Designing a Facility That Works!
A Rulebook for Facility Design
A Rulebook for Facility Design

- Rules of Thumb
- Rules of Reality
- Rules of the Roost
- Rules of the Game - Slick Ideas
- Rule of the Road
Rule of Thumb No. 1
Repair Bay Ratios/Sizes

Based on national average. Your actual numbers may vary.
Determine Quantity of Repair Bays
(See Rule of Thumb No. 1)

Determine Size (sf) of Repair Bays (length x width = sf)
(Also see Rule of Thumb No. 1)

Calculate Total sf of Repair Bays

Double Repair Bay sf to Determine Approximate Building Envelope

Double Building Envelope to Determine Building Area

Rule of Thumb No. 2
Building Area = Repair Bay sf* x 2

Based on national average. Your actual numbers may vary.
Rule of Thumb No. 3

Site = 1/2 + 1/4 + 1/4

- Agency Vehicle Parking = 1/2
- Employee Parking = 1/4
- Building Area = 1/4
- Master Plan for the Future!

Based on national average.
Your actual numbers may vary.
Rule of Thumb No. 4
New Construction Costs

- 1 Acre = $3,000,000 (but don't tell anybody) or
- 1 Acre = $2,000,000 (economy version)

Based on national average. Your actual numbers may vary.
Rule of Reality No. 1
Buildings Must Meet Building Code

- UBC, SBC, IBC, local interpretations/adaptations
- Aisles in shop to meet exiting requirement
- Mezzanines < 3,300 sf
- Egress from pits
- Don't just meet, exceed for function
  - Plumbing fixture counts
  - Ventilation air changes
  - Electrical outlets - quantity and height
- Battery rooms
Rule of Reality No. 2
Buildings Must Meet Fire Code

- Welding is a four-letter word
- Keep AST’s & CNG equipment 50’ from property line
- Sprinkler systems are good
- Fire lanes around/through buildings
- Plan for lighter-than-air fuels
Rule of Reality No. 3
Buildings Must Meet ADA Requirements

- Major renovations activate ADA
- Parking spaces
- Building access
- People spaces on 2nd floor = $75,000+
- Restrooms
- Doors
- Hallway width
- Signage
- Handrail extensions
Buildings Must Meet Safety Requirements

- Pit protection
- Eye protection
- Ear protection
- Positive pressure in offices
- Clear aisles
- Clear area around electrical/mechanical equipment
Buildings Must Meet Environmental Requirements

- Local often exceeds Federal requirements
- Archeological/historical/cultural/wetlands
- Adjacent property impact
- NPDES – Phases I and II
- Clear air/clean water
- AST/UST
Rule of the Roost No. 1
Make the Work Place a Pleasant Place to Work

- Sustainable design
- Cheap just doesn’t last!
- Light/bright/hard finishes
- Exceed code ventilation requirements
- Full spectrum lighting
- Handwash facilities in shop
- Storage for portable equipment/tool boxes
- Common work area
- Drainage/flat floors
- Clean and clear = safe and efficient
Rule of the Roost No. 2
Be Flexible!

- Avoid load bearing walls
- Don’t plan yourself into a corner
- Locate columns for convenience
- Minimize floor obstructions
- Consider pen office workstations
- Plan for expansion of your expansion
Rule of the Roost No. 3
Choose a Mix of Lifts, Pits, and Flat Floors

- Lifts
  - In-ground
  - Surface mounted
  - Parallelogram
  - Portable

- Lower Level Work Area (LLWA) aka “Pits”
  - Good lighting
  - Used oil/antifreeze handling system
  - Lubricants
  - Adjacent work area
  - Mobile work platform

- Flat Floor
  - Not all repairs need lift/LLWA
  - Saves construction costs
Slick Idea No. 1

- Fluid Distribution

- Lube cubes/spill containment
- Antifreeze @ 50/50 mix
- Compressed air systems
  - Compressors
  - Dryers
  - Filter/Regulator/
  - Lubricator
  - Shut off valves
  - Runaway valves
- Piping
Slick Idea No. 2
Fluid Collection

- Used oil
  - Gravity
  - Suction
- Used antifreeze
  - Removal
  - Recycle
Slick Idea No. 3
Fueling System

- Conventional (gasoline/diesel)
  - UST/AST
  - Vapor recovery
  - Fuel management system
  - Drainage

- Alternative fueling systems
  - Compression/storage
  - Dispensing
You can always make a functional building good looking, but you can’t always make a good looking building functional.