Capacity evaluation API flange with/without raised face

Motivation and Background:
Different kind of bolted flanges are used in the Workover system, one widely used is the standard API flange. The original design is with raised face and with a BX seal. The intention with the raised face is to increase the force on the BX seal to prevent leakage and also increase the hub face separation capacity. Are there more advantages with raised face? Are there any advantages without raised face and for what purposes could this be better? Different gaskets?
Bolted flanges are a complex area where a lot of parameters need to be considered.

Objectives:
- Establish an understanding of what parameters is important for different purposes with use of an API flange with/without raised face.
- Perform a complete capacity evaluation with use of finite element analysis in Abaqus.
- Provide a method that includes evaluation of structural capacities (tension, bending and pressure), functional capacities (hub face separation, leakage and loss of preload) and fatigue performance (MN-curves).

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