



The diagram shows a frame structure with the following nodal loads and member end forces:

- Nodal Loads:**
 - Node 1 (bottom left): Vertical load of 10 kN (down), Horizontal load of 10 kN (right).
 - Node 2 (top left): Vertical load of 20 kN (down).
 - Node 3 (top right): Vertical load of 20 kN (down).
 - Node 4 (bottom right): Vertical load of 10 kN (down), Horizontal load of 10 kN (right).
- Member End Forces (kN):**
 - Member 1 (1-2): $F_{12} = 39.3$, $F_{21} = 39.3$
 - Member 2 (2-3): $F_{23} = 7.3$, $F_{32} = 7.3$
 - Member 3 (2-4): $F_{24} = -18.7$, $F_{42} = -12.7$
 - Member 4 (3-5): $F_{35} = -15.7$, $F_{53} = -15.7$
 - Member 5 (4-6): $F_{46} = -15.7$, $F_{64} = -15.7$
 - Member 6 (5-7): $F_{57} = -15.7$, $F_{75} = -15.7$
 - Member 7 (6-8): $F_{68} = -35.7$, $F_{86} = -35.7$
 - Member 8 (7-9): $F_{79} = -35.7$, $F_{97} = -35.7$
 - Member 9 (1-10): $F_{110} = -5$, $F_{101} = -5$
 - Member 10 (10-11): $F_{1011} = -5$, $F_{1110} = -5$
 - Member 11 (10-12): $F_{1012} = -5$, $F_{1210} = -5$
 - Member 12 (10-13): $F_{1013} = -5$, $F_{1310} = -5$
 - Member 13 (12-14): $F_{1214} = -5$, $F_{1412} = -5$
 - Member 14 (13-15): $F_{1315} = -5$, $F_{1513} = -5$
 - Member 15 (14-16): $F_{1416} = -5$, $F_{1614} = -5$
 - Member 16 (15-17): $F_{1517} = -5$, $F_{1715} = -5$
 - Member 17 (16-18): $F_{1618} = -5$, $F_{1816} = -5$
 - Member 18 (17-19): $F_{1719} = -5$, $F_{1917} = -5$
 - Member 19 (18-20): $F_{1820} = -5$, $F_{2018} = -5$
 - Member 20 (19-21): $F_{1921} = -5$, $F_{2119} = -5$
 - Member 21 (20-22): $F_{2022} = -5$, $F_{2220} = -5$
 - Member 22 (21-23): $F_{2123} = -5$, $F_{2321} = -5$
 - Member 23 (22-24): $F_{2224} = -5$, $F_{2422} = -5$
 - Member 24 (23-25): $F_{2325} = -5$, $F_{2523} = -5$
 - Member 25 (24-26): $F_{2426} = -5$, $F_{2624} = -5$
 - Member 26 (25-27): $F_{2527} = -5$, $F_{2725} = -5$
 - Member 27 (26-28): $F_{2628} = -5$, $F_{2826} = -5$
 - Member 28 (27-29): $F_{2729} = -5$, $F_{2927} = -5$
 - Member 29 (28-30): $F_{2830} = -5$, $F_{3028} = -5$
 - Member 30 (29-31): $F_{2931} = -5$, $F_{3129} = -5$
 - Member 31 (30-32): $F_{3032} = -5$, $F_{3230} = -5$
 - Member 32 (31-33): $F_{3133} = -5$, $F_{3331} = -5$
 - Member 33 (32-34): $F_{3234} = -5$, $F_{3432} = -5$
 - Member 34 (33-35): $F_{3335} = -5$, $F_{3533} = -5$
 - Member 35 (34-36): $F_{3436} = -5$, $F_{3634} = -5$
 - Member 36 (35-37): $F_{3537} = -5$, $F_{3735} = -5$
 - Member 37 (36-38): $F_{3638} = -5$, $F_{3836} = -5$
 - Member 38 (37-39): $F_{3739} = -5$, $F_{3937} = -5$
 - Member 39 (38-40): $F_{3840} = -5$, $F_{4038} = -5$
 - Member 40 (39-41): $F_{3941} = -5$, $F_{4139} = -5$
 - Member 41 (40-42): $F_{4042} = -5$, $F_{4240} = -5$
 - Member 42 (41-43): $F_{4143} = -5$, $F_{4341} = -5$
 - Member 43 (42-44): $F_{4244} = -5$, $F_{4442} = -5$
 - Member 44 (43-45): $F_{4345} = -5$, $F_{4543} = -5$
 - Member 45 (44-46): $F_{4446} = -5$, $F_{4644} = -5$
 - Member 46 (45-47): $F_{4547} = -5$, $F_{4745} = -5$
 - Member 47 (46-48): $F_{4648} = -5$, $F_{4846} = -5$
 - Member 48 (47-49): $F_{4749} = -5$, $F_{4947} = -5$
 - Member 49 (48-50): $F_{4850} = -5$, $F_{5048} = -5$
 - Member 50 (49-51): $F_{4951} = -5$, $F_{5149} = -5$
 - Member 51 (50-52): $F_{5052} = -5$, $F_{5250} = -5$
 - Member 52 (51-53): $F_{5153} = -5$, $F_{5351} = -5$
 - Member 53 (52-54): $F_{5254} = -5$, $F_{5452} = -5$
 - Member 54 (53-55): $F_{5355} = -5$, $F_{5553} = -5$
 - Member 55 (54-56): $F_{5456} = -5$, $F_{5654} = -5$
 - Member 56 (55-57): $F_{5557} = -5$, $F_{5755} = -5$
 - Member 57 (56-58): $F_{5658} = -5$, $F_{5856} = -5$
 - Member 58 (57-59): $F_{5759} = -5$, $F_{5957} = -5$
 - Member 59 (58-60): $F_{5860} = -5$, $F_{6058} = -5$
 - Member 60 (59-61): $F_{5961} = -5$, $F_{6159} = -5$
 - Member 61 (60-62): $F_{6062} = -5$, $F_{6260} = -5$
 - Member 62 (61-63): $F_{6163} = -5$, $F_{6361} = -5$
 - Member 63 (62-64): $F_{6264} = -5$, $F_{6462} = -5$
 - Member 64 (63-65): $F_{6365} = -5$, $F_{6563} = -5$
 - Member 65 (64-66): $F_{6466} = -5$, $F_{6664} = -5$
 - Member 66 (65-67): $F_{6567} = -5$, $F_{6765} = -5$
 - Member 67 (66-68): $F_{6668} = -5$, $F_{6866} = -5$
 - Member 68 (67-69): $F_{6769} = -5$, $F_{6967} = -5$
 - Member 69 (68-70): $F_{6870} = -5$, $F_{7068} = -5$
 - Member 70 (69-71): $F_{6971} = -5$, $F_{7169} = -5$
 - Member 71 (70-72): $F_{7072} = -5$, $F_{7270} = -5$
 - Member 72 (71-73): $F_{7173} = -5$, $F_{7371} = -5$
 - Member 73 (72-74): $F_{7274} = -5$, $F_{7472} = -5$
 - Member 74 (73-75): $F_{7375} = -5$, $F_{7573} = -5$
 - Member 75 (74-76): $F_{7476} = -5$, $F_{7674} = -5$
 - Member 76 (75-77): $F_{7577} = -5$, $F_{7775} = -5$
 - Member 77 (76-78): $F_{7678} = -5$, $F_{7876} = -5$
 - Member 78 (77-79): $F_{7779} = -5$, $F_{7977} = -5$
 - Member 79 (78-80): $F_{7880} = -5$, $F_{8078} = -5$
 - Member 80 (79-81): $F_{7981} = -5$, $F_{8179} = -5$
 - Member 81 (80-82): $F_{8082} = -5$, $F_{8280} = -5$
 - Member 82 (81-83): $F_{8183} = -5$, $F_{8381} = -5$
 - Member 83 (82-84): $F_{8284} = -5$, $F_{8482} = -5$
 - Member 84 (83-85): $F_{8385} = -5$, $F_{8583} = -5$
 - Member 85 (84-86): $F_{8486} = -5$, $F_{8684} = -5$
 - Member

This is a simple example that will show how to extract results from a PolyStringer model to Excel using PolyStringer API.



PolyStringer

An Optimal Plastic Solution

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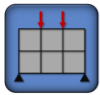


Excel Example Extract Results

- [illegible]

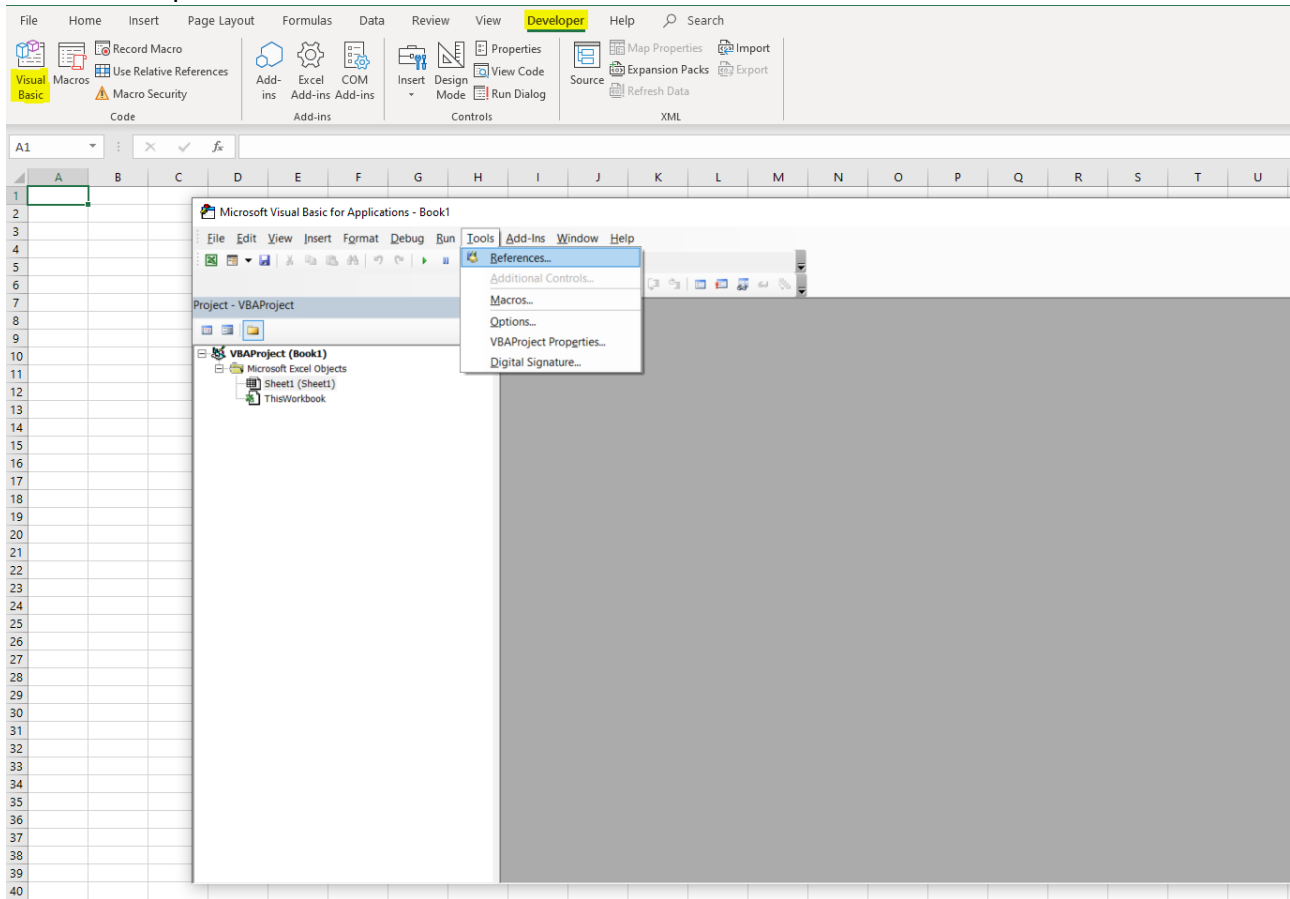
1. Reference PolyStringer API in excel

PolyStringer
www.PolyStringer.com

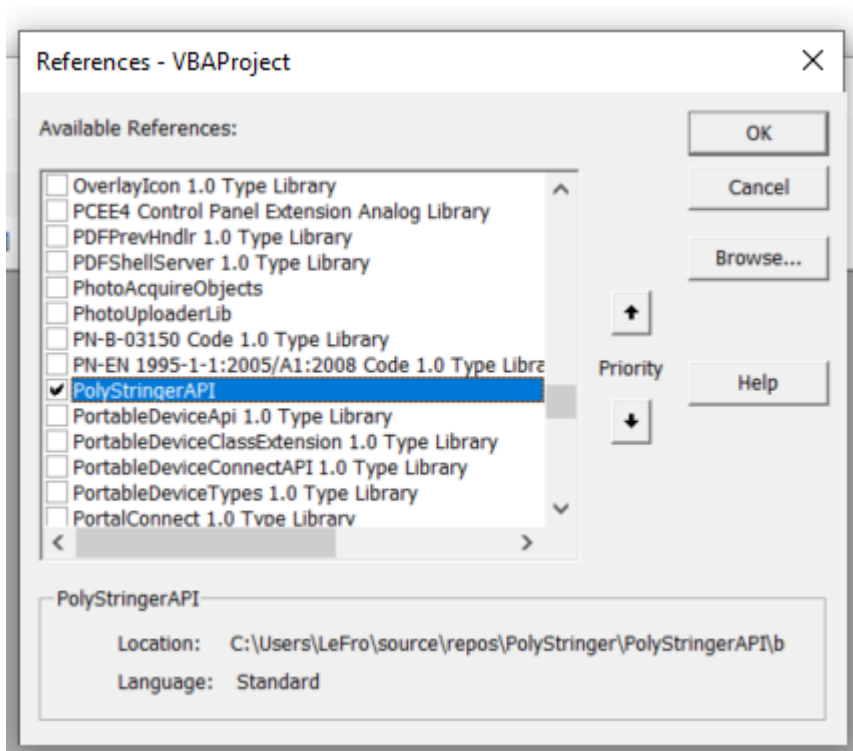


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Find PolyStringerAPI in the list of “available References” check the tick box and click Ok.





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2. Open saved PolyStringer model and get results.

Click on "ThisWorkbook" and insert the following code into the window:

```
Sub CreateNewModelFromPolyStringerAPI()  
    Dim polyStringerAPI As New GeneratePolyStringer  
  
    ' Add x-coordinates  
    Call polyStringerAPI.AddXCoordinate(0)  
    Call polyStringerAPI.AddXCoordinate(4.3)  
    Call polyStringerAPI.AddXCoordinate(6.5)  
    Call polyStringerAPI.AddXCoordinate(7)  
  
    ' Add y-coordinates  
    Call polyStringerAPI.AddYCoordinate(0)  
    Call polyStringerAPI.AddYCoordinate(1)  
    Call polyStringerAPI.AddYCoordinate(3.5)  
    Call polyStringerAPI.AddYCoordinate(4)  
  
    ' Add Load combinations  
    Call polyStringerAPI.AddLoadCombination("My LC1")  
    Call polyStringerAPI.AddLoadCombination("My LC2")  
  
    ' Add node loads  
    Call polyStringerAPI.AddNodeLoadToLoadCombination("My LC1", 0, 4, 10000, -10000)  
    Call polyStringerAPI.AddNodeLoadToLoadCombination("My LC1", 1.75, 4, 0, -20000)  
    Call polyStringerAPI.AddNodeLoadToLoadCombination("My LC1", 3.5, 4, 0, -20000)  
    Call polyStringerAPI.AddNodeLoadToLoadCombination("My LC1", 5.25, 4, 0, -20000)  
    Call polyStringerAPI.AddNodeLoadToLoadCombination("My LC1", 7, 4, 0, -10000)  
  
    Call polyStringerAPI.AddNodeLoadToLoadCombination("My LC2", 0, 4, -10000, -10000)  
    Call polyStringerAPI.AddNodeLoadToLoadCombination("My LC2", 1.75, 4, 0, -20000)  
    Call polyStringerAPI.AddNodeLoadToLoadCombination("My LC2", 3.5, 4, 0, -20000)  
    Call polyStringerAPI.AddNodeLoadToLoadCombination("My LC2", 5.25, 4, 0, -20000)  
    Call polyStringerAPI.AddNodeLoadToLoadCombination("My LC2", 7, 4, 0, -10000)  
  
    ' Add node supports  
    Call polyStringerAPI.AddNodeSupport(True, True, 0, 0)  
    Call polyStringerAPI.AddNodeSupport(False, True, 7, 0)
```



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VBA Code Example:

```
Sub getResultsFromPolyStringerModel()

    Dim polyStringerAPI As New PolyStringerModel

    Dim nodeReactions() As APINodeReactionModel
    Dim stringerReactions() As APIStringerReactionModel
    Dim stringerForces() As APIStringerForceModel
    Dim shearFieldResults() As APIShearFieldResultModel

    Dim n As Integer
    Dim count As Integer

    ' Load PolyStringer Model (To extract result the model must be saved with the
    calculation results)
    Call polyStringerAPI.LoadAPIModel

    ' Clear content in worksheet
    Range("A1:bb10000").ClearContents

    '..... Insert headers '.....'
    Range("A1:F1").Merge
    Range("A1:F1").HorizontalAlignment = xlCenter
    Range("A1:F1").Font.Bold = True
    Cells(1, 1) = "Node Reactions"
    Cells(2, 1) = "Load combination"
    Cells(2, 2) = "x [m]"
    Cells(2, 3) = "y [m]"
    Cells(2, 4) = "Calculation Result Type"
    Cells(2, 5) = "FxReaction [N]"
    Cells(2, 6) = "FyReaction [N]"

    Range("G1:M1").Merge
    Range("G1:M1").HorizontalAlignment = xlCenter
    Range("G1:M1").Font.Bold = True
    Cells(1, 7) = "Stringer Reactions"
    Cells(2, 7) = "Load combination"
    Cells(2, 8) = "x1 [m]"
    Cells(2, 9) = "x2 [m]"
    Cells(2, 10) = "y1 [m]"
    Cells(2, 11) = "y2 [m]"
    Cells(2, 12) = "Calculation Result Type"
    Cells(2, 13) = "Reaction [N]"

    Range("N1:U1").Merge
    Range("N1:U1").HorizontalAlignment = xlCenter
    Range("N1:U1").Font.Bold = True
    Cells(1, 14) = "Stringer Forces"
    Cells(2, 14) = "Load combination"
    Cells(2, 15) = "x1 [m]"
    Cells(2, 16) = "x2 [m]"
    Cells(2, 17) = "y1 [m]"
    Cells(2, 18) = "y2 [m]"
    Cells(2, 19) = "Calculation Result Type"
    Cells(2, 20) = "Force1 [N]"
    Cells(2, 21) = "Force2 [N]"
```



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```
Cells(2, 22) = "Load combination"
Cells(2, 23) = "x1 [m]"
Cells(2, 24) = "x2 [m]"
Cells(2, 25) = "y1 [m]"
Cells(2, 26) = "y2 [m]"
Cells(2, 27) = "Calculation Result Type"
Cells(2, 28) = "Shear force [N]"

' ..... Insert Results .....
' Node Reactions
nodeReactions = polyStringerAPI.NodeReactionsArr
n = UBound(nodeReactions) - LBound(nodeReactions)
count = 3
For i = 0 To n
    Cells(count, 1) = nodeReactions(i).LoadCombinationName
    Cells(count, 2) = nodeReactions(i).X
    Cells(count, 3) = nodeReactions(i).Y
    Cells(count, 4) = nodeReactions(i).CalculationResultTypeString
    Cells(count, 5) = nodeReactions(i).FxReaction
    Cells(count, 6) = nodeReactions(i).FyReaction
    count = count + 1
Next

' Stringer Reactions
stringerReactions = polyStringerAPI.StringerReactionsArr
n = UBound(stringerReactions) - LBound(stringerReactions)
count = 3
For i = 0 To n
    Cells(count, 7) = stringerReactions(i).LoadCombinationName
    Cells(count, 8) = stringerReactions(i).X1
    Cells(count, 9) = stringerReactions(i).X2
    Cells(count, 10) = stringerReactions(i).Y1
    Cells(count, 11) = stringerReactions(i).Y2
    Cells(count, 12) = stringerReactions(i).CalculationResultTypeString
    Cells(count, 13) = stringerReactions(i).Reaction
    count = count + 1
Next

' Stringer Forces
stringerForces = polyStringerAPI.StringerForcesArr
n = UBound(stringerForces) - LBound(stringerForces)
count = 3
For i = 0 To n
    Cells(count, 14) = stringerForces(i).LoadCombinationName
    Cells(count, 15) = stringerForces(i).X1
    Cells(count, 16) = stringerForces(i).X2
    Cells(count, 17) = stringerForces(i).Y1
    Cells(count, 18) = stringerForces(i).Y2
    Cells(count, 19) = stringerForces(i).CalculationResultTypeString
    Cells(count, 20) = stringerForces(i).StringerForce1
    Cells(count, 21) = stringerForces(i).StringerForce2
    count = count + 1
Next
```



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' Shear Field Results

```
shearFieldResults = polyStringerAPI.ShearFieldResultsArr  
n = UBound(shearFieldResults) - LBound(shearFieldResults)  
count = 3  
For i = 0 To n  
    Cells(count, 22) = shearFieldResults(i).LoadCombinationName  
    Cells(count, 23) = shearFieldResults(i).X1  
    Cells(count, 24) = shearFieldResults(i).X2  
    Cells(count, 25) = shearFieldResults(i).Y1  
    Cells(count, 26) = shearFieldResults(i).Y2  
    Cells(count, 27) = shearFieldResults(i).CalculationResultTypeString  
    Cells(count, 28) = shearFieldResults(i).ShearFieldForce  
    count = count + 1  
Next
```

Next

End Sub

3. Run VBA

Press F5 to run the code. A dialog box will appear asking you to load a PolyStringer API file. Find your previously saved file. All reactions, stringer forces and shear forces should now be visible in the Excel worksheet.