# ElementProperty: Functions Get Property information through Element

Property

## Functions

| | |
|---|---|
| afx_msg VARIANT | **OSPropertyUI::GetMemberReleaseSpec** (const VARIANT FAR &varnBeamNo, const VARIANT FAR &varnEnd, VARIANT FAR &varnReleaseArray, VARIANT FAR &varfSpringConstArray)<br>Get releases for the specified member at the specified end. |
| afx_msg VARIANT | **OSPropertyUI::GetMemberLocalOffSet** (const VARIANT FAR &varnBeamNo, const VARIANT FAR &varnEnd, VARIANT FAR &varfxOffSet, VARIANT FAR &varfyOffSet, VARIANT FAR &varfzOffSet)<br>Get beam end offsets in all three local directions. |
| afx_msg VARIANT | **OSPropertyUI::GetMemberGlobalOffSet** (const VARIANT FAR &varnBeamNo, const VARIANT FAR &varnEnd, VARIANT FAR &varfxOffSet, VARIANT FAR &varfyOffSet, VARIANT FAR &varfzOffSet)<br>Get beam end offsets in all three global directions. |
| afx_msg VARIANT | **OSPropertyUI::GetBeamProperty** (const VARIANT FAR &varnBeamNo, VARIANT FAR &varfWidth, VARIANT FAR &varfDepth, VARIANT FAR &varfAx, VARIANT FAR &varfAy, VARIANT FAR &varfAz, VARIANT FAR &varfIx, VARIANT FAR &varfIy, VARIANT FAR &varfIz)<br>Retrieve short member properties of the specified beam member. |
| afx_msg VARIANT | **OSPropertyUI::GetBeamPropertyAll** (const VARIANT FAR &varnBeamNo, VARIANT FAR &varfWidth, VARIANT FAR &varfDepth, VARIANT FAR &varfAx, VARIANT FAR &varfAy, VARIANT FAR &varfAz, VARIANT FAR &varfIx, VARIANT FAR &varfIy, VARIANT FAR &varfIz, VARIANT FAR &varfTf, VARIANT FAR &varfTw)<br>Retrieve long member properties of the specified beam member. |
| afx_msg VARIANT | **OSPropertyUI::GetBeamConstants** (const VARIANT FAR &varnBeamNo, VARIANT FAR &vardElasticity, VARIANT FAR &vardPoisson, VARIANT FAR &vardDensity, VARIANT FAR &vardAlpha, VARIANT FAR &vardDamp)<br>Get material constants by specified beam number ID. |
| afx_msg VARIANT | **OSPropertyUI::GetElementLocalOffset** (const VARIANT FAR &varnPlateNo, const VARIANT FAR &varnPlateNodeIndex, VARIANT FAR &varfOffsetX, VARIANT FAR &varfOffsetY, VARIANT FAR &varfOffsetZ)<br>Get element offsets in all three local directions. |
| afx_msg VARIANT | **OSPropertyUI::GetElementGlobalOffset** (const VARIANT FAR &varnPlateNo, const VARIANT FAR &varnPlateNodeIndex, VARIANT FAR &varfOffsetX, VARIANT FAR &varfOffsetY, VARIANT FAR &varfOffsetZ)<br>Get element offsets in all three local directions. |
| afx_msg VARIANT | **OSPropertyUI::GetElementOffsetSpec** (const VARIANT FAR &varnPlateNo, const VARIANT FAR &varnPlateNodeIndex, VARIANT FAR &varnDirection, VARIANT FAR &varfxOffSet, |

| | |
|---|---|
| | VARIANT FAR &varfyOffSet, VARIANT FAR &varfzOffSet)<br>Get Element offsets in all three global directions. |
| afx_msg VARIANT | **OSPropertyUI::GetPlateSectionPropertyRefNo** (const VARIANT FAR &varnPlateNo)<br>Get the assigned section property ID of specified plate. |

## Detailed Description

These functions are related to get section or material information by element.

## Function Documentation

### ◆ GetBeamConstants()

```
VARIANT OSPropertyUI::GetBeamConstants ( const VARIANT FAR & varnBeamNo,
                                         VARIANT FAR &       vardElasticity,
                                         VARIANT FAR &       vardPoisson,
                                         VARIANT FAR &       vardDensity,
                                         VARIANT FAR &       vardAlpha,
                                         VARIANT FAR &       vardDamp )
```

Get material constants by specified beam number ID.

**Parameters**

| | | |
|---|---|---|
| [in] | **varnBeamNo** | The beam number ID.(Type: Long) |
| [out] | **vardElasticity** | Modulus of elasticity (**E**).(Type: Double) |
| [out] | **vardPoisson** | Poisson's ratio (**POI**).(Type: Double) |
| [out] | **vardDensity** | Weight density (**DEN**).(Type: Double) |
| [out] | **vardAlpha** | Coefficient of thermal expansion (**ALP**).(Type: Double) |
| [out] | **vardDamp** | Damping ratio (**DAMP**).(Type: Double) |

**Return values**

| | |
|---|---|
| **TRUE** | Beam Constants found. |
| **FALSE** | Beam not found/beam constants not found. |

**C++ Syntax**

```
// vardElasticity, vardPoisson, vardDensity, vardAlpha, vardDamp.
// Get properties of beam #11.
VARIANT RetVal = OSPropertyUI::GetBeamConstants(11, &vardElasticity, &vardPoisson,
       &vardDensity, &vardAlpha, &vardDamp);
```

**VBA Syntax**

```
Option Explicit

   Sub Main
       Dim objOpenStaad As Object
       Dim stdFile As String
       Dim BeamNo As Long
       Dim Elasticity As Double
       Dim Poisson As Double
       Dim Density As Double
       Dim Alpha As Double
       Dim Damp As Double
       Dim Res As Boolean

       Set objOpenStaad = GetObject(,"StaadPro.OpenSTAAD")
       objOpenStaad.GetSTAADFile stdFile, "TRUE"
       BeamNo = 10
       Res = objOpenStaad.GetPropertyUI.GetBeamConstants(BeamNo,Elasticity,Poisson,Density,Alpha,Damp)
```

```
End Sub
```

## GetBeamProperty()

```
VARIANT OSPropertyUI::GetBeamProperty ( const VARIANT FAR & varnBeamNo,
                                        VARIANT FAR &       varfWidth,
                                        VARIANT FAR &       varfDepth,
                                        VARIANT FAR &       varfAx,
                                        VARIANT FAR &       varfAy,
                                        VARIANT FAR &       varfAz,
                                        VARIANT FAR &       varfIx,
                                        VARIANT FAR &       varfIy,
                                        VARIANT FAR &       varfIz )
```

Retrieve short member properties of the specified beam member.

**Parameters**

| | | |
|---|---|---|
| `[in]` | **varnBeamNo** | The beam number ID. (Type: Int) |
| `[out]` | **varfWidth** | Width of the section (**WID**). (Type: Double) |
| `[out]` | **varfDepth** | Depth of the section (**DEP**). (Type: Double) |
| `[out]` | **varfAx** | Cross section area (**Ax**). (Type: Double) |
| `[out]` | **varfAy** | Shear area in local y-axis. If zero, shear deformation is ignored in the analysis (**Ay**). (Type: Double) |
| `[out]` | **varfAz** | Shear area in local z-axis. If zero, shear deformation is ignored in the analysis (**Az**). (Type: Double) |
| `[out]` | **varfIx** | Moment of inertia about local z-axis (**Ix**). (Type: Double) |
| `[out]` | **varfIy** | Moment of inertia about local y-axis (**Iy**). (Type: Double) |
| `[out]` | **varfIz** | Torsional constant (**Iz**). (Type: Double) |

**Return values**

**1** OK.

**0** General Error

**0** Cannot find member **nMemberNo**.

**0** No property is attached to the member/element.

**C++ Syntax**

```
// varfWidth, varfDepth, varfAx, varfAy, varfAz, varfIx, varfIy and varfIz.
// Get all properties of beam #11.
VARIANT RetVal = OSPropertyUI::GetBeamProperty(11, &varfWidth, &varfDepth, &varfAx,
       &varfAy, &varfAz, &varfIx, &varfIy, &varfIz);
```

**VBA Syntax**

```
Sub Main
    Dim oProperty As Object
    Dim stdFile As String
```

```
    Dim result As Integer

    ' varfWidth, varfDepth, varfAx, varfAy, varfAz, varfIx, varfIy and varfIz.
    ' Get all properties of beam #11.

    Set objOpenStaad = GetObject(,"StaadPro.OpenSTAAD")
    objOpenStaad.GetSTAADFile stdFile, "TRUE"
    result = objOpenStaad.Property.GetBeamProperty(11, &varfWidth, &varfDepth, &varfAx,
       &varfAy, &varfAz, &varfIx, &varfIy, &varfIz)
End Sub
```

**See also**

**OSPropertyUI::GetBeamPropertyAll**

## ◆ GetBeamPropertyAll()

```
VARIANT OSPropertyUI::GetBeamPropertyAll ( const VARIANT FAR & varnBeamNo,
                                           VARIANT FAR &       varfWidth,
                                           VARIANT FAR &       varfDepth,
                                           VARIANT FAR &       varfAx,
                                           VARIANT FAR &       varfAy,
                                           VARIANT FAR &       varfAz,
                                           VARIANT FAR &       varfIx,
                                           VARIANT FAR &       varfIy,
                                           VARIANT FAR &       varfIz,
                                           VARIANT FAR &       varfTf,
                                           VARIANT FAR &       varfTw )
```

Retrieve long member properties of the specified beam member.

**Parameters**

| | | |
|---|---|---|
| [in] | **varnBeamNo** | The beam number ID. (Type: Int) |
| [out] | **varfWidth** | Width of the section (**WID**). (Type: Double) |
| [out] | **varfDepth** | Depth of the section (**DEP**). (Type: Double) |
| [out] | **varfAx** | Cross section area (**Ax**). (Type: Double) |
| [out] | **varfAy** | Shear area in local y-axis. If zero, shear deformation is ignored in the analysis (**Ay**). (Type: Double) |
| [out] | **varfAz** | Shear area in local z-axis. If zero, shear deformation is ignored in the analysis (**Az**). (Type: Double) |
| [out] | **varfIx** | Moment of inertia about local z-axis (**Ix**). (Type: Double) |
| [out] | **varfIy** | Moment of inertia about local y-axis (**Iy**). (Type: Double) |
| [out] | **varfIz** | Torsional constant (**Iz**). (Type: Double) |
| [out] | **varfTf** | Thickness of top flange (**Tf**). (Type: Double) |
| [out] | **varfTw** | Thickness of web (**Tw**). (Type: Double) |

**Return values**

**1** OK.

**0** Cannot find member **nMemberNo**.

**0** No property is attached to the member/element.

**C++ Syntax**

```
// varfWidth, varfDepth, varfAx, varfAy, varfAz, varfIx, varfIy, varfIz, varfTf and
       varfTw.
// Get all properties of beam #11.
VARIANT RetVal = OSPropertyUI::GetBeamPropertyAll(11, &varfWidth, &varfDepth, &varfAx,
                                                  &varfIx, &varfIy, &varfIz, &varfTf, &varfTw);
```

**C# Syntax**

```
// Get all properties of beam #11
OpenSTAADUI.OpenSTAAD os = Marshal.GetActiveObject("StaadPro.OpenSTAAD") as
       OpenSTAADUI.OpenSTAAD;
long nBeamNo = 11;

double dActualW = 0.0, dActualD = 0.0, dActualAX = 0.0, dActualAY = 0.0, dActualAZ = 0.0,
       dActualIX = 0.0, dActualIY = 0.0, dActualIZ = 0.0, dActualTF = 0.0, dActualTW =
       0.0;
int rValue = os.Property.GetBeamPropertyAll(nBeamNo, ref dActualW, ref dActualD, ref
       dActualAX, ref dActualAY, ref dActualAZ, ref dActualIX
              , ref dActualIY, ref dActualIZ, ref dActualTF, ref dActualTW);
```

**VBA Syntax**

```
' Get all properties of beam #11.
 Sub Main
     Dim objOpenStaad As Object
     Dim stdFile As String
     Dim result As Boolean
     Dim Width As Double, Depth As Double, Ax As Double, Ay As Double, Az As Double, Ix
       As Double, Iy As Double, Iz As Double, Tf As Double, Tw As Double

     Set objOpenStaad = GetObject(,"StaadPro.OpenSTAAD")
     objOpenStaad.GetSTAADFile stdFile, "TRUE"
     result = objOpenStaad.Property.GetBeamPropertyAll(11, Width, Depth, Ax, Ay, Az, Ix,
       Iy, Iz, Tf, Tw)
 End Sub
```

**See also**

OSPropertyUI::GetBeamProperty

## ◆ GetElementGlobalOffset()

```
VARIANT OSPropertyUI::GetElementGlobalOffset ( const VARIANT FAR & varnPlateNo,
                                               const VARIANT FAR & varnPlateNodeIndex,
                                               VARIANT FAR &       varfOffsetX,
                                               VARIANT FAR &       varfOffsetY,
                                               VARIANT FAR &       varfOffsetZ )
```

Get element offsets in all three local directions.

**Parameters**

| | | |
|---|---|---|
| [in] | **nPlateNo** | The plate number ID. |
| [in] | **nPlateNodeIndex** | The Node Index at which the offset is to be applied (1/2/3/4). |
| [out] | **dxOffSet** | The offset x in coordinate (global). |
| [out] | **dyOffSet** | The offset y in coordinate (global). |
| [out] | **dzOffSet** | The offset y in coordinate (global). |

**Return values**

| | |
|---|---|
| **0** | OK. |
| **-4001** | Cannot find member **nPlateNo**. |
| **-6027** | No OFFSET information is found for the node index. |

**C++ Syntax**

```
 // Get the element global offset.
long RetVal = COSProperty::GetMemberGlobalOffSet(nPlateNo, nNodeNo, &dxOffSet, &dyOffSet,
       &dzOffSet);
```

**VBA Syntax**

```
' Get the element global offset.
Dim RetVal As VARIANT = OSPropertyUI.GetMemberGlobalOffSet(varnPlateNo, nPlateNodeIndex,
       &varfxOffSet, &varfyOffSet, &varfzOffSet)
```

## ◆ GetElementLocalOffset()

```
VARIANT OSPropertyUI::GetElementLocalOffset ( const VARIANT FAR & varnPlateNo,
                                              const VARIANT FAR & varnPlateNodeIndex,
                                              VARIANT FAR &       varfOffsetX,
                                              VARIANT FAR &       varfOffsetY,
                                              VARIANT FAR &       varfOffsetZ )
```

Get element offsets in all three local directions.

**Parameters**

| | | |
|---|---|---|
| [in] | **nPlateNo** | The plate number ID. |
| [in] | **nPlateNodeIndex** | The Node Index at which the offset is to be applied (1/2/3/4). |
| [out] | **dxOffSet** | The offset x in coordinate (local). |
| [out] | **dyOffSet** | The offset y in coordinate (local). |
| [out] | **dzOffSet** | The offset y in coordinate (local). |

**Return values**

| | |
|---|---|
| **0** | OK. |
| **-4001** | Cannot find member **nPlateNo**. |
| **-6027** | No OFFSET information is found for the node index. |

**C++ Syntax**

```
 // Get the element local offset.
long RetVal = COSProperty::GetElementLocalOffset(nPlateNo, nPlateNodeIndex, &dxOffSet,
       &dyOffSet, &dzOffSet);
```

**VBA Syntax**

```
' Get the element local offset.
Dim RetVal As VARIANT = OSPropertyUI.GetElementLocalOffset(varnPlateNo, nPlateNodeIndex,
       &varfxOffSet, &varfyOffSet, &varfzOffSet)
```

## ◆ GetElementOffsetSpec()

```
VARIANT OSPropertyUI::GetElementOffsetSpec ( const VARIANT FAR & varnPlateNo,
                                             const VARIANT FAR & varnPlateNodeIndex,
                                             VARIANT FAR &       varnDirection,
                                             VARIANT FAR &       varfxOffSet,
                                             VARIANT FAR &       varfyOffSet,
                                             VARIANT FAR &       varfzOffSet )
```

Get Element offsets in all three global directions.

**Parameters**

| | | |
|---|---|---|
| [in] | **nPlateNo** | The plate number ID. |
| [in] | **nPlateNodeIndex** | nPlateNodeIndex The Node Index at which the offset is to be applied (1/2/3/4). |
| [out] | **nDirection** | The offset direction at Local (= 0) or Global (= 1) or Z-Offset (=2) of the member. |
| [out] | **dxOffSet** | The offset x in coordinate. |
| [out] | **dyOffSet** | The offset y in coordinate. |
| [out] | **dzOffSet** | The offset y in coordinate. |

**Return values**

| | |
|---|---|
| **0** | OK, Not offset. |
| **1** | OK, offset. |
| **-4001** | Cannot find element **nPlateNo**. |

**C++ Syntax**

```
 // Get the element offset.
long RetVal = COSProperty::GetElementOffsetSpec(nPlateNo, nPlateNodeIndex, &nDirection,
       &dxOffSet, &dyOffSet, &dzOffSet);
```

**VBA Syntax**

```
' Get the element global offset.
Dim RetVal As VARIANT = OSPropertyUI.GetElementOffsetSpec(varnPlateNo, nPlateNodeIndex,
       &varnDirection, &varfxOffSet, &varfyOffSet, &varfzOffSet)
```

## ◆ GetMemberGlobalOffSet()

```
VARIANT OSPropertyUI::GetMemberGlobalOffSet ( const VARIANT FAR & varnBeamNo,
                                              const VARIANT FAR & varnEnd,
                                              VARIANT FAR &       varfxOffSet,
                                              VARIANT FAR &       varfyOffSet,
                                              VARIANT FAR &       varfzOffSet )
```

Get beam end offsets in all three global directions.

**Parameters**

| | | |
|---|---|---|
| [in] | **varnBeamNo** | The beam number ID. |
| [in] | **varnEnd** | Member Start end (= 0); member End end (= 1). |
| [out] | **varfxOffSet** | The offset x in coordinate (global). |
| [out] | **varfyOffSet** | The offset y in coordinate (global). |
| [out] | **varfzOffSet** | The offset y in coordinate (global). |

**Return values**

| | |
|---|---|
| **0** | OK. |
| **-3001** | Cannot find member **varnBeamNo**. |
| **-6026** | Invalid member/element reference. |
| **-6027** | No OFFSET information is found for the member end. |

**C++ Syntax**

```
// Get the member global offset.
VARIANT RetVal = OSPropertyUI::GetMemberGlobalOffSet(varnBeamNo, varnEnd, &varfxOffSet,
       &varfyOffSet, &varfzOffSet);
```

**VBA Syntax**

```
 ' Get the member global offset.
Dim RetVal As VARIANT = OSPropertyUI.GetMemberGlobalOffSet(varnBeamNo, varnEnd,
       &varfxOffSet, &varfyOffSet, &varfzOffSet)
```

## ◆ GetMemberLocalOffSet()

```
VARIANT OSPropertyUI::GetMemberLocalOffSet ( const VARIANT FAR & varnBeamNo,
                                             const VARIANT FAR & varnEnd,
                                             VARIANT FAR &       varfxOffSet,
                                             VARIANT FAR &       varfyOffSet,
                                             VARIANT FAR &       varfzOffSet )
```

Get beam end offsets in all three local directions.

**Parameters**

| | | |
|---|---|---|
| [in] | **varnBeamNo** | The beam number ID. |
| [in] | **varnEnd** | Member Start end (= 0); member End end (= 1). |
| [out] | **varfxOffSet** | The offset x in coordinate (local). |
| [out] | **varfyOffSet** | The offset y in coordinate (local). |
| [out] | **varfzOffSet** | The offset y in coordinate (local). |

**Return values**

| | |
|---|---|
| **0** | OK. |
| **-3001** | Cannot find member **varnBeamNo**. |
| **-6026** | Invalid member/element reference. |
| **-6027** | No OFFSET information is found for the member end. |

**C++ Syntax**

```
// Get the member local offset.
VARIANT RetVal = OSPropertyUI::GetMemberLocalOffSet(varnBeamNo, varnEnd, &varfxOffSet,
       &varfyOffSet, &varfzOffSet);
```

**VBA Syntax**

```
' Get the member local offset.
Dim RetVal As VARIANT = OSPropertyUI.GetMemberLocalOffSet(varnBeamNo, varnEnd,
       &varfxOffSet, &varfyOffSet, &varfzOffSet)
```

## ◆ GetMemberReleaseSpec()

```
VARIANT OSPropertyUI::GetMemberReleaseSpec ( const VARIANT FAR & varnBeamNo,
                                             const VARIANT FAR & varnEnd,
                                             VARIANT FAR &       varnReleaseArray,
                                             VARIANT FAR &       varfSpringConstArray )
```

Get releases for the specified member at the specified end.

**Parameters**

| | | |
|---|---|---|
| [in] | **varnBeamNo** | The beam number ID. |
| [in] | **varnEnd** | Member Start end (= 0); member End end (= 1). |
| [out] | **varnReleaseArray** | Translational release VARIANT array with 6 elements for 6 DOFs. @ Element value: No release or spring = 0, release = 1, spring = -1, Only MP defined = -3 , MPX, MPY or MPZ defined = -2 . |
| [out] | **varfSpringConstArray** | Rotational releases VARIANT array with 6 elements for 6 DOFs @ Element values Spring value or partial moment factor in floating point number |

**Return values**

**1** OK.

**0** General error.

**C++ Syntax**

```
// Get the release specification of member #2 of End end.
VARIANT RetVal = OSPropertyUI::GetMemberReleaseSpec(2, 1, &varnReleaseArray,
       &varfSpringConstArray);
```

**VBA Syntax**

```
 ' Get the release specification of member #2 of End end.
Option Explicit

    Sub Main
        Dim objOpenStaad As Object
        Dim stdFile As String
        Dim varnReleaseArray(5) As Long
        Dim varfSpringConstArray(5) As Double
        Dim result As Long

        Set objOpenStaad = GetObject(,"StaadPro.OpenSTAAD")
        objOpenStaad.GetSTAADFile stdFile, "TRUE"
       result = objOpenStaad.Property.GetMemberReleaseSpec (2, 0, varnReleaseArray,
       varfSpringConstArray)
    End Sub
```



## GetPlateSectionPropertyRefNo()

VARIANT OSPropertyUI::GetPlateSectionPropertyRefNo ( const VARIANT FAR & varnPlateNo )

Get the assigned section property ID of specified plate.

**Parameters**

[in] **nPlateNo** The plate number ID.

**Return values**

**<Val>** the assigned section property ID.

**-4001** Cannot find plate **nPlateNo**.

**-6022** No property is attached to the plate.

**C++ Syntax**

```
// Get the assigned section property ID of plate #3
long nProperty = OSPropertyUI::GetPlateSectionPropertyRefNo(3);
```

**VBA Syntax**

```
' Get the assigned section property ID of plate #3
Dim strMaterialName As VARIANT = OSPropertyUI.GetPlateSectionPropertyRefNo(3)
```