Reviewer #1:

The paper is good contribution to Science. However, the authors miss some important papers that introduce the term "Non-polynomial HSDT" in the literature. These papers originally introduce for example the tangential HSDT, optimized sinusoidal HSDT and much more. So, extensive survey on non-polynomial HSDTs should be made.

Reply : As suggested by the reviewer, extensive survey on non-polynomial HSDT has been carried out. Papers pertaining to tangential-exponential, optimized sinusoidal, and others HSDTs have been included in section 1 and the same has been highlighted with magenta color.

Reviewer #2:

The authors are describing a nonlinear solution using FEM for polynomial and non-polynomial shear deformation theories. The aim is to compare deflections with Green-Lagrange and von Karman non linearities. Generally the manuscript is well presented and few remarks are needed to be answered in order to accept the contribution for publication.

Query 1— meaning of parameter gamma in Eq. 10 should be provided. It seems Lagrange multiplier method has been applied but it is not clear as it is presented in the text, the penalty function method could be applied instead. Please give reference.

Reply : Meaning of parameter, γ in Eq. 10 has been mentioned in the updated manuscript. Further, as suggested by the reviewer, the penalty function method has actually been applied for constraints energy approach and the same has been written explicitly in section 2.4 of the updated manuscript. All the additions have been highlighted with magenta color.

Query 2— the theoretical/numerical backgrounds lack of details on the stress post-processing calculation strategies. Please include or give suitable references.

Reply : A suitable reference [72] and important points have been added in section 4.3 and the same has been highlighted with magenta color.

Query 3— please explain why top and bottom boundary conditions for the transverse stresses are satisfied for the linear problem and they are not valid anymore for the nonlinear models.

Reply : It is observed that the zero transverse stresses condition is satisfied through the linear strain-displacement relation due to orthotropic nature of the composite material. Moreover, this condition is also satisfied in von Kármán nonlinear model as well as linear model due to absence of nonlinear transverse strain-displacement terms. However, due to the presence of nonlinear transverse strain terms in the Green-Lagrange nonlinear model, zero transverse stresses condition using constitutive approach is not satisfied at the top and bottom boundary condition. Hence, due to the strain-displacement approach and absence of nonlinear transverse strain terms in the strain-displacement relation, traction free boundary is satisfied only in linear and nonlinear von Kármán model.