Result: Plates

Analysis Results

Functions

afx_msg VARIANT	**OSOutputUI::GetAllPlateCenterStressesAndMoments** (const VARIANT FAR &nPlateNo, const VARIANT FAR &nLC, VARIANT FAR &pdStresses) Returns plate center stresses and moments for the specified plate for specified load case.
afx_msg VARIANT	**OSOutputUI::GetPlateCenterNormalPrincipalStresses** (const VARIANT FAR &nPlateNo, const VARIANT FAR &nLC, VARIANT FAR &pdSMAXTop, VARIANT FAR &pdSMINTop, VARIANT FAR &pdSMAXBottom, VARIANT FAR &pdSMINBottom) Returns principal stresses of specified plate.
afx_msg VARIANT	**OSOutputUI::GetAllPlateCenterForces** (const VARIANT FAR &nPlateNo, const VARIANT FAR &nLC, VARIANT FAR &pdForces) Returns plate center stresses (Shear & Membrane) for the specified plate for specified load case.
afx_msg VARIANT	**OSOutputUI::GetAllPlateCenterMoments** (const VARIANT FAR &nPlateNo, const VARIANT FAR &nLC, VARIANT FAR &pdMoments) Returns plate center moments for the specified plate for specified load case.
afx_msg VARIANT	**OSOutputUI::GetAllPlateCenterPrincipalStressesAndAngles** (const VARIANT FAR &nPlateNo, const VARIANT FAR &nLC, VARIANT FAR &pdStresses) Returns principal stresses and angles of specified plate.
afx_msg VARIANT	**OSOutputUI::GetAllPlateCenterPrincipalStressesAndAnglesEx** (const VARIANT FAR &nPlateNo, const VARIANT FAR &nLC, VARIANT FAR &pdStresses, VARIANT FAR &pdAngles) Returns principal stresses and angles of specified plate.
afx_msg VARIANT	**OSOutputUI::GetPlateCenterVonMisesStresses** (const VARIANT FAR &nPlateNo, const VARIANT FAR &nLC, VARIANT FAR &pdVONT, VARIANT FAR &pdVONB) Returns Von Mises stresses at center of specified plate for specified load case.
afx_msg VARIANT	**OSOutputUI::GetPlateCornerForces** (const VARIANT FAR &nPlateNo, const VARIANT FAR &nCornerNode, const VARIANT FAR &nLC, VARIANT FAR &pdForces) Returns nodal forces at 4 corners of specified plate at load case.
afx_msg VARIANT	**OSOutputUI::GetResultantForceAlongLineForPlateList** (VARIANT FAR &plateList, const VARIANT FAR &nplates, VARIANT FAR &loadIdList, VARIANT FAR &startNode, VARIANT FAR &endNode, const VARIANT FAR &isTransformForceToGlobal, const VARIANT FAR &firstNode, const VARIANT FAR &secondNode, const VARIANT FAR &thirdNode, VARIANT FAR &resultantForces) Returns forces and moments along the cut line for a particular load case.
afx_msg VARIANT	**OSOutputUI::GetResultantForceAlongLineForParametricSurface** (const VARIANT FAR &parametricSurfaceName, VARIANT FAR &loadIdList, VARIANT FAR &startNode, VARIANT

	FAR &endNode, const VARIANT FAR &isTransformForceToGlobal, const VARIANT FAR &firstNode, const VARIANT FAR &secondNode, const VARIANT FAR &thirdNode, VARIANT FAR &resultantForces) Returns forces and moments along the cut line for a particular load case.
afx_msg VARIANT	**OSOutputUI::GetPlateStressAtPoint** (const VARIANT FAR &plateNo, const VARIANT FAR &loadId, VARIANT FAR &stressPoint, VARIANT FAR &facingPoint, VARIANT FAR &stresses) Returns stresses values at a point on a specified plate.

Detailed Description

These functions are related to output analysis plate results.

Function Documentation

◆ GetAllPlateCenterForces()

VARIANT OSOutputUI::GetAllPlateCenterForces (const VARIANT FAR & nPlateNo,
const VARIANT FAR & nLC,
VARIANT FAR & pdForces)

Returns plate center stresses (Shear & Membrane) for the specified plate for specified load case.

Parameters

[in] **nPlateNo** Plate number ID.

[in] **nLC** Load Case reference ID.

[out] **pdForces** VARIANT array [**SQX**, **SQY**, **SX**,**SY**, **SXY**]:

Variable	Load Type
SQX	Shear stress on the local X face in the Z direction
SQY	Shear stress on the local Y face in the Z direction
SX	Axial stress in the local X direction
SY	Axial stress in the local Y direction
SXY	Shear stress in the local XY plane

For additional information, please refer to Section: "Sign Convention of Plate Element Stresses and Moments" and Section 5.42 of the Technical Reference manual.

Returns

Boolean (TRUE/FALSE) whether succeeded or not.

VBA Syntax

```
'Get All Plate Center Forces for Plate #5, load case 1.
Sub AllPlateCenterForces()
  Dim Lcase As Long
  Dim RetVal As Variant
  Dim nPlateNo As Long
  Dim count As Integer
  Dim pdSForces(0 To 4) As Double

'Launch OpenSTAAD Object
On Error GoTo ErrHandler
  Set objOpenSTAAD = GetObject(, "StaadPro.OpenSTAAD")

'Is Analysis Completed
  Cells(1, 2).Value = objOpenSTAAD.Output.AreResultsAvailable()

'Get All Plate Center Forces
  nPlateNo = Cells(67, 1).Value     'PlateNo = 5
  Lcase = Cells(65, 2).Value        'LoadCase  = 1
  RetVal = objOpenSTAAD.Output.GetAllPlateCenterForces(nPlateNo, Lcase, pdSForces)
  'Get All Plate Center Forces for Plate #5, load case 1.
  For count = 1 To 5
  Cells(67, count + 1).Value = pdSForces(count - 1)
  Next

Set objOpenSTAAD = Nothing
```

```
Exit Sub

ErrHandler:
  MsgBox ("Run StaadPro First" & vbCrLf)
Resume Next
End Sub
```

See also

OSOutputUI::GetAllPlateCenterStressesAndMoments

◆ GetAllPlateCenterMoments()

VARIANT OSOutputUI::GetAllPlateCenterMoments (const VARIANT FAR & nPlateNo,
const VARIANT FAR & nLC,
VARIANT FAR & pdForces)

Returns plate center moments for the specified plate for specified load case.

Parameters

[in] **nPlateNo** Plate number ID.

[in] **nLC** Load Case reference ID.

[out] **pdForces** VARIANT array [**MX**, **MY**, **MXY**]:

Variable	Load Type
MX	Moment per unit width about the local X face
MY	Moment per unit width about the local Y face
MXY	Torsional Moment per unit width in the local X-Y plane

For additional information, please refer to Section: "Sign Convention of Plate Element Stresses and Moments" and Section 5.42 of the Technical Reference manual.

Returns

Boolean (TRUE/FALSE) whether succeeded or not.

VBA Syntax

```
'Get All Plate Center Moments for Plate #5, load case 1.
Sub AllPlateCenterMoments()
  Dim Lcase As Long
  Dim RetVal As Variant
  Dim nPlateNo As Long
  Dim count As Integer
  Dim pdMSForces(0 To 2) As Double

'Launch OpenSTAAD Object
On Error GoTo ErrHandler
  Set objOpenSTAAD = GetObject(, "StaadPro.OpenSTAAD")

'Is Analysis Completed
  Cells(1, 2).Value = objOpenSTAAD.Output.AreResultsAvailable()

'Get All Plate Center Moments
  nPlateNo = Cells(71, 1).Value     'PlateNo = 5
  Lcase = Cells(69, 2).Value        'LoadCase  = 1
  RetVal = objOpenSTAAD.Output.GetAllPlateCenterMoments(nPlateNo, Lcase, pdMSForces)
  'Get All Plate Center Moments for Plate #5, load case 1.
  For count = 1 To 3
  Cells(71, count + 1).Value = pdMSForces(count - 1)
  Next

Set objOpenSTAAD = Nothing
Exit Sub

ErrHandler:
```

```
  MsgBox ("Run StaadPro First" & vbCrLf)
Resume Next
End Sub
```

See also

OSOutputUI::GetAllPlateCenterStressesAndMoments

◆ GetAllPlateCenterPrincipalStressesAndAngles()

VARIANT OSOutputUI::GetAllPlateCenterPrincipalStressesAndAngles (const VARIANT FAR & nPlateNo,
const VARIANT FAR & nLC,
VARIANT FAR & pdStresses)

Returns principal stresses and angles of specified plate.

Parameters

[in] **nPlateNo** Plate number ID.

[in] **nLC** Load Case reference ID.

[out] **pdStresses.** Array with 8 float values.

Variable	Description
pdStresses[0]	Top-Maximum in-plane Principal stress
pdStresses[1]	Top-Minimum in-plane Principal stress
pdStresses[2]	Top-Maximum in-plane Shear stress
pdStresses[3]	Bottom-Maximum in-plane Principal stress
pdStresses[4]	Bottom-Minimum in-plane Principal stress
pdStresses[5]	Bottom-Maximum in-plane Shear stress
pdStresses[6]	Top-Angle which determines direction of maximum principal stress with respect to local X axis
pdStresses[7]	Bottom-Angle which determines direction of maximum principal stress with respect to local X axis

For additional information, please refer to Section: "Sign Convention of Plate Element Stresses and Moments" and Section 5.42 of the Technical Reference manual.

Returns

Boolean (TRUE/FALSE) whether succeeded or not.

VBA Syntax

```
'Get All Plate Center Principal Stresses And Angles for Plate #5, load case 1.
Sub Main
        Dim objOpenStaad As Object
        Dim stdFile As String

        Set objOpenStaad = GetObject(,"StaadPro.OpenSTAAD")
        objOpenStaad.GetSTAADFile stdFile, "TRUE"
        If stdFile="" Then
            MsgBox"Bad"
            Set objOpenStaad = Nothing
            Exit Sub
        End If

        Dim stress(0 To 7) As Double
        Dim LC As Long
        Dim PlateNumber As Long
        Dim ret As Variant
```

```
        PlateNumber = 5
        LC = 1
        ret =
       objOpenStaad.Output.GetAllPlateCenterPrincipalStressesAndAngles(PlateNumber, LC,
       stress)

        MsgBox"Macro Ending"
        Set objOpenStaad = Nothing
    End Sub
```

See also

OSOutputUI::GetPlateCenterNormalPrincipalStresses

OSOutputUI::GetAllPlateCenterPrincipalStressesAndAnglesEx

◆ GetAllPlateCenterPrincipalStressesAndAnglesEx()

VARIANT OSOutputUI::GetAllPlateCenterPrincipalStressesAndAnglesEx (const VARIANT FAR & nPlateNo,
const VARIANT FAR & nLC,
VARIANT FAR & pdStresses,
VARIANT FAR & pdAngles)

Returns principal stresses and angles of specified plate.

Parameters

[in] **nPlateNo** Plate number ID.

[in] **nLC** Load Case reference ID.

[out] **pdStresses** Array with 6 float values.

Variable	Description
pdStresses[0]	Top-Maximum in-plane Principal stress
pdStresses[1]	Top-Minimum in-plane Principal stress
pdStresses[2]	Top-Maximum in-plane Shear stress
pdStresses[3]	Bottom-Maximum in-plane Principal stress
pdStresses[4]	Bottom-Minimum in-plane Principal stress
pdStresses[5]	Bottom-Maximum in-plane Shear stress

Parameters

[out] **pdAngles** Array with 2 float values.

Variable	Description
pdAngles[0]	Top-Angle which determines direction of maximum principal stress with respect to local X axis
pdAngles[1]	Bottom-Angle which determines direction of maximum principal stress with respect to local X axis

For additional information, please refer to Section: "Sign Convention of Plate Element Stresses and Moments" and Section 5.42 of the Technical Reference manual.

Returns

Boolean (TRUE/FALSE) whether succeeded or not.

VBA Syntax

```
'Get All Plate Center Principal Stresses And Angles for Plate #5, load case 1.
Sub Main
        Dim objOpenStaad As Object
        Dim stdFile As String

        Set objOpenStaad = GetObject(,"StaadPro.OpenSTAAD")
        objOpenStaad.GetSTAADFile stdFile, "TRUE"
        If stdFile="" Then
```

```
            MsgBox"Bad"
            Set objOpenStaad = Nothing
            Exit Sub
        End If

        Dim stress(0 To 5) As Double
        Dim angle(0 To 1) As Double
        Dim LC As Long
        Dim PlateNumber As Long
        Dim ret As Variant

        PlateNumber = 5
        LC = 1
        ret =
       objOpenStaad.Output.GetAllPlateCenterPrincipalStressesAndAnglesEx(PlateNumber,
       LC, stress, angle)

        MsgBox"Macro Ending"
        Set objOpenStaad = Nothing
    End Sub
```

See also

OSOutputUI::GetPlateCenterNormalPrincipalStresses

OSOutputUI::GetAllPlateCenterPrincipalStressesAndAngles

◆ GetAllPlateCenterStressesAndMoments()

VARIANT OSOutputUI::GetAllPlateCenterStressesAndMoments (const VARIANT FAR & nPlateNo,
const VARIANT FAR & nLC,
VARIANT FAR & pdForces)

Returns plate center stresses and moments for the specified plate for specified load case.

Parameters

[in] **nPlateNo** Plate number ID.

[in] **nLC** Load Case reference ID.

[out] **pdForces** VARIANT array [**SQX**, **SQY**, **MX**, **MY**, **MXY**, **SX**,**SY**, **SXY**]:

Variable	Load Type
SQX	Shear stress on the local X face in the Z direction
SQY	Shear stress on the local Y face in the Z direction
MX	Moment per unit width about the local X face
MY	Moment per unit width about the local Y face
MXY	Torsional Moment per unit width in the local X-Y plane
SX	Axial stress in the local X direction
SY	Axial stress in the local Y direction
SXY	Shear stress in the local XY plane

For additional information, please refer to Section: "Sign Convention of Plate Element Stresses and Moments" and Section 5.42 of the Technical Reference manual.

Returns

Boolean (TRUE/FALSE) whether succeeded or not.

VBA Syntax

```
'Get All Plate Center Stresses And Moments for Plate #5, load case 1.
Sub AllPlateCenterStressesAndMoments()
  Dim Lcase As Long
  Dim RetVal As Variant
  Dim nPlateNo As Long
  Dim count As Integer
  Dim pdSForces(0 To 7) As Double

'Launch OpenSTAAD Object
On Error GoTo ErrHandler
  Set objOpenSTAAD = GetObject(, "StaadPro.OpenSTAAD")

'Is Analysis Completed
  Cells(1, 2).Value = objOpenSTAAD.Output.AreResultsAvailable()

'Get All Plate Center Forces & Moments
  nPlateNo = Cells(71, 1).Value     'PlateNo = 5
  Lcase = Cells(69, 2).Value        'LoadCase  = 1
  RetVal = objOpenSTAAD.Output.GetAllPlateCenterStressesAndMoments(nPlateNo, Lcase,
       pdSForces)
```

```
  'Get All Plate Center Forces & Moments for Plate #5, load case 1.
  For count = 1 To 8
  Cells(75, count + 1).Value = pdSForces(count - 1)
  Next

Set objOpenSTAAD = Nothing
Exit Sub

ErrHandler:
  MsgBox ("Run StaadPro First" & vbCrLf)
Resume Next
End Sub
```

See also

OSOutputUI::GetPlateCenterNormalPrincipalStresses

OSOutputUI::GetAllPlateCenterForces

OSOutputUI::GetAllPlateCenterForces

◆ GetPlateCenterNormalPrincipalStresses()

```
VARIANT OSOutputUI::GetPlateCenterNormalPrincipalStresses ( const VARIANT FAR & nPlateNo,
                                                            const VARIANT FAR & nLC,
                                                            VARIANT FAR &       pdSMAXTop,
                                                            VARIANT FAR &       pdSMINTop,
                                                            VARIANT FAR &       pdSMAXBottom,
                                                            VARIANT FAR &       pdSMINBottom )
```

Returns principal stresses of specified plate.

Parameters

[in]	**nPlateNo**	Plate number ID.
[in]	**nLC**	Load Case reference ID.
[out]	**pdSMAXTop**	Maximum in-plane Principal stress at top surface of the plate (**SMAXT**).
[out]	**pdSMINTop**	Minimum in-plane Principal stress at top surface of the plate (**SMINT**).
[out]	**pdSMAXBottom**	Maximum in-plane Principal stress at top bottom of the plate (**SMAXB**).
[out]	**pdSMINBottom**	Minimum in-plane Principal stress at top bottom of the plate (**SMINB**). For additional information, please refer to Section: "Sign Convention of Plate Element Stresses and Moments" and Section 5.42 of the Technical Reference manual.

Returns

Boolean (TRUE/FALSE) whether succeeded or not.

VBA Syntax

```
'Get All Plate Center Normal Principal Stresses for Plate #5, load case 1.
Sub PlateCenterNormalPrincipalStresses()
  Dim Lcase As Long
  Dim RetVal As Variant
  Dim nPlateNo As Long
  Dim pdSMAXTop As Double
  Dim pdSMINTop As Double
  Dim pdSMAXBottom As Double
  Dim pdSMINBottom As Double

'Launch OpenSTAAD Object
On Error GoTo ErrHandler
  Set objOpenSTAAD = GetObject(, "StaadPro.OpenSTAAD")

'Is Analysis Completed
  Cells(1, 2).Value = objOpenSTAAD.Output.AreResultsAvailable()

'Get Plate Center Normal Principal Stresses
  nPlateNo = Cells(71, 1).Value     'PlateNo = 5
  Lcase = Cells(69, 2).Value        'LoadCase  = 1
  RetVal = objOpenSTAAD.Output.GetPlateCenterNormalPrincipalStresses(nPlateNo, Lcase,
       pdSMAXTop, pdSMINTop, pdSMAXBottom, pdSMINBottom)
  'Get All Plate Center Normal Principal Stresses for Plate #5, load case 1.
  Cells(81, 2).Value = pdSMAXTop
  Cells(81, 3).Value = pdSMINTop
```

```
  Cells(81, 4).Value = pdSMAXBottom
  Cells(81, 5).Value = pdSMINBottom

Set objOpenSTAAD = Nothing
Exit Sub

ErrHandler:
  MsgBox ("Run StaadPro First" & vbCrLf)
Resume Next
End Sub
```

See also

OSOutputUI::GetAllPlateCenterPrincipalStressesAndAngles

GetPlateCenterVonMisesStresses()

```
VARIANT OSOutputUI::GetPlateCenterVonMisesStresses ( const VARIANT FAR & nPlateNo,
                                                     const VARIANT FAR & nLC,
                                                     VARIANT FAR &       pdVONT,
                                                     VARIANT FAR &       pdVONB )
```

Returns Von Mises stresses at center of specified plate for specified load case.

Parameters

[in] **nPlateNo** Plate number ID.

[in] **nLC** Load Case reference ID.

[out] **pdVONT** Von Mises stress on the top surface of the plate

[out] **pdVONB** Von Mises stress on the bottom surface of the plate

Returns

Boolean (TRUE/FALSE) whether succeeded or not.

VBA Syntax

```
'Get Plate Center Von Mises Stresses for Plate #5, load case 1.
Sub PlateCenterVonMisesStresses()
  Dim Lcase As Long
  Dim RetVal As Variant
  Dim nPlateNo As Long
  Dim pdVONT As Double
  Dim pdVONB As Double

'Launch OpenSTAAD Object
On Error GoTo ErrHandler
  Set objOpenSTAAD = GetObject(, "StaadPro.OpenSTAAD")

'Is Analysis Completed
  Cells(1, 2).Value = objOpenSTAAD.Output.AreResultsAvailable()

'Get Plate Center Von Mises Stresses
  nPlateNo = Cells(71, 1).Value     'PlateNo = 5
  Lcase = Cells(69, 2).Value        'LoadCase  = 1
  RetVal = objOpenSTAAD.Output.GetPlateCenterVonMisesStresses(nPlateNo, Lcase, pdVONT,
       pdVONB)
  'Get Plate Center Von Mises Stresses for Plate #5, load case 1.
  Cells(85, 2).Value = pdVONT
  Cells(85, 3).Value = pdVONB

Set objOpenSTAAD = Nothing
Exit Sub

ErrHandler:
  MsgBox ("Run StaadPro First" & vbCrLf)
Resume Next
End Sub
```

- GetPlateCornerForces()

```
VARIANT OSOutputUI::GetPlateCornerForces ( const VARIANT FAR & nPlateNo,
                                           const VARIANT FAR & nCornerNode,
                                           const VARIANT FAR & nLC,
                                           VARIANT FAR &       pdForces )
```

Returns nodal forces at 4 corners of specified plate at load case.

Parameters

[in]	**nPlateNo**	Plate number ID.
[in]	**nCornerNode**	Corner Node No.
[in]	**nLC**	Load Case reference ID.
[out]	**pdForces**	

Returns

Boolean (TRUE/FALSE) whether succeeded or not.

VBA Syntax

```
'Get Plate Corner Forces for Plate #5, load case 1.
Sub PlateCornerForces()
  Dim Lcase As Long
  Dim RetVal As Variant
  Dim nPlateNo As Long
  Dim nCornerNode as Long
  Dim pdPCForces(0 To 5) As Double
  Dim count As Integer

'Launch OpenSTAAD Object
On Error GoTo ErrHandler
  Set objOpenSTAAD = GetObject(, "StaadPro.OpenSTAAD")

'Is Analysis Completed
  Cells(1, 2).Value = objOpenSTAAD.Output.AreResultsAvailable()

'Get Plate Corner Forces
  nPlateNo = Cells(71, 1).Value     'PlateNo = 5
  nCornerNode = Cells(70, 2).Value  'CornerNode  = 6
  Lcase = Cells(69, 2).Value        'LoadCase  = 1
  RetVal = objOpenSTAAD.Output.GetPlateCornerForces(nPlateNo, nCornerNode, Lcase,
       pdPCForces)
  'Get Plate Corner Forces for Plate #5, load case 1.
  For count = 1 To 6
  Cells(94, count + 1).Value = pdPCForces(count - 1)
  Next

Set objOpenSTAAD = Nothing
Exit Sub

ErrHandler:
  MsgBox ("Run StaadPro First" & vbCrLf)
Resume Next
End Sub
```

- GetPlateStressAtPoint()

```
VARIANT OSOutputUI::GetPlateStressAtPoint ( const VARIANT FAR & plateNo,
                                            const VARIANT FAR & loadNo,
                                            VARIANT FAR &       stressPoint,
                                            VARIANT FAR &       facingPoint,
                                            VARIANT FAR &       stresses )
```

Returns stresses values at a point on a specified plate.

Parameters

`[in]` **plateNo** Number of the plate (long)

`[in]` **loadNo** Load number for which stress is requested (long)

`[in]` **stressPoint** The coordinate at which the stress is required in global axes as an array size of 3 doubles. The values of x, y, z values of the point defined in the array index (0), (1) and (2).

`[in]` **facingPoint** x, y, z values of the facing node at indexes 0, 1 and 2. API always expects an array size of 3 doubles. Definition of facingPoint: It is the node which sits on the tip of a vector which is orthogonal to the vector stressPoint -> facingPoint and lies in the same plane as that of the plates through which the cut line passes.

`[out]` **stresses** stress array size of 32 doubles.

Array Index	stress Type
0	None
1	MaxAbs
2	TopMax
3	TopMin
4	TopTauMax
5	BotMax
6	BotMin
7	BotTauMax
8	MaxVM
9	VMTopMax
10	VMBotMax
11	MaxTresca
12	TopTresca
13	BotTresca
14	FX
15	FY
16	FXY

17	MX
18	MY
19	MZ
20	QX
21	QY
22	Global
23	GlobalMembraneStresses
24	GlobalshearStresses
25	BasePres
26	CombXTop
27	CombYTop
28	CombXYTop
29	CombXBot
30	CombYBot
31	CombXYBot

Returns

Boolean(TRUE / FALSE) whether succeeded or not.

VBA Syntax

```
Option Explicit
    Sub Main
        Dim objOpenStaad As Object
        Dim stdFile As String
        Set objOpenStaad = GetObject(,"StaadPro.OpenSTAAD")
        objOpenStaad.GetSTAADFile stdFile, "TRUE"
        If stdFile="" Then
            MsgBox"Bad"
            Set objOpenStaad = Nothing
            Exit Sub
        End If
        Dim RetVal As Variant
        Dim plateId As Long
        Dim loadId As Long
        Dim stressPoint(2) As Double
        Dim facingPoint(2) As Double
        Dim stresses(31) As Double
        plateId = 6
        loadId = 1
        stressPoint(0) = 1.5
        stressPoint(1) = 0
        stressPoint(2) = 1.5
        facingPoint(0) = 1.5
        facingPoint(1) = 0
        facingPoint(2) = 0
        RetVal = objOpenStaad.Output.GetPlateStressAtPoint(plateId, loadId, stressPoint,
       facingPoint, stresses)
```

```
    End Sub
```

Example (C# Syntax)

```
int nPlateNo = 1;
object objPlateNo = nPlateNo as object;
int nLoadNo = 1;
object objLoadNo = nLoadNo as object;
double[] dStressPoint = { 60, 0, 60 };
object objStressPoint = dStressPoint as object;
double[] dFacingPoint = { 0, 0, 60 };
object objFacingPoint = dFacingPoint as object;
double[] dStressvalues = new double[32];    //size hardcoded since it will be fixed all
       the time
object objStressValues = dStressvalues as object;

int rValue = m_OStd.Output.GetPlateStressAtPoint(objPlateNo, objLoadNo, objStressPoint,
       objFacingPoint, ref objStressValues);
```

◆ GetResultantForceAlongLineForParametricSurface()

```
VARIANT
OSOutputUI::GetResultantForceAlongLineForParametricSurface ( const VARIANT FAR & parametricSurfaceName
                                                             VARIANT FAR &       loadIdList,
                                                             VARIANT FAR &       startNode,
                                                             VARIANT FAR &       endNode,
                                                             const VARIANT FAR & isTransformForceToGlob
                                                             const VARIANT FAR & firstNode,
                                                             const VARIANT FAR & secondNode,
                                                             const VARIANT FAR & thirdNode,
                                                             VARIANT FAR &       resultantForces )
```

Returns forces and moments along the cut line for a particular load case.

Parameters

[in]	**parametricSurfaceName**	Name of the parametric surface
[in]	**nplates**	No of plates in plateList
[in]	**loadId**	the load case for plate analysis
[in]	**startNode**	x, y, z values of the start node at indexes 0, 1 and 2. API always expects an array size of 3.
[in]	**endNode**	x, y, z values of the end node at indexes 0, 1 and 2. API always expects an array size of 3.
[in]	**facingNode**	x, y, z values of the facing node at indexes 0, 1 and 2. API always expects an array size of 3. Definition of facingNode: It is the node which sits on the tip of a vector which is orthogonal to the vector startNode -> endNode and lies in the same plane as that of the plates through which the cut line passes.
[in]	**isTransformForceToGlobal**	1: return force in Global System 0: return forces in local system of cut line
[in]	**firstNode**	Node no representing the origin point for building the surface axis system
[in]	**secondNode**	Node no representing the second point for building the surface axis system
[in]	**thirdNode**	Node no representing the third point for building the surface axis system
[out]	**resultantForces**	Fx, Fy, Fz, Mx, My, Mz at array indexes 0, 1, 2, 3, 4, 5

Returns

Boolean(TRUE / FALSE) whether succeeded or not.

@Note: firstNode, secondNode and thirdNode provided by user forms the local axis system of the surface. Local X formed by vector firstNode -> secondNode. Local Y formed by vector secondNode -> thirdNode. Local Z formed internally by cross(Local X, Local Y). All three nodes must lie on the same plane and should be valid node numbers

Invalid node numbers would lead to API returning false. If users do not want to provide local axis system, they need to initialize these three node numbers by -1. In such a case, program will create the local axis from the plates present in the surface as default.

VBA Syntax

```
Dim objOpenStaad As Object
Dim stdFile As String
Dim RetVal As Variant
Dim surfaceName As String
Dim loadId As Long
Dim startNode(2) As Double
Dim endNode(2) As Double
Dim forces(0,5) As Double
Dim transformToGlobal As Long
Dim fx,fy,fz,mx,my,mz As Double

Set objOpenStaad = GetObject(,"StaadPro.OpenSTAAD")
objOpenStaad.GetSTAADFile stdFile, "TRUE"
If stdFile="" Then
    MsgBox"Bad"
    Set objOpenStaad = Nothing
    Exit Sub
End If

surfaceName = "WALL 1 "
loadId = 1
startNode(0) = 0
startNode(1) = 15
startNode(2) = 0
endNode(0) = 0
endNode(1) = 54
endNode(2) = 60
transformToGlobal = 1

RetVal = objOpenStaad.Output.GetResultantForceAlongLineForParametricSurface(surfaceName,
        loadId, startNode, endNode, transformToGlobal, firstNode, secondNode, thirdNode,
        forces)

fx = forces(0,0)
fy = forces(0,1)
fz = forces(0,2)
mx = forces(0,3)
my = forces(0,4)
mz = forces(0,5)
```

◆ GetResultantForceAlongLineForPlateList()

```
VARIANT
OSOutputUI::GetResultantForceAlongLineForPlateList      ( VARIANT FAR &       plateList,
                                                          const VARIANT FAR & nplates,
                                                          VARIANT FAR &       loadIdList,
                                                          VARIANT FAR &       startNode,
                                                          VARIANT FAR &       endNode,
                                                          const VARIANT FAR & isTransformForceToGlobal,
                                                          const VARIANT FAR & firstNode,
                                                          const VARIANT FAR & secondNode,
                                                          const VARIANT FAR & thirdNode,
                                                          VARIANT FAR &       resultantForces )
```

Returns forces and moments along the cut line for a particular load case.

Parameters

[in]	**plateList**	List of plates IDs. a) All plates in model, b) plates through which the cut line crosses (both would work but 'a' is computationally expensive)
[in]	**nplates**	No of plates in plateList
[in]	**loadId**	the load case for plate analysis
[in]	**startNode**	x, y, z values of the start node at indexes 0, 1 and 2. API always expects an array size of 3.
[in]	**endNode**	x, y, z values of the end node at indexes 0, 1 and 2. API always expects an array size of 3.
[in]	**facingNode**	x, y, z values of the facing node at indexes 0, 1 and 2. API always expects an array size of 3. Definition of facingNode: It is the node which sits on the tip of a vector which is orthogonal to the vector startNode -> endNode and lies in the same plane as that of the plates through which the cut line passes.
[in]	**isTransformForceToGlobal**	1: return force in Global System 0: return forces in local system of cut line
[in]	**firstNode**	Node no representing the origin point for building the surface axis system
[in]	**secondNode**	Node no representing the second point for building the surface axis system
[in]	**thirdNode**	Node no representing the third point for building the surface axis system
[out]	**resultantForces**	Fx, Fy, Fz, Mx, My, Mz at array indexes 0, 1, 2, 3, 4, 5

Returns

Boolean(TRUE / FALSE) whether succeeded or not.

@Note: firstNode, secondNode and thirdNode provided by user forms the local axis system of the surface. Local X formed by vector firstNode -> secondNode. Local Y formed by vector secondNode -> thirdNode. Local Z formed internally by cross(Local X, Local Y). All three nodes must lie on the same plane and should be valid node numbers. Invalid node numbers would lead to API returning false. If users do not want to provide local axis system, they need to initialize these three node numbers by -1. In such a case, program will create the local axis from the plates present in the surface as default.

VBA Syntax

```
Dim objOpenStaad As Object
Dim stdFile As String
Dim RetVal As Variant
Dim plateList(3) As Long
Dim loadIdList(0) As Long
Dim startNode(2) As Double
Dim endNode(2) As Double
Dim forces(0,5) As Double
Dim transformToGlobal As Long
Dim fx,fy,fz,mx,my,mz As Double

Set objOpenStaad = GetObject(,"StaadPro.OpenSTAAD")
objOpenStaad.GetSTAADFile stdFile, "TRUE"
If stdFile="" Then
    MsgBox"Bad"
    Set objOpenStaad = Nothing
    Exit Sub
End If

plateList(0) = 1
plateList(1) = 2
plateList(2) = 3
plateList(3) = 4
loadIdList(0) = 1
startNode(0) = 0
startNode(1) = 15
startNode(2) = 0
endNode(0) = 0
endNode(1) = 54
endNode(2) = 60
transformToGlobal = 1

RetVal = objOpenStaad.Output.GetResultantForceAlongLineForPlateList(plateList, nPlates,
       loadIdList, startNode, endNode, transformToGlobal, firstNode, secondNode,
       thirdNode, forces)

fx = forces(0,0)
fy = forces(0,1)
fz = forces(0,2)
mx = forces(0,3)
my = forces(0,4)
mz = forces(0,5)
```

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