Below is a concise walkthrough of what the OLS summary tells us, followed by a recommendation of which AHU properties (features) appear most important—i.e. which ones you would want to “lock in” if you were trying to design a standard‐unit configuration.

**1. Overall Model Fit**

* **R-squared = 0.971** (Adj. R-squared = 0.970)  
  This means that about 97.1 % of the variation in “Total Hours Hrs DA” (our target) is explained by the 14 predictors in the model. In other words, this is a very high explanatory power for a single linear model on AHU‐related features.
* **No. Observations = 1029, Df Model = 14, Df Residuals = 1014**  
  You had 1,029 AHU units in your dataset, with 14 features (plus the intercept). The large sample size helps make these coefficient estimates quite precise.
* **F-statistic = 2384.4, Prob (F-statistic) = 0.00**  
  The overall F-test is highly significant, confirming that at least one of the coefficients is nonzero. In practice, it means “together, these 14 features significantly explain Total Hours.”

**2. Which Predictors Are Statistically Significant?**

In the table below, any row with “P >|t|” below 0.05 is usually taken as “statistically significant” (we reject the null hypothesis that that coefficient = 0 at the 5 % level). I have highlighted each coefficient, its p-value, and a short interpretation:

| Feature | Coef | Std Err | t-stat | P >|t| | Interpretation (at α=0.05) |  
|---------------------------|---------------|--------------|----------|--------|--------------------------------|  
| **const** | –1.7517 | 3.349 | –0.523 | 0.601 | Not significant (“const” just shifts the line, but not used for “unit”). |  
| **DesignCFM** | –0.0002 | 8.26e-05 | –1.976 | 0.048 | Borderline—but since p=0.048 (<0.05), CFM has a small negative effect. |  
| **No\_of\_Total\_UDC\_in\_AirTunnel** | 6.6388 | 1.434 | 4.631 | 0.000 | Highly significant. Each additional UDC (User‐Defined Component) in an air tunnel adds ~6.64 hrs. |  
| **dr\_factorydiscount** | –0.0005 | 0.000 | –2.273 | 0.023 | Significant but tiny numerical effect (if your discount number is small, the net hours change is effectively negligible). |  
| **dr\_AhuSectionCount** | 14.2283 | 0.590 | 24.115 | 0.000 | Extremely significant: Each extra AHU section adds ~14.23 hrs to total labor. |  
| **dr\_CoilCount** | 8.3141 | 0.997 | 8.336 | 0.000 | Significant: Each additional coil adds ~8.31 hrs more labor. |  
| **dr\_DoorCount** | 5.9457 | 0.468 | 12.710 | 0.000 | Significant: Each extra access door adds ~5.95 hrs. |  
| **dr\_FanWallFanCount** | 5.0643 | 0.389 | 13.004 | 0.000 | Significant: Every Fanwall fan adds ~5.06 hrs. |  
| **dr\_PlenumFanCount** | 24.4270 | 2.692 | 9.072 | 0.000 | Very significant: Each plenum fan adds ~24.43 hrs. |  
| **FanArray** | –7.5955e-15 | 1.09e-15 | –6.988 | 0.000 | (This is effectively zero numerically since FanArray is likely a dummy or binary; but the t–stat and p-value show it is significantly different from 0 in the scaled data.) |  
| **Fanwall** | 25.5827 | 2.445 | 10.465 | 0.000 | Very significant: Having a Fanwall adds ~25.58 hrs. |  
| **Filter** | 18.7470 | 1.285 | 14.595 | 0.000 | Highly significant: Each filter unit adds ~18.75 hrs. |  
| **HeatPipe** | –3.688e-16 | 4.96e-16 | –0.743 | 0.458 | **Not significant** (p=0.458). Indicates “HeatPipe” does not have a reliable linear effect on total labor in this model—drop it. |  
| **Volume** | 3.256e-05 | 7.78e-07 | 41.878 | 0.000 | Highly significant (but note: Volume is likely a very large number; the coefficient is tiny per cubic‐inch/whatever unit). In context, larger AHUs (by volume) do add labor, but you have to multiply by big volume to see the real hour change. |  
| **dr\_IsFoamPanel\_1.0** | 6.6836 | 1.277 | 5.233 | 0.000 | Significant: If the AHU uses a foam‐panel, add ~6.68 hrs. |  
| **dr\_IsIndoorUse\_1.0** | –26.6256 | 1.783 | –14.929 | 0.000 | Significant: If it’s flagged “Indoor Use,” labor goes down by ~26.63 hrs (makes sense—indoor units are easier to install). |  
| **dr\_IsKnockdown\_1.0** | –12.3824 | 1.697 | –7.299 | 0.000 | Significant: If it’s a knockdown style (i.e. ships unassembled), total labor is ~12.38 hrs less (factory does some assembly on‐site rather than building fully in shop). |

**Summary of Significance**

* **Statistically significant (p < 0.05)**:
  + DesignCFM
  + No\_of\_Total\_UDC\_in\_AirTunnel
  + dr\_factorydiscount
  + dr\_AhuSectionCount
  + dr\_CoilCount
  + dr\_DoorCount
  + dr\_FanWallFanCount
  + dr\_PlenumFanCount
  + FanArray
  + Fanwall
  + Filter
  + Volume
  + dr\_IsFoamPanel\_1.0
  + dr\_IsIndoorUse\_1.0
  + dr\_IsKnockdown\_1.0
* **Not significant (p > 0.05)**:
  + const (irrelevant for feature selection)
  + HeatPipe (p=0.458 → drop this variable entirely; it does not help predict Total Hours)

**3. Which Features Are Most “Important” by Effect Size?**

“Importance” can be judged two ways:

1. **Magnitude of coefficient (holding units in mind).**
2. **Statistical significance (p-value).**
3. **Practical interpretability** (how easy it is to standardize a feature).

Below are the top contributors (largest positive or negative impact on labor hours):

1. **Fanwall (coef ≈ 25.58 hrs)**
   * If you include a fanwall configuration, you add ~25.6 hours of shop labor.
   * This is one of the single largest “time drivers” in the build.
2. **dr\_PlenumFanCount (coef ≈ 24.43 hrs per fan)**
   * Each additional plenum fan adds ~24.4 hrs.
   * If you standardize a product, you might choose a fixed plenum-fan count to lock down ~×24 hrs of labor.
3. **dr\_IsIndoorUse\_1.0 (coef ≈ –26.63 hrs)**
   * If the AHU is for indoor use, you *subtract* ~26.6 hrs because indoor packages are simpler (no extra weatherproofing, no external curb, etc.).
   * For a “standard unit,” you could decide whether your baseline is indoor or outdoor—if indoor, you “save” ~26 hrs.
4. **Filter (coef ≈ 18.75 hrs)**
   * Every filter section adds ~18.7 hrs.
   * For a standard build, pick a single filter size or style so the labor requirement stays constant.
5. **dr\_AhuSectionCount (coef ≈ 14.23 hrs)**
   * Each section adds ~14.2 hrs.
   * A “2-section” AHU versus a “3-section” AHU is a 14 hr difference. You might decide your standard is always a 2-section unit, for example.
6. **dr\_CoilCount (coef ≈ 8.31 hrs per coil)**
   * Each coil adds ~8.3 hrs. If you standardize one coil only, you fix that 8 hr increment.
7. **dr\_DoorCount (coef ≈ 5.95 hrs per door)**
   * Each access door ≈ 6 hrs. If you specify a “fixed” door count in your standard, labor stays predictable.
8. **dr\_FanWallFanCount (coef ≈ 5.06 hrs per fan)**
   * Each fan inside a Fanwall adds ~5 hrs. If you standardize on a one-fan Fanwall, you lock in ~5 hrs there.
9. **dr\_IsFoamPanel\_1.0 (coef ≈ 6.68 hrs)**
   * Choosing foam‐panel construction over sheet metal adds ~6.7 hrs. Decide whether your standard uses foam or not.
10. **dr\_IsKnockdown\_1.0 (coef ≈ –12.38 hrs)**
    * If you ship a knockdown (flat-packed) style, you save ~12.4 hrs in shop labor.
    * You might choose a fully welded “non-knockdown” standard if you want to lock in that extra weld time, or vice-versa.
11. **Volume (coef ≈ 0.00003256 hrs per unit volume)**
    * On its own that number is tiny, but AHU volumes can be in the thousands (e.g. a 10,000 in³ change would add ~0.3256 hrs).
    * If you pick one fixed footprint/volume for a “standard,” the volume-related labor is effectively constant.
12. **FanArray, dr\_factorydiscount, DesignCFM**
    * These are significant but small in practical magnitude (FanArray is effectively a 0/1 dummy with a tiny per-unit scaling, dr\_factorydiscount is so small it’s negligible in real hours, and DesignCFM is borderline significant with a near-zero coefficient).

**4. Which Features to “Use” for a Standard Unit?**

A “standard unit” is easiest to manage if you hold a small number of features fixed. Based on the table above, you would pick the features that:

1. Have large coefficients (±hours) so variations are minimized.
2. Are highly significant (p ≪ 0.05).
3. Are easy to fix as a product specification.

Here’s a recommended subset you might lock in for a **Standard AHU**:

1. **Number of Sections (dr\_AhuSectionCount)**
   * E.g. always build a **2-section** unit → adds exactly 14.23 hrs every time.
2. **Fanwall vs. Non-Fanwall (Fanwall)**
   * Decide on one style (for instance, a **Fanwall** build → always +25.58 hrs).
3. **Filter Type / Count (Filter)**
   * Pick one filter configuration (e.g. a single filter bank) → +18.75 hrs.
4. **Plenum Fan Count (dr\_PlenumFanCount)**
   * For a “standard,” you might choose **1 plenum fan** → +24.43 hrs.
5. **Number of Coils (dr\_CoilCount)**
   * Fix at **1 coil** → +8.31 hrs.
6. **Number of Doors (dr\_DoorCount)**
   * Fix at **1 door** → +5.95 hrs.
7. **Foam vs. Sheet‐Metal Panels** (dr\_IsFoamPanel\_1.0)
   * Choose **sheet-metal** (i.e. set that dummy = 0), or if you want foam, accept +6.68 hrs.
8. **Knockdown vs. Welded** (dr\_IsKnockdown\_1.0)
   * Pick one: for a fully welded “shop-assembled” standard choose dummy = 0; if you want a knockdown package, set dummy = 1 (and you “save” ~12.38 hrs).
9. **Indoor vs. Outdoor (dr\_IsIndoorUse\_1.0)**
   * Decide if your standard is an **indoor** AHU (dummy = 1 → –26.63 hrs) or an **outdoor** AHU (dummy = 0 → no deduction).
10. **Volume** (you’ll get a tiny change in hours per cubic unit)
    * If you lock down one single footprint or volume, then that labor portion is fixed.
11. **UDC Count (No\_of\_Total\_UDC\_in\_AirTunnel)**
    * If you set this to some fixed number—e.g. 0 “custom UDCs”—you remove that ~6.64 hr variable.

In short, a **minimal “Standard AHU” specification** would be:

1. **2 sections** (dr\_AhuSectionCount = 2).
2. **Fanwall = 1** (so +25.58 hrs).
3. **1 plenum fan** (dr\_PlenumFanCount = 1).
4. **1 coil** (dr\_CoilCount = 1).
5. **1 access door** (dr\_DoorCount = 1).
6. **Filter = 1** (one standard filter bank).
7. **Sheet‐metal panels** (dr\_IsFoamPanel\_1.0 = 0) → do not use foam.
8. **Fully welded (not knockdown)** (dr\_IsKnockdown\_1.0 = 0).
9. **Outdoor use** (dr\_IsIndoorUse\_1.0 = 0).
10. **Zero UDCs** (No\_of\_Total\_UDC\_in\_AirTunnel = 0).
11. **Fixed volume** (pick a single cubic‐inch or cubic‐foot volume number).

Plugging those all in will give you a single “baseline labor hours” that is exactly reproducible each time. Any deviation (e.g. add a second filter, swap to foam panels, convert to indoor use, etc.) will move you off that baseline by the coefficient amount shown above.

**5. Final Takeaways**

* **Drop “HeatPipe”** from consideration: p = 0.458 means it didn’t explain labor in a statistically reliable way.
* **Features like Fanwall, PlenumFan, Filter, SectionCount, CoilCount, DoorCount, IndoorUse, Knockdown** all have very large, significant effects on labor hours. Those are the ones you absolutely want to lock down if you need one repeatable “standard build.”
* **Tiny effects**: DesignCFM and dr\_factorydiscount technically matter (p < 0.05) but their actual hour change per unit is negligible. You can safely set them to any reasonable default and treat their contribution as “near zero.”
* **Volume matters only at scale**: since Volume’s coefficient is ~3.26e-05 per unit, you’d only see ~0.3 hours difference for a 10,000 unit increase in volume. Again, pick one nominal volume and treat it as fixed.

By choosing one value for each of the highly significant variables above, you create a “standard AHU” whose build time is exactly predictable (the intercept + sum of those fixed coefficients). If you later deviate from that standard—e.g. go to 3 sections instead of 2—you know exactly how many additional shop hours to budget (≈ + 14 hrs).

Feel free to ask follow-ups about any particular coefficient or deeper diagnostic (residual plots, variance inflation, etc.), but hopefully this clarifies which AHU properties are most “important” and how to pick a minimal subset for a standard product.