K-Factors & Degree Days Basics

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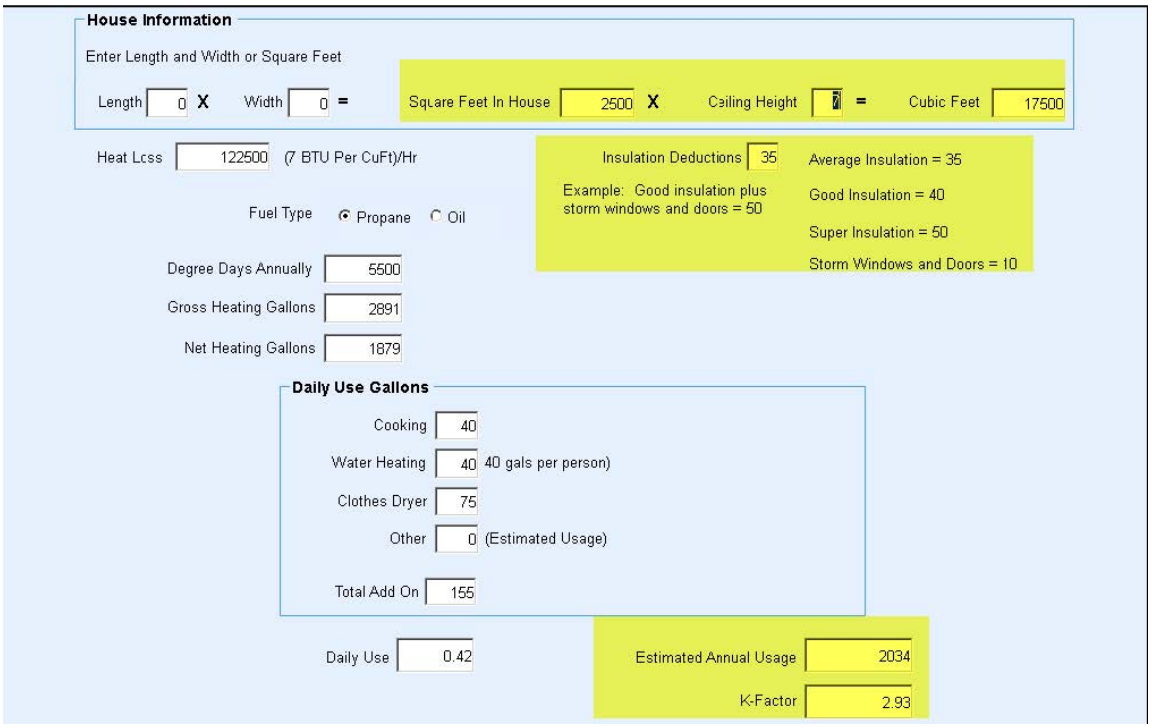
Degree Days

What are Heating Degree Days?

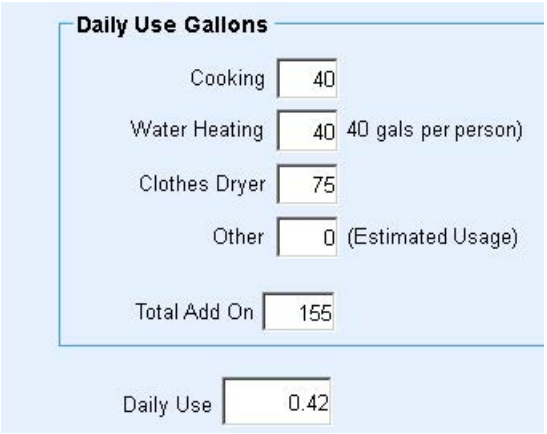
- **Heating Degree Days (HDD)** – The average temperature that falls below 65 degrees. Weather based sites calculate by adding the High + Low temperatures (assumes the high temp for 12 hours and low temp for 12 hours) then divide by 2. Then subtract from 65 to equal the Heating Degree Days.
- **Software Degree Day (SDD)** – The accumulation of readings throughout the day and then averaged out, which is much more accurate than Heating Degree Days.

What is a K-Factor?

- K-Factor – The number of Degree Days required to burn one gallon of fuel (Burn Rate). K-Factors vary depending upon house information including *Square Feet In House*, *Ceiling Height*, Quality of *Insulation*.
  - The K-Factor Calculator can open from any screen in Energy Force by pressing **Ctrl+K**. Any calculations will need to be noted as they will not save upon closing. However, on the *Tank* screen in *Create* mode, double-click in the *K-Factor* field to open the calculator. Upon choosing **Select**, the *K-Factor* and *Daily-Use* fields will automatically populate based on the information entered in the calculator.

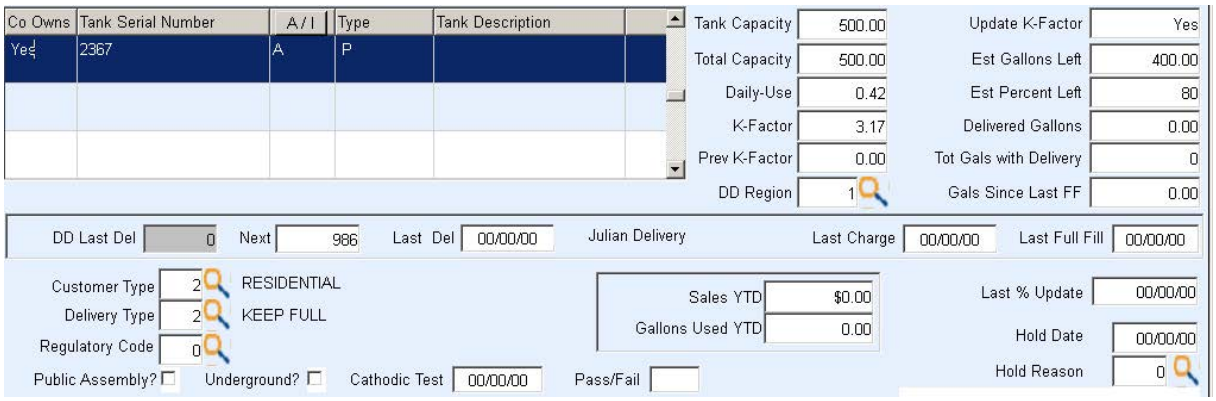


- **Daily Use** – The propane used by appliances other than home heat including Water Heaters, Clothes Dryers, Cook Stoves, Gas Fireplace/Logs, etc. *Daily Use* calculations are extremely important for proper estimated propane usage tracking.
  - The *Daily Use Gallons* calculator is located at the *K-Factor Calculator* screen to input specific information, for example, the number of persons in home for water heaters.

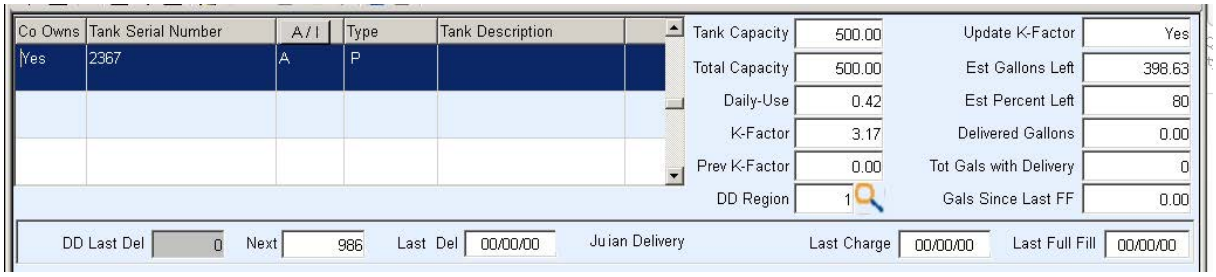


How do they work together?

- When a tank is first set up, the K-Factor is calculated with Next DD (Degree Day) or when the tank reaches 20%.



- Degree Days are updated daily via SDD during Automated Tasks or manually input through the **Posting Menu**.
- When processed, *Delivery Type 2* tank percentages are depleted based on the K-Factor value and if applicable by *Daily Use Gallons*.
- In the example below, 30 degree days were posted. The system reduced the *Estimated Percentage Left* using both the *K-Factor* and .42 *Daily-Use Gallons* for one day's usage.



Calculations for New Deliveries

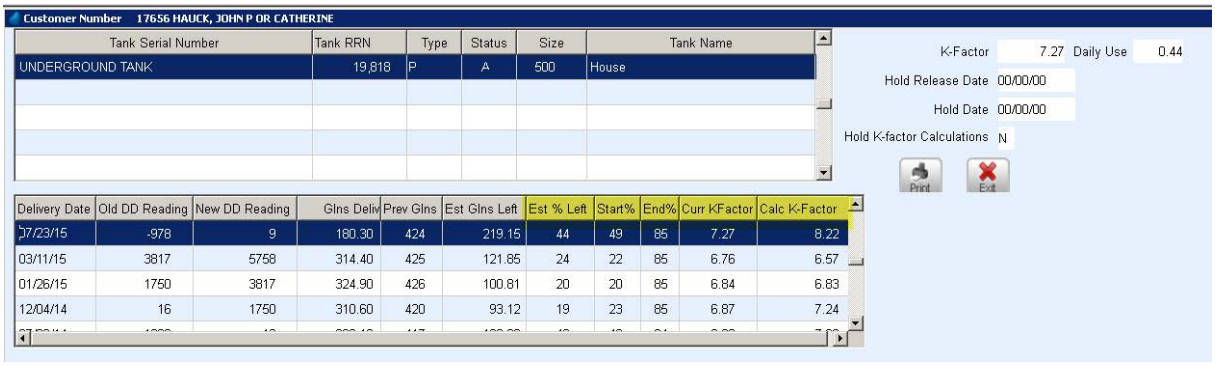
- As sales are made, readings are stored in the *Tank Readings* screen based on delivery dates and actual tank values at the time of delivery.
- K-Factors are re-calculated based on the percentage change threshold (stored in the *Division* table) and the data from the last two deliveries. While percentage updates are included in the recalculation process, the

initial calculation cannot be triggered by a percentage update alone. A delivery of gallons is required to initiate the first recalculation.

- The averages of 3 or more deliveries helps to eliminate large fluctuations.

Tank Reading Screen

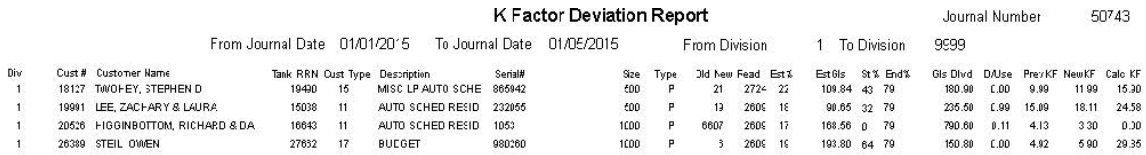
- The *Tank Reading* screen displays current Delivery readings as well as Estimated Percent.
- *Current K-Factor* vs. *Calculated K-Factor* is based on % to change and 2 previous deliveries.
- *Estimated % Left* vs. *Start %* should be within a 10% range.



K-Factor Deviations

When a K-Factor wants to adjust by a value greater than what's allowed in the *Division* table (generally 1.0 or greater), a report generates at the end of each sales journal if any deviations occurred while posting sales to notify of the deviation for review.

- This report needs to be monitored daily and propane usage investigated for those most vulnerable for future runouts.
- Has something changed?
    - Number of residents
    - Added another room to house
    - Wood burners or alternative heat source



- Read more about K-Factor Deviations on the Energy Force Help Center.

Update Information

- Contact customers regarding major changes in usage and log all information in a tickler.
- Modify Tank information as needed, or manually adjust a K-Factor to alter the depletion rate. While manual K-Factor changes immediately affect the depletion rate, the next calculation (whether triggered by a percentage update or a delivery) will revert to using the previous K-Factor for that calculation.

Other Useful Tips

- Update DD Readings Daily, even in the summer time when DD's do not occur as well as Daily Usage to avoid experiencing a run out in summer due to daily use.
    - Run K-Factor Deviation and Management reports as part of a daily routine to ensure employees are reviewing the data.
    - Run K-Factor Delivery Analysis reports to review runouts and percent updates.
    - A great K-Factor tank, is one that uses propane for the entire heating season.
- A customer must participate in reviewing heat usage if utilizing supplemental heat to avoid run outs, as the K Factor will never be correct.
- Non-ideal K-Factor Candidates
    - 120 gallon tanks are not good candidates for a K-Factor because they are not used consistently for heat and may have a high daily usage rate.
    - Julian's (interval schedules or day of the month, etc.) and Call In are also tanks that do not qualify for K-Factor.
    - Shop, garage, dairy barns, poultry, pool heaters and temporary heat tanks are not good K-Factor tanks as the usage pattern is not consistent.
    - Remote Tank Monitors work great with tanks that do not quality as good K-Factor tanks.