



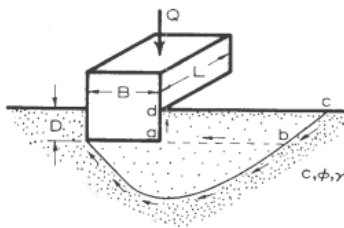
## FAD Tools 5.2.3 Release.

September 2024

The following modifications and enhancements are made to FAD TOOLS:

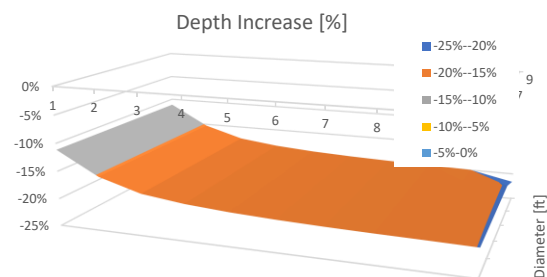
- Modification of the bearing capacity formulation used in HFAD and TFAD. Details of the modification, verification of the implementation, and associated input files, can be found [here](#). Parametric studies are available upon [request](#).

### MODIFICATION OF THE BEARING CAPACITY FORMULATION.

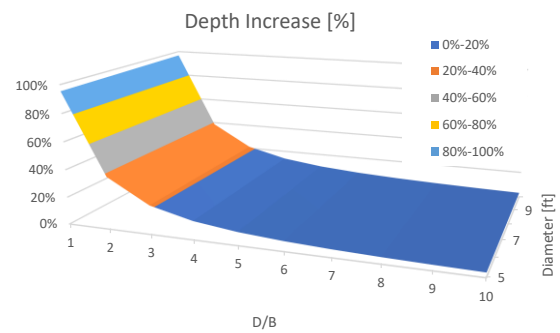


### PARAMETRIC STUDY

Sandy soil

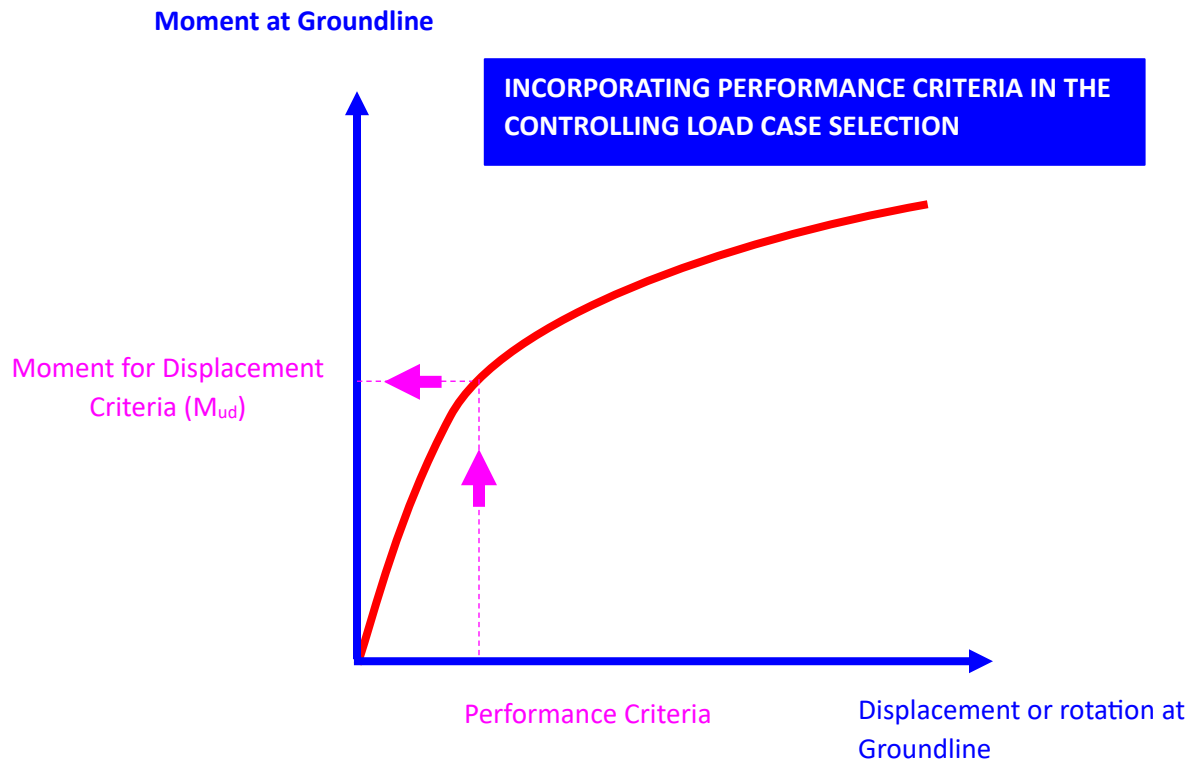


Cohesive soil





- Improved methodology application to select the controlling load case in MFAD and increased transparency in the selection process. (see details [here](#)).



#### SUMMARY OF ALL LOAD CASES ADDED TO REPORT

##### Summary of Capacity Verification for all load cases.

Load Case No.	Load Case Name	Shear Design Capacity / Applied Shear Load	Moment Design Capacity / Applied Moment Load
1	DL+0.75L+0.45W+H	12.1 / 15.0 = 0.80	66.0 / 82.0 = 0.80
2	DL+0.6W+H	11.0 / 10.5 = 1.05	72.2 / 69.0 = 1.05

##### Summary of Performance Verification for all load cases at Groundline.

Load Case No.	Load Case Name	Total Displacement Criteria / Total Displacement	Total Rotation Criteria / Total Rotation	Nonrecoverable Displacement Criteria / Nonrecoverable Displacement	Nonrecoverable Rotation Criteria / Nonrecoverable Rotation
1	DL+0.75L+0.45W+H	0.5 / 1.6 = 0.31	0.3 / 1.3 = 0.19	0.3 / 0.5 = 0.58	0.2 / 0.5 = 0.33
2	DL+0.6W+H	0.5 / 1.0 = 0.51	0.3 / 0.8 = 0.31	0.3 / 0.2 = 1.22	0.2 / 0.2 = 0.65



## September 2024

- Access

File Home Create External Data Database Tools Help **Table Design** Tell me what you want to do

Views Primary Builder Test Validation Rules Insert Rows Delete Rows Modify Lookups Property Indexes Sheet Create Data Macros Rename/Delete Macro Relationships Object Dependencies

Tables

Backfill Cases Concrete DBFileLock Foundations Geotechnical GeotechnicalLayers LoadLayer Loads **OutputData** Performance ProjectMap Projects Reports StructureMap Structures StructureTypeMap Version

**RESULTS ADDED TO THE FAD INPUT FILE (#.fadt)**

Field Name	Data Type	
OutputDataID	AutoNumber	primary key
Name	Short Text	Name of output data file
DateRun	Date/Time	Date when output data was generated
ControllingLoadLayerID	Number	Maps to primary key of load layer table for the controlling load
NominalShear	Number	Nominal Shear Capacity. Result
NominalMoment	Number	Nominal Moment Capacity. Result
ActualDisplacement	Number	Actual Displacement Result
ActualRotation	Number	Actual Rotation Result
ActualNRDisplacement	Number	Actual Nonrecoverable Displacement Result
ActualNRRotation	Number	Actual Nonrecoverable Rotation Result
PlotDeflection	Short Text	Filename including path to locate plot image for deflection
PlotShear	Short Text	File name including path to locate plot image for Shear
PlotMoment	Short Text	file name including path to locate plot image for moment
PlotPressure	Short Text	filename including path to locate plot image lateral pressure
CaseID	Number	
NominalVertical	Number	Nominal Vertical Capacity. Result
DesignVertical	Number	Design Vertical Capacity. Result
DesignShear	Number	Design Shear Capacity. Result
DesignMoment	Number	Design Moment Capacity. Result



- Adding warning/error messages to the Detailed Message section of the report.

The screenshot shows the 'Report' window in FADTOOLS. It contains a table with 5 columns and 14 rows of data. Below the table is a 'Detailed Message' section with several lines of text, including warnings about shear load, moment capacity, and embedment depth. A red box highlights the warnings, and a red arrow points from the bottom of the window to the top of the highlighted area.

Top of Stick (-1)	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
Ground Level (0)	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
1	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
2	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
3	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
4	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
5	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
6	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
7	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
8	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
9	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
10	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
11	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
12	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*
13	Not Calculated*	Not Calculated*	Not Calculated*	Not Calculated*

**Detailed Message:**  
Applied Shear Load Exceeds Design Capacity  
Applied Moment Exceeds Design Capacity  
Depth to maximum shear occurs in Stick Up, verify geotechnical and Load inputs  
Warning: Depth of Embedment should be at least 2x the diameter of the shaft: 22.0ft (6.7m)  
Warning: The depth of embedment into rock is less than the diameter. The depth should be no less than 21.0 ft (6.4 m)

**Buttons:** Save, Print, Close, Re-Run Analysis, Generate Plot, Generate Report, Generate Concrete, Close

**Warnings:**  
⚠ Depth of Embedment should be at least 2x the diameter of the shaft: 22.0ft (6.7m)  
⚠ The depth of embedment into rock is less than the diameter. The depth should be no less than 21.0 ft (6.4 m)



**FADTOOLS**  
INTERNATIONAL

**FAD Tools 5.2.3 Release.**

September 2024

## **Service Packs.**

### **Service Pack 1 (SP1). September 2024.**

- Fixing issues in the PC License validation system.

### **Service Pack 2 (SP2). January 2025.**

- Prevent licenses from being downloaded to folders where FAD does not have write permissions