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# The 7 Habits of Highly Effective SolidWorks People

# Disclaimer #1

- Any similarity between this presentation and Stephen R. Covey's book "The 7 Habits of Effective People" is purely intentional.
- I would ask Stephen, if he is listening, to remember that imitation is the most sincere form of flattery so please don't sue me.

# Introduction

- In 1998, I made engineering manager and stayed in management for three years before regaining my will to live, however, I started reading a management du jour book every three months or so.
- They are 99% worthless, however the 1% of good in each one of these tree killers can be of real value, hence this “Seven Habits” rip off.
  - One Minute Manager, Leadership Skills of Atilla the Hun, Who Moved My Cheese?, The Mafia Manager, Leadership Lesson from Star Trek

From One Minute Manager:

Goals begin  
***behaviors.***

Consequences  
maintain ***behavior.***

# Disclaimer #2

- Just like every management book I have ever read, this presentation will not teach you anything you didn't already know.
- Common sense isn't as common as we would like to believe.
- Knowing something and doing something are two very different activities.

# Outline

- Habit 1: Be Proactive
- Habit 2: Begin with the End in Mind
- Habit 3: Put First Things First
- Habit 4: Think Win / Win
- Habit 5: Seek First to Understand, Then to Be Understood
- Habit 6: Synergize
- Habit 7: Sharpen the Saw

# Habit 1: Be Proactive

- If you look for water to put out a fire, you are reacting.
- If you change a combustible material to a material that doesn't burn you are being proactive.
- How can we be proactive in SolidWorks?

# SolidWorks Proactivity #1

- Never “fill in” a cut you just made.
  - “I would never do that...”
- Make sure all sketches are fully constrained.
  - Never use the “Fix” constraint.
- When mating parts in an assembly, use the physical features that actually touch.
  - Never use the “Fix” mate except for the first part in an assembly.



# SolidWorks Proactivity #2

- Use the properties in parts to create automated bills of materials in assemblies with source information!
- Set up equations early on for calculating and linking data from the model to drawings.

# Why would someone prefer being reactive in the office?

- Beware the fireman complex at the office where the “fireman” is constantly saving the day and getting management accolades.
- A better management technique is saying, “Hey that’s great, how did we get in a position to require such heroics, and let’s never get there again!”

***– By the way, I have the utmost respect for actual firemen and women who will run into burning buildings to save strangers.***

# Why would someone prefer being reactive in the SolidWorks?

- It's hard to do some things correctly.
- Redefining a sketch or sketch plane might affect every feature afterwards.
- Assemblies may need to be have mates replaced after a change.
- **Big Deal – Do it Right!**

History Says:

We don't have time  
to do it right . . .

***but we will make  
time to do it twice!***

## Habit 2: Begin with the End in Mind

- Part of being a good designer is answering any customer's question with "You tell me the correct answer, and I'll come up with the right question."
- No where is this more evident then when you are solid modeling.
- Knowing what you are heading towards is very important!

# What are going to be when you grow up?

- There is a trick to looking at a part and seeing how to model it so that the features you are going to add are meaningful.
- When you model a washer, do you sketch two circles or an axis and rectangle?
- It is easy to anticipate your design changes but you have to be able to see the future to identify changes someone else will want.

# Habit 3: Put First Things First

- Parts:
  - Datums first
  - Fillets last
- Drawings:
  - Views first
  - Dimensions last
- Assemblies:
  - Big stationary parts first
  - Hardware last



Rickey Bobby Says:

***Coming in second  
is the first loser!***



## Habit 4: Think Win / Win

*There is one win / win situation I can think of, especially tonight...*



Two in a row?  
Win-Win

# Habit 5: Seek First to Understand, Then to Be Understood

- This is a very common SolidWorks issue.
- You are asked to make a change to a model that was done by someone else or maybe even worse, a younger version of yourself.

# Annotation

- I'm not a fan of the “Design Binder”.
- I am a huge fan of naming features in a design tree.
  - Meaningful names people!!!
- This is analogous to writing comments on a computer program.

# Go Back in Time and Beyond!

- Get comfortable with the end of part marker so you can go back and see how the part was modeled.
- Use folders to group features in a part.
- Use folders in assemblies with a lot of parts that don't make sense to have sub assemblies but you want to unclutter the tree.
  - Hardware folder
  - Electrical components folder

# Habit 6: Synergize

There could easily be a drinking game where you have to take a shot whenever someone says one of the many made up management terms, like synergy (proactive, paradigm, or win/win).

# First Source of Synergy is Yourself

- One of the first reasons people don't use models from other people is they aren't sure how well the parts are modeled.
- ***Do you trust yourself?***
- At every company I have ever worked at that it was allowed, I have copied models of hardware and common parts, especially the ones I created.
  - Usually in native and IGES or STEP formats

George Santayana Said:

***Those Who Forget  
History Are Doomed  
to Repeat It***



# SolidWorks Model Sources

- 80/20 (Extrusion Manufacturer)
- McMaster-Carr
- Molex
- Carr Lane
- Lots of companies:
  - Use IGES, STEP, and other versions of parts where ever you find them on the internet



History Says:

You want it real bad?  
***Well that's how  
you'll get it!***

# Habit 7: Sharpen the Saw

- Forget renewing the four aspects of your inner person:
  - Physical, Spiritual, Emotional, Mental
- Concentrate on the four aspects of your inner SolidWorks self:
  - Training, training, training, training
- It also wouldn't hurt to attend a users group meeting every now and then.
  - On yea, you're here already...

# Mentoring

- One of the easiest training methods is trying to teach something.
- Explaining a concept, any concept, to someone makes you articulate the steps to perform a task.
- Explaining CAD tasks also opens you up to the ultimate response:
  - “I have no idea how you got to that screen.”
- Maybe try giving a technical talk to the SolidWorks Users Group!
  - Clearly from this presentation, you can tell that anyone can do it with absolutely no people speaking skills!

# Share the Joy!!!

- When you discover something you didn't know in SolidWorks, share it with a friend.
- Of course you might get the “Pffht, I already knew that stupid” response.
- However you might get the “Wow, I didn't know you could get a arc length dimension by selecting the end points and then the arc!”

# Reminder

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# Wrap-Up

- I had to stretch to shoehorn some of the concepts into the seven habits, but that is par for the course for any management discussion.
  - Goes along with mixing metaphors.
- Also in the vain of management books, hopefully, you didn't learn anything new during this talk.

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Thanks!!!