OUTPUT

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```
%-------------------------------------------------------------------------%
%-------------------------------------------------------------------------%
%here change the value
N = [100; 0; 0; 0; 0; 0]; %nx only there like this enter [nx;ny;nxy;mx;my;mxy]
%material properties
E1 = 38.6;%GPa
E2 = 8.27;%GPa
nu12 = 0.28;
G12 = 4.14;%GPa
%strength ultimate
sut1=1062;%MPa
suc1=610;%MPa
sut2=31;%MPa
suc2=118;%MPa
shearstress=72;%MPa
%temperature is there then change this value
alpha_1=8.6*1.0e-6;%m/m/c
alpha_2=22.1*1.0e-6;%m/m/c
alpha_12=0;%m/m/c
Tdiff=50;%c
% Laminate properties
theta = [0,45,-45,90,90,-45,45,0]; % Fiber orientation angles in degrees for each l
t =0.125; % Thickness of each layer mm
%-------------------------------------------------------------------------
%-------------------------------------------------------------------------
%upto here change accordingly
```

ENGINEERING CONSTANT EX=18.977928
ENGINEERING CONSTANT EY=18.977928
ENGINEERING CONSTANT TXY=0.275390

ABBD matrix
ABBD =

20.535313691911856	5.655211131895464	0	0	0	0
5.655211131895464	20.535313691911853	0	0	0.000000000000000	0
0	0	7.440051280008198	0	0	0.000000000000000
0	0	0	2.485843182240051	0.419704293074494	0.120500623332878
0	0.000000000000000	0	0.419704293074494	1.039835702245514	0.120500623332878
0	0	0.000000000000000	0.120500623332878	0.120500623332878	0.568440972083888

lamina	sigma1	Stress ratio	sigma2	Stress ratio	shear	Stress ratio
1	203.451395	0.191574	0.204341	0.006592	0.000000	0.000000
2	79.445916	0.074808	20.554084	0.663035	-27.822389	0.000000
3	79.445916	0.074808	20.554084	0.663035	27.822389	0.386422
4	-44.559563	-0.073048	40.903827	1.319478	-0.000000	0.000000
5	-44.559563	-0.073048	40.903827	1.319478	-0.000000	0.000000
6	79.445916	0.074808	20.554084	0.663035	27.822389	0.386422
7	79.445916	0.074808	20.554084	0.663035	-27.822389	0.000000
8	203.451395	0.191574	0.204341	0.006592	-0.000000	0.000000

failure due to transverse tensile in 90 degree lamina

if there is only load is there then:-
90 degree layer will fail with FPF load of 75.787529 N/mm

temperature is there then enter temperature

here temperature difference is taken 50

RESIDUAL STRAINS IN PLIES IN XY CORDINATES

lamina	strain1 residual	strain2 residual	shear residual
1	0.000139	-0.000536	-0.000000
2	-0.000199	-0.000199	0.000675
3	-0.000199	-0.000199	-0.000675
4	-0.000536	0.000139	-0.000000
5	-0.000536	0.000139	-0.000000
6	-0.000199	-0.000199	-0.000675
7	-0.000199	-0.000199	0.000675
8	0.000139	-0.000536	0.000000

RESIDUAL STRESS IN PLIES IN 1-2 CORDINATES

lamina	sigma1 residual	sigma2 residual	shear residual
1	4.183880	-4.183880	-0.000000
2	4.183880	-4.183880	-0.000000
3	4.183880	-4.183880	0.000000
4	4.183880	-4.183880	0.000000
5	4.183880	-4.183880	0.000000
6	4.183880	-4.183880	0.000000
7	4.183880	-4.183880	-0.000000
8	4.183880	-4.183880	0.000000

For Temp. change of 50 degree celcius, Residual thermal stress in 90 degree layer: -4.183880 MPa

90 degree layer(s) will fail with temperature change of 50 at FPF load of 86.016108 N/mm