

# **Engineering and Project Development: Changes, Lessons Learned, and Areas of Emphasis**

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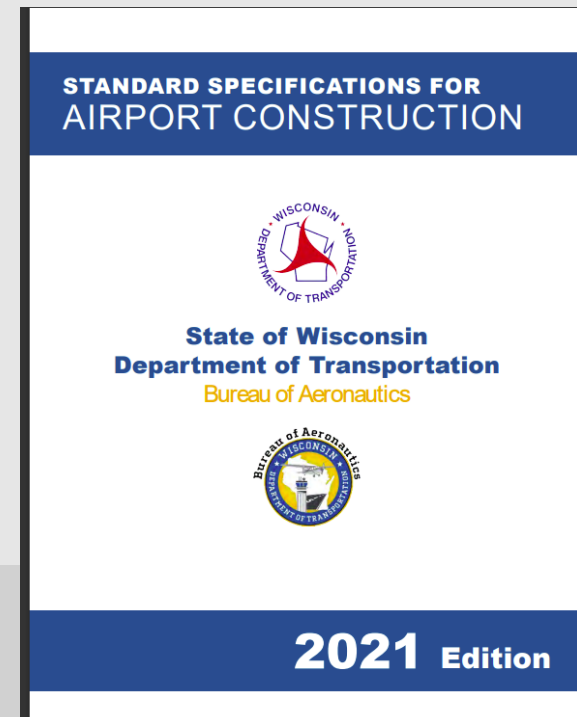
# Agenda

- Contracts
- Change Orders and Pay Estimates
- Project Timelines
- Environmental
- BOA Project Management Changes
- AIP and Specifications Update
- Taxilane Eligibility
- Bidding Updates
- Lessons Learned
  - Grooving
  - DSPS and Buildings



# Primary Airports Engineering and Standards Development Section

- Provide traditional project management and engineering for projects exclusively at Primary airports
- Only difference is that Primary airports are not part of the block grant
- Bidding
- Construction Standards
- Process Improvements for the BOA
- BOA Policies



# CONTRACTS

- Consultant Contracts
  - To be split by ODO codes where possible to better track costs per work item
  - Buy American Waiver reviews will be added to scope.
    - Assist contractors with correctly filling out FAA waiver forms.
    - BOA developing Buy American waiver tracking system.
  - Quarterly Reports
    - For Primary Airports we will be asking the consultants to complete the required FAA quarterly reports for planning, design, and construction grants.



# Construction Contracts

- Construction Contract Award Date
  - Continue to use the special provisions to modify the construction contract award date as needed
  - If we start getting grants dependably earlier we can start moving up the award dates
- Need to continue to track contract award dates specified in the bid documents and ensure contracts are awarded within the time frame
- Contract provisions section 30
  - Details the contract award, approval, and nullification process
  - In order for the contractor to nullify the award they need to first submit all required documents including Buy American



# Construction Contracts (continued)

- Nullifying the award.

## 30.8 Nullifying the Award

- (1) The Department will accept the Bidder's request to nullify and will nullify the Bidder's acceptance of the Contract if the following conditions are met:
  - a. The Bidder files the required Contract Documents in proper form and order.
  - b. The Department does not execute the Contract within 30 calendar days after the Bidder files the required Contract Documents.
  - c. The Bidder files a written request to nullify with the Department. Wait the 30 days specified in item 2 of [30.8\(1\)](#) before filing that request. Stipulate in the request a deadline for the Department to execute the Contract. This deadline must be 10 business days or more after the filing date of the request.
  - d. The Department does not execute the Contract within the stipulated deadline.
- (2) The Department will notify the Bidder, in writing, if the Department agrees to nullify the award. The Department's failure to act within the stipulated deadline also constitutes nullification.
- (3) The request to nullify is a voluntary act of the Bidder. The Department's nullification relieves the Bidder, the Bidder's surety, and the Department of all obligations under the award.
- (4) Unless and until the Bidder files a request to nullify, and until the Department nullifies, the Department may execute the Contract without prejudice to any Contract terms and conditions.



# Project Formulation Contracts

- Project Formulation Contracts have been implemented in the past year
- Contract should include only things needed to begin the final design
  - Airport Layout Plan (ALP) Approval Authority
    - Pen and Ink if needed
    - If the ALP change is too great a planning exercise may be needed and project will be put on hold until this is done
  - Environmental Document
    - Formulation should result in a completed and approved environmental document
    - Typically a Categorical Exclusion (CatEx)
    - If more in depth documentation project will be put on hold until this is done
      - Environmental Assessment (EA)
      - Environmental Impact Study (EIS)
  - Any parts of the design that are needed to complete the ALP and CatEx or to refine final scope.
    - Soil borings
    - Survey
    - Pavement section design



# Change Orders and Pay Estimates

- Change Orders

- Need to verify buy American compliance with any added work/materials
- BOA moving toward having signed change orders before work is completed
  - New Finding process should make these decisions and signatures quicker

- Pay Estimates

- Resident Engineer needs to confirm that all work we are paying for is done acceptable and all material reports needed have been received.
- Do not pay for work items until it is fully accepted and backed up with paper work.





# Project Timelines and Capital Improvement Plans (CIP)

- BOA working on developing project management software to track project timelines and approvals
  - Project timelines based on type of project
    - 2-3 years from project conception through construction contract signature
- CIP's need to be followed to keep projects on track
  - Limit changes to CIP and “pop-up” projects
  - Changes need to be coordinated with BOA Program Section
  - Project Initiation requests moving to program section
    - Start dates established in CIP for projects
  - Once initial project scope is determined project handed over to engineering sections.



# Project Timelines and Capital Improvement Plans (CIP) continued

- 30%, 60%, and 90% meetings will be more formalized
  - Need updated project estimate at each check in
  - These milestone check-ins will be required but may be a simple project check in for simple projects.
    - Informs BOA staff of project progress
    - Updates the program section with projected project costs
      - Update State Municipal Financial Agreement (SMFA) if needed
    - Technical Services Section get to verify project is still within the environmental limits and accurately shown on ALP



# Environmental Review Limits

- Designed plan sets should start including the limits of the environmental review that was done for the project
  - This will ensure the project is staying within the bounds of the area reviewed
  - Allows proposed changes to be easily evaluated for environmental concerns
  - Does not need to be on every plan sheet but the full project limits should be identified somewhere in the plan set



# Changes in How BOA Staffs projects

- Engineering sections moving to project assignment style of project management instead of an assigned project manager to an airport
  - Allows for the staff assignments based on experience level and project complexity
  - BOA staff will be working to become familiar with all airports in assigned area
  - Project may be assigned a team as opposed to just a single project manager
  - More experienced staff guiding others through the project development process



# Changes in How BOA Staffs projects continued

- Point of contact for airports will be shifted to the supervisors in the General Aviation (GA) Airports section and the Chief of the Primary Airports section.
  - Once a project has an assigned project manager please continue to coordinate with them
  - Questions or coordination outside of an existing project should go to the supervisor or chief
  - East Side GA Supervisor – Manny Tarin
  - West Side GA Supervisor – Colin Davidson
  - Primary Airport Chief – Lucas Ward
- Quarterly check ins with airports
  - BOA will bring appropriate staff as needed



# AIP Handbook Update Coming

- FAA to issue updated AIP Handbook later this year
  - BOA will review and report out significant changes that will affect our projects
  - Please be on the look out for this update and read through.
    - Send questions to BOA to incorporate into discussions with FAA Airports District Office (ADO)
  - There will be a public comment period once this draft is released.
  - Be advised this may change eligibility of work items to either limit or expand eligibility.



# FAA Specifications (AC 150/5370-10H) Update Coming

- FAA to issue updated specifications later this year
  - BOA will review and report out significant changes that will affect our projects
  - Please be on the look out for this update and read through.
    - Send questions to BOA to incorporate into discussions with FAA Airports District Office (ADO)
  - BOA will have one year to update our state airports construction specifications once this is issued.



# Taxilane Eligibility Update

- Reauthorization Program Guidance Letter (R-PGL) 25-06 seemed to limit taxilane eligibility
- FAA had to define what “non-exclusive” use meant in regards to this change
  - The Chicago ADO has provided further guidance to the BOA on the eligibility of taxilanes





# Taxilane Eligibility Update Continued

- Eligible

- Taxilanes that lead to shared-use or multiple aeronautical facilities are non-exclusive
  - Regardless of if hangars are airport owned or tenant owned on ground lease with airport

- Not Eligible

- Taxilanes that lead to one or more facilities that are used by only one entity are considered exclusive use
- Taxilanes that lead to non-aeronautical facilities

- Test

- Is the taxilane serving facilities that are public use or used by more than one person/entity for an aeronautical purpose?



# Non-Exclusive Use Example

- Taxilanes serving more than one tenant regardless of whether they are airport owned or on a ground lease are eligible



# Exclusive Use Example

- Even if there are multiple buildings if they are owned by the same private entity the taxilane is not eligible
- To be eligible the taxilane needs to serve the public and not have an exclusive use of one tenant.

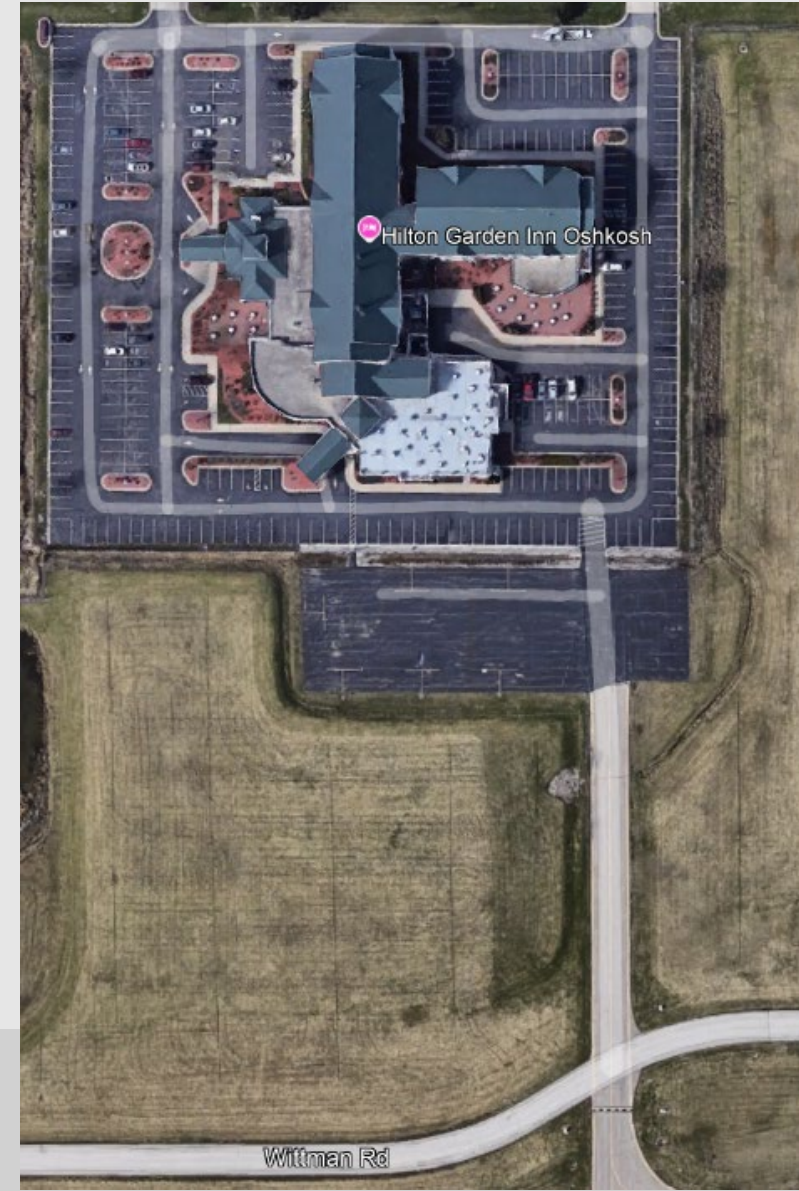
Same owner has two hangars on this taxilane so they are the sole user.





# Non Aeronautical Use Example

- Taxilanes are only eligible for access to areas of aeronautical use



# Bidding Updates

- Bid Advertisements
  - Still in local newspaper
  - BOA website linking to Bid Express for advertising our bids
- As-Read bid results
  - BOA website linking to Bid Express
  - As-Read results are posted to bid express the day bids are opened.
- Bid Tabs and Award
  - BOA website will link to Bid Express to show who the project was awarded to
  - Bid Tabs will also be posted on bid express once the award has been made
- Bid Express Accounts
  - You are able to get a log in to Bid Express to view items without a cost but a login/account will be needed.



# Pavement Grooving Environmental Issues

- Wisconsin Department of Natural Resources (DNR) is taking a harder look at project waste created from pavement grooving and grinding operations.
  - Waste needs to be collected and disposed of in an acceptable way.
  - Cannot leave waste on site or allow to runoff or infiltrate the soil.
  - **Ensure the project specifications are clear that the removal and disposal of waste is the responsibility of the contractor, and the method needs DNR approval.**
    - Make this clear in the pre-bid and pre-construction meetings
    - Coordinate early with DNR and include this work in the design phase for DNR review.



# DSPS AND T-HANGARS

## NO. OF PLAN REVIEWS SUBMITTED

	Commercial Building	Plumbing	POWTS	Elevators
October	831	223	230	67
November	333	160	149	48
December	400	141	125	48
January	415	181	149	83
February	505	212	157	79
March	625	263	193	65

## ESTIMATED REVIEW RESPONSE TIMES

	Commercial Building	Plumbing	POWTS	Elevators
No. of Business Days	25	25	5	17

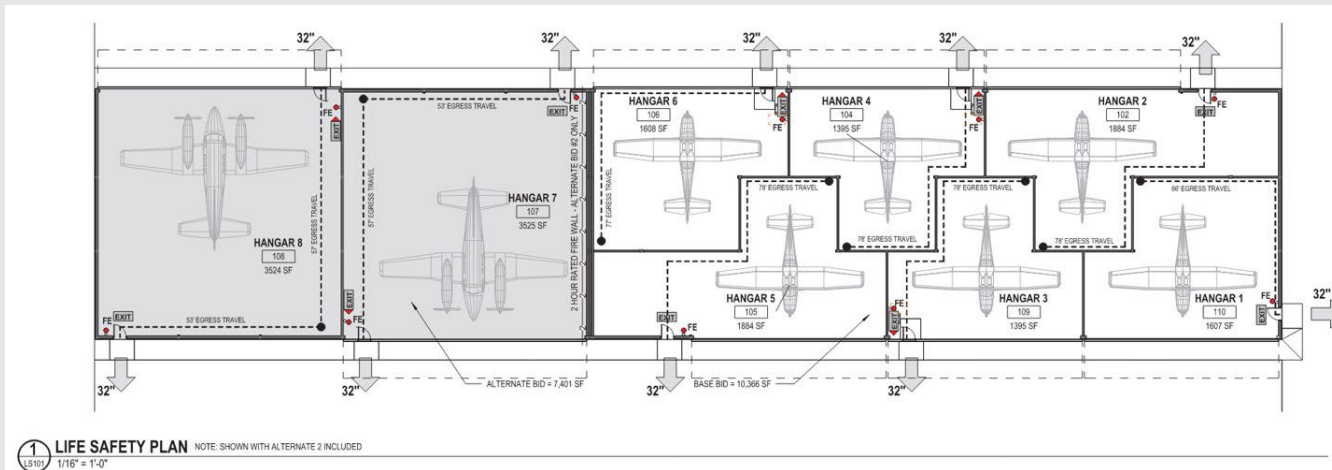
## DSPS Overview and General Process

- Plan review is required for commercial, industrial, and other public buildings 25,000 cubic feet or larger.
- Under Wisconsin Statute §101.12
- 30 Day Review Time
- Receive a "Conditional Approval"
- Reminder the State has adopted IBC 2021



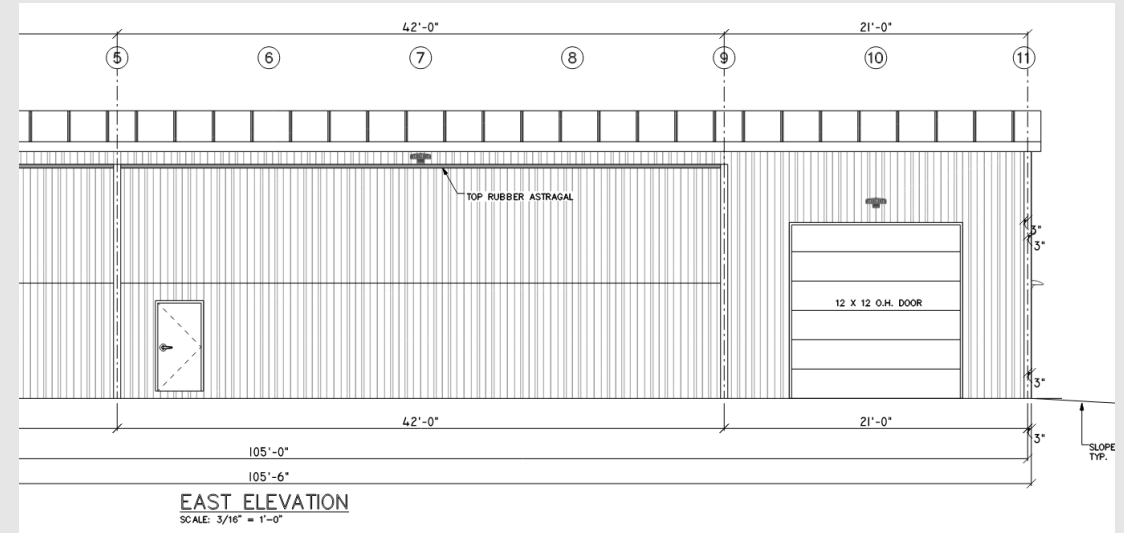
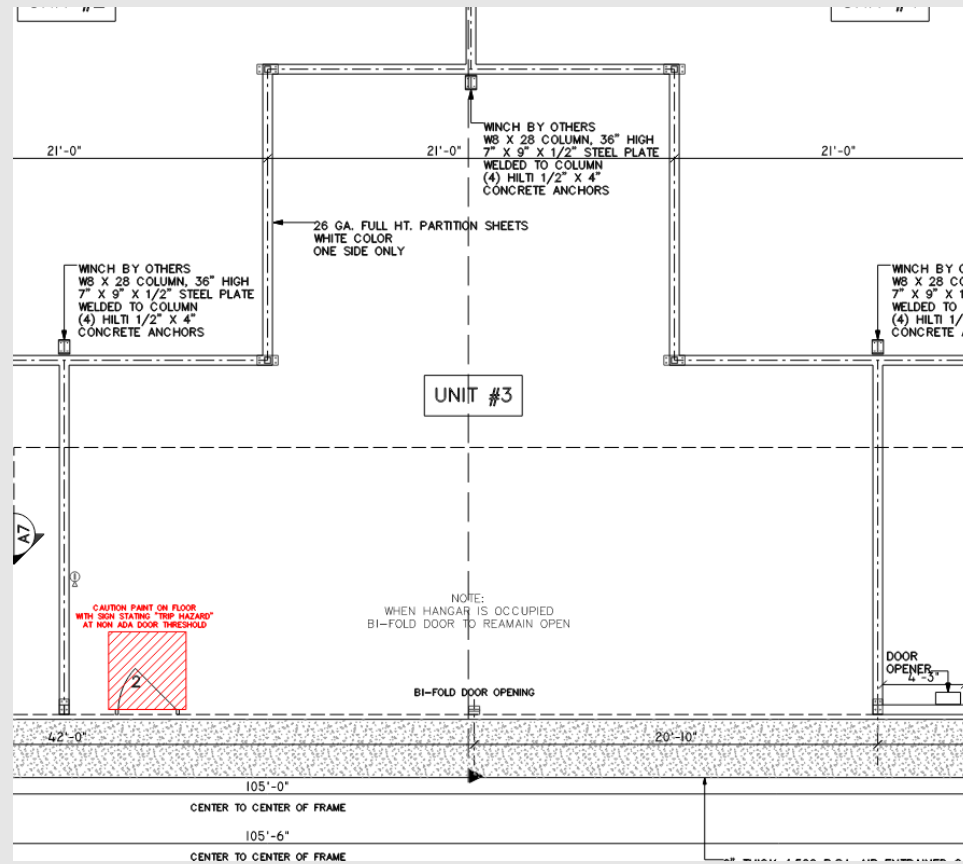
# DSPS AND T-HANGARS

- Review Comments Received
  - Related to egress route
  - Expanded to include emergency lighting
  - Local Smoke & Fire Alarm





- Example of How to Accommodate Code Review Comment
  - Painted hatching at door with a sign indicating trip hazard



## ARCHITECTURAL BUILDING CODE, LIFE SAFETY AND ZONING DATA

<b>PROJECT:</b>	MANITOWISH WATERS AIRPORT D25 HANGER
<b>PROJECT #:</b>	76710
<b>LOCATION:</b>	MANITOWISH WATERS, WISCONSIN- VILAS COUNTY
<b>APPLICABLE CODES:</b>	WISCONSIN SPS / INTERNATIONAL BUILDING CODE 2015, NFPA 101, NFPA 409.
<b>PROJECT DESCRIPTION:</b>	NEW LEASABLE AIRCRAFT HANGAR AT EXISTING AIRPORT. NO MAINTENANCE WORK TO BE DONE IN HANGARS. THERE IS PROVISIONS FOR ALTERNATE TO GO FROM 6 HANGARS TO 8 HANGARS. REQUESTING REVIEW FOR WORST CASE SCENARIO WITH ALTERNATE BOX HANGARS.
<b>BUILDING VOLUME=</b>	(225,288 cuft BASE BID) (388,033 cuft ALTERNATE BID)
<b>CHAPTER 3 - USE AND OCCUPANCY CLASSIFICATION</b>	
3011.2	GROUP S-1 AIRCRAFT HANGAR (STORAGE ONLY, NO REPAIRS)
<b>CHAPTER 4 - SPECIAL DETAILED REQUIREMENTS FOR USE AND OCCUPANCY</b>	
412	AIRCRAFT RELATED OCCUPANCIES
412.4.1	HANGAR WALLS ARE MORE THAN 30' FROM NEAREST BUILDING. THEREFORE EXT WALLS NOT REQ'D TO BE RATED.
412.4.3	FLOOR DRAINS ONLY REQUIRED AT INDIVIDUAL LEASED HANGARS OVER 2,000 SF IN AREA.
412.4.4	SUSPENDED UNIT HEATERS MUST BE 10' ABOVE WINGS / ENGINE OF TALLEST EXPECTED AIRCRAFT.
412.4.6	FIRE SUPPRESSION TO BE PER NFPA 409 AND TABLE 412.4.6
NFPA 409 6.13	GROUP III TYPE HANGAR MAX SINGLE FIRE AREA = 12,000 SF OR LESS
NFPA 409 10.1.5	IF ALTERNATE #2 IS ACCEPTED, THEN 2 HOUR FIRE WALL IS REQUIRED DUE TO SQUARE FOOTAGE. SEE PLANS.
NFPA 409 10.1.7	IN LIEU OF 8" CONCRETE CURB, A STEEL ANGLE WILL BE USED FOR SPILL CONTAINMENT BETWEEN SPACES
NFPA 409 10.2.1	ROOF FINISH WILL BE CLASS A METAL PANEL
NFPA 409 10.3.5.2	CLEAR SPACE BETWEEN BUILDINGS IS 100', EXCEEDING THE 50' REQUIREMENT
NFPA 409 10.3.5.2	SEE COMMENT ABOVE IN 412.4.4
<b>CHAPTER 5 - GENERAL BUILDING HEIGHTS &amp; AREAS</b>	
504.3	ENTIRE BUILDING IS TYPE IIB - NON-SPRINKLERED
504.4	MAX ALLOWABLE BUILDING HEIGHT TYPE IIB - GROUP S:
506.2	MAX BUILDING HEIGHT PROVIDED:
506.2	MAX ALLOWABLE BUILDING STORIES ABOVE GRADE TYPE IIB - GROUP S-1:
506.2	MAX BUILDING STORIES PROVIDED:
506.2	MAX ALLOWABLE BUILDING AREA PER FLOOR TYPE IIB- GROUP S-1:
	= 55 FT
	= 24'-0" ACTUAL HEIGHT
	= 2 STORIES
	= 1 STORY
	LEVEL 1 = 17,500 SF
	(NFPA 409 & IBC 412.4.6 OVERRIDES AND REQUIRES 12,000 SF MAX)
	ACTUAL = 10,368 SF IN BASE BID
	+ 7,601 SF IN ALTERNATE 2 BID (FIREWALL SEPERATION)
	17,767 SF TOTAL FOOTPRINT (REQUIRES FIREWALL)
<b>CHAPTER 6 - TYPE OF CONSTRUCTION</b>	
601	FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (TYPE IIB):
	PRIMARY STRUCTURAL FRAME:
	EXTERIOR WALLS:
	NON BEARING WALLS AND PARTITIONS:
	FLOOR CONSTRUCTION & SECONDARY MEMBERS:
	ROOF CONSTRUCTION AND SECONDARY MEMBERS:
602	CONSTRUCTION TYPE:
	NO RATING REQUIRED
	NO RATING REQUIRED
	NO RATING REQUIRED
	NO RATING REQUIRED
	NO RATING REQUIRED
	IIB CONSTRUCTION (PRE-ENGINEERED METAL BUILDING)
<b>CHAPTER 9 - FIRE PROTECTION SYSTEMS</b>	
903	AUTOMATIC SPRINKLER SYSTEM:
907.2	MANUAL FIRE ALARM DETECTION SYSTEM
	NOT REQUIRED PER 412.4.6
	NOT REQUIRED
<b>CHAPTER 10 - MEANS OF EGRESS</b>	
1003.5	A SINGLE STEP WITH A 7" MAX RISER IS PERMITTED AT EXTERIOR OF GROUP S BUILDINGS IF NOT ON A REQ'D ACCESSIBLE ROUTE. REQUIRES ONE HANDRAIL COMPLYING WITH 1014 WITHIN 30' OF DIRECTION OF EGRESS.
1004	OCCUPANT LOAD:
	OCCUPANCY S-1
	<b>TOTAL OCCUPANTS:</b>
1005	EGRESS WIDTH REQUIREMENTS:
	35 OCCUPANTS X 2" OTHER
	= 17,767 SF / 1500 SF PER OCC = 35 OCCUPANTS
	<b>= 35 OCCUPANTS</b>
	= 7" REQUIRED
	= 320" PROVIDED
	= 5% REQUIRED, BUT NOT FEWER THAN 1
	= 3 PROVIDED (+2 w/ ALT. BID)
	=100' MAX COMMON PATH OF EGRESS TRAVEL IF LESS THAN 30 OCCUPANTS
1006.2.1	SPACES WITH SINGLE EXIT
1006.3.2	SINGLE EXITS ARE PERMITTED WHERE THE EXIT DISCHARGES DIRECTLY TO THE EXTERIOR AT THE LEVEL OF EXIT DISCHARGE
1010.1.5	LANDING ONLY REQUIRED AT INTERIOR SIDE OF THE DOOR PER EPECTION 2.
1010.1.6	LANDINGS SHALL BE FULL WIDTH OF THE DOOR MINIMUM AND A LENGTH OF 44" MINIMUM IN THE DIRECTION OF TRAVEL.
1014	HANDRAILS SHALL BE BETWEEN 34 INCHES TO 38 INCHES
1015	GUARDS ARE NOT REQUIRED AT LANDINGS LESS THAN 30" IN HEIGHT
<b>CHAPTER 11 - ACCESSIBILITY</b>	
1105	ACCESSIBLE ENTRANCES
	ADA 225.3 SELF-SERVICE STORAGE FACILITY IS CLOSEST CATEGORY
	= 5% REQUIRED, BUT NOT FEWER THAN 1
	= 3 PROVIDED (+2 w/ ALT. BID)
<b>CHAPTER 20 - PLUMBING</b>	
	NO TOILETS, LAVATORIES OR SIMILAR FIXTURES PROVIDED AS THIS IS A NORMALLY UNOCCUPIED STORAGE BUILDING. FIXTURES ARE LOCATED AT THE EXISTING TERMINAL BUILDING.
	FLOOR DRAINS PROVIDED TO COMPLY WITH 412.4.3 IN HANGARS 7 AND 8.
	DSPS SUBMISSION / REVIEW IS NOT REQUIRED FOR PLUMBING AS THERE IS LESS THAN 16 FIXTURES. LOCAL APPROVAL PROVISIONS SHALL PREVAIL.
<b>IECC 2015</b>	
C301.1	VILAS COUNTY, WI
	=ZONE 7
	BUILDING IS SEMI-HEATED ONLY, NO COOLING PROVIDED. BELOW ARE THE ASSEMBLY U-VALUES SUBMITTED VIA THE COMCHECK ANALYSIS WHICH SHALL BE THE BASIS OF DESIGN:
	ROOF
	WALLS
	HM SWING DOORS
	BIFOLD HANGAR DOORS
	=U.031 (DOUBLE LAYER FIBERGLASS SYSTEM R25+R11 W/ TB)
	=U.047 (DOUBLE LAYER FIBERGLASS SYSTEM R25+R10)
	=U.38 (INSULATED STEEL, HOLLOW METAL DOOR)
	=U.15 (FIBERGLASS OR RIGID BOARD INSULATED BIFOLD STEEL FRAMED DOOR)

## Opportunities for Improvements

- Clear and Complete Code Analysis
- Provide a Life Safety Plan
- Implement Past DSPS review comments
- Include all relevant drawings and information in DSPS submittal
- Architectural Plans, Site Drawings, Cover Sheet, Structural Foundation Details (even if preliminary)
- Consistent Plan Sets
- Recommend working with an Architect to help get through code analysis and design elements



# Questions?

