va.WallExtendDirection.Bottom)

IsWallExtended

* Signature: Boolean IsWallExtended(Guid wallId, WallExtendDirection direction)
* Description: Checks if the wall is extended in the specified direction.
* Example: extended = va.IsWallExtended(wall\_id, va.WallExtendDirection.Top)

IsWallExtendedToObject

* Signature: Boolean IsWallExtendedToObject(Guid wallId, WallExtendDirection direction, Guid objectId)
* Description: Checks if the wall is extended to a specific object in the direction.
* Example: extended\_to = va.IsWallExtendedToObject(wall\_id, va.WallExtendDirection.Top, roof\_id)

GetWallExtensionObjects

* Signature: Guid[] GetWallExtensionObjects(Guid wallId, WallExtendDirection direction)
* Description: Gets array of Guids for objects the wall is extended to in the direction.
* Example: objects = va.GetWallExtensionObjects(wall\_id, va.WallExtendDirection.Top)

GetStyleComponentName

* Signature: String GetStyleComponentName(Guid componentId)
* Description: Gets the name of a style component (e.g., wall layer).
* Example: name = va.GetStyleComponentName(layer\_id) print(name) # e.g., "Brick Layer"

SetWallHeight

* Signatures (Overloads):
  + Boolean SetWallHeight(Guid wallId, Double height)
  + Boolean SetWallHeight(Guid wallId, Double height, ValueSource heightSource)
* Description: Sets the height for a wall instance, optionally with source (e.g., override style). Returns True on success.
* Example:  
   Basic  
   success = va.SetWallHeight(wall\_id, 3.5)  
   With source  
   success = va.SetWallHeight(wall\_id, 3.5, va.ValueSource.Object) # Manual override
* Notes: Use GetWallHeightSource to query source. ValueSource: None (inherited?), Object (manual), Style (from style).

GetWallHeight

* Signature: Double GetWallHeight(Guid wallId)
* Description: Gets the height of a wall instance.
* Example: height = va.GetWallHeight(wall\_id)

GetWallHeightSource

* Signature: ValueSource GetWallHeightSource(Guid wallId)
* Description: Gets the height source for a wall instance (e.g., Object, Style).
* Example: source = va.GetWallHeightSource(wall\_id) print(source) # e.g., Style

GetWallPathCurve

* Signature: Curve GetWallPathCurve(Guid wallId)
* Description: Gets the path curve of a wall instance.
* Example: path = va.GetWallPathCurve(wall\_id) rs.AddCurve(path) # Visualize in Rhino

SetWallPathCurve

* Signature: Boolean SetWallPathCurve(Guid wallId, Curve curve)
* Description: Sets the path curve for a wall instance. Returns True on success.
* Example: new\_curve = rs.AddLine((0,0,0), (10,0,0)) curve = rs.coercecurve(new\_curve) success = va.SetWallPathCurve(wall\_id, curve)
* Notes: Curve should be planar/open; updates geometry.

IsWall

* Signature: Boolean IsWall(Guid id)
* Description: Checks if the Guid is a wall instance.
* Example: is\_wall = va.IsWall(object\_id)

IsWallLayer

* Signature: Boolean IsWallLayer(Guid id)
* Description: Checks if the Guid is a wall layer component.
* Example: is\_layer = va.IsWallLayer(component\_id)

IsWallStyle

* Signature: Boolean IsWallStyle(Guid id)
* Description: Checks if the Guid is a wall style.
* Example: is\_style = va.IsWallStyle(style\_id)

GetWallStyleId

* Signature: Guid GetWallStyleId(String name)
* Description: Gets the Guid of a wall style by name.
* Example: style\_id = va.GetWallStyleId("MyWall")
* Notes: Returns Guid.Empty if not found.

DeleteStyle

* Signature: Boolean DeleteStyle(Guid styleId)
* Description: Deletes a style. Returns True on success.
* Example: success = va.DeleteStyle(style\_id)
* Notes: May fail if style in use; use DeleteStyleComponent for components like layers.

Other Methods to Document

* SetStyleComponentMaterialIndex: For assigning materials to style components like wall layers.
  + Signature: Boolean SetStyleComponentMaterialIndex(Guid componentId, Int32 materialIndex)
  + Description: Assigns a Rhino material index to a style component (e.g., wall layer). Returns True on success.
  + Example: mat\_index = rs.AddMaterial() # Create material first; returns index success = va.SetStyleComponentMaterialIndex(layer\_id, mat\_index)
  + Notes: Material must exist in document. Use va.GetStyleComponentMaterialIndex(componentId) to query (returns Int32).
* GetWallLayers: To retrieve layers of a wall style.
  + Signature: Guid[] GetWallLayers(Guid wallStyleId)
  + Description: Returns array of Guids for all layers in the wall style (ordered exterior to interior).
  + Example: layers = va.GetWallLayers(style\_id) for layer in layers: print(va.GetStyleComponentName(layer)) # Get name
  + Notes: Use with GetWallLayerThickness, SetWallLayerThickness, etc.

Enums/Options Reference

* WallLayerWrapping: None (0), Ends (1), Openings (2) – [Flags]; combine e.g., Ends | Openings = 3 for both.
* WallLayerType: Normal (0), Core (1)
* WallAlignment: Left (0), Center (1), Right (2) – Relative to path.
* ValueSource: None (0), Object (1), Style (2) – For value inheritance (None=inherited/default, Object=manual, Style=from style).
* WallExtendDirection: Top (0), Bottom (1) – For extensions/offsets.