

Wood Roof Truss Systems

Submission Review
& Inspection

Overview of Training

1. General information.

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2. Review definitions and abbreviations.

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3. “Roof truss system” submission review.

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4. Pre-installation meeting.

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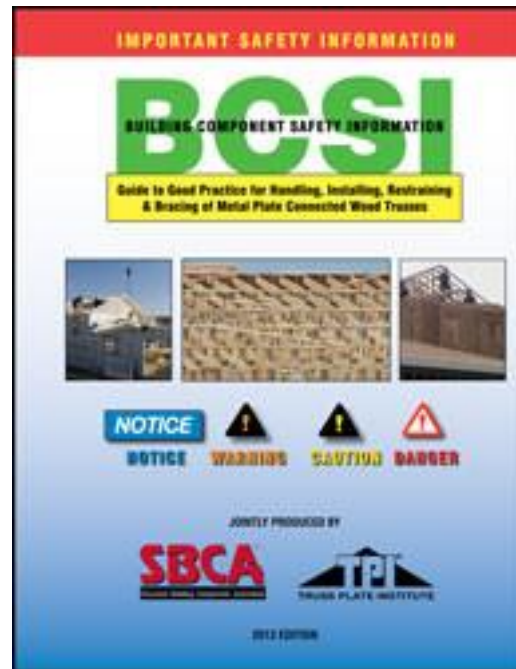
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6. Re-inspections

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General Information



General Information

- IRC R502.11 and R802.10
- IBC 2303.4 Trusses
- 2303.4.1.3 Trusses spanning 60 feet or greater.

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Review Definitions & Abbreviations

A. Truss submittal package.

- 1) Layout diagram (show example)
- 2) Individual truss design drawings (TDDs)
(refer to sample TDD)

Review Definitions & Abbreviations

B. Top Cord (TC)

Review Definitions & Abbreviations

B. Top Cord (TC)

C. Bottom Cord (BC)

Review Definitions & Abbreviations

B. Top Cord (TC)

C. Bottom Cord (BC)

D. Top Cord Live Load (TCLL)

Top Cord Dead Load (TCDL)

Review Definitions & Abbreviations

B. Top Cord (TC)

C. Bottom Cord (BC)

D. Top Cord Live Load (TCLL)

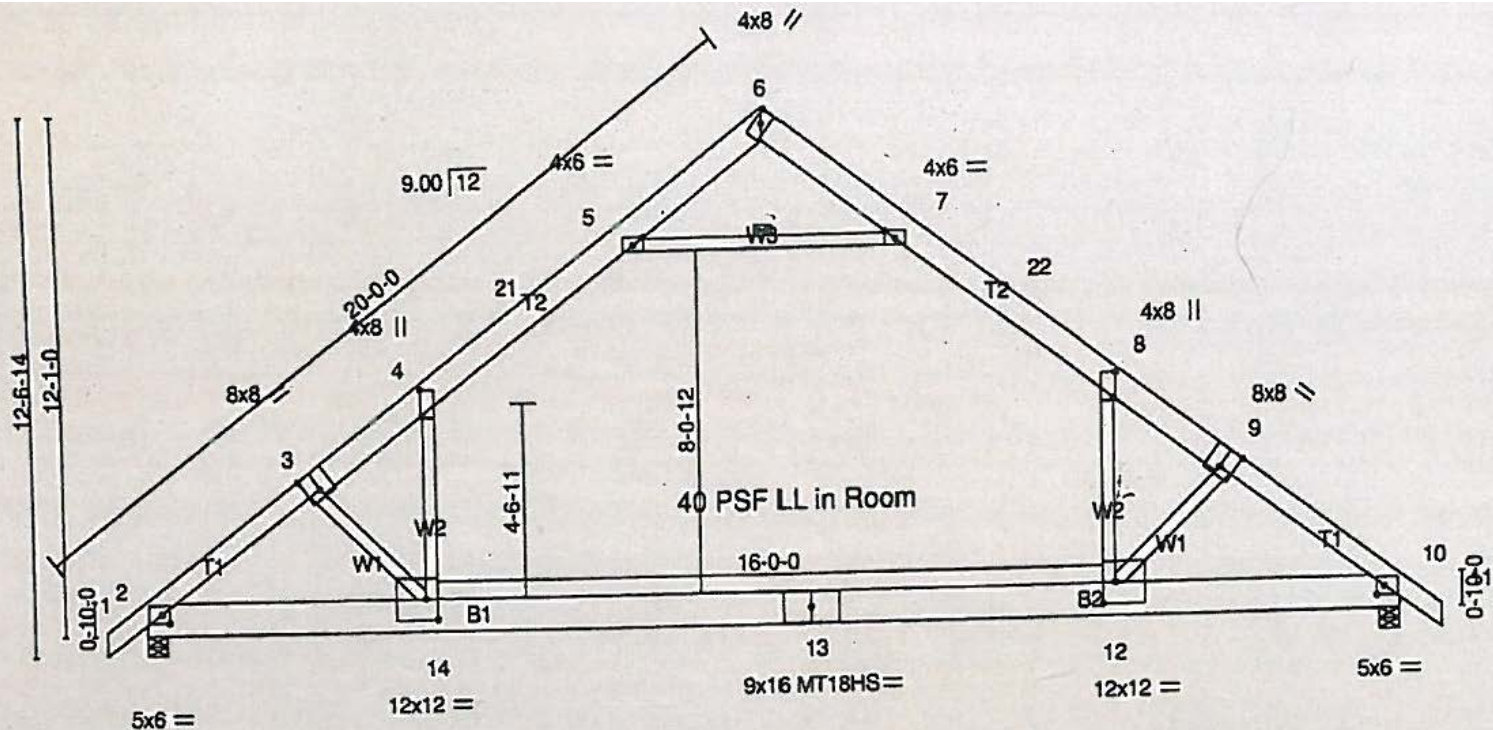
Top Cord Dead Load (TCDL)

E. Bottom Cord Live Load (BCLL)

Bottom Cord Dead Load (BCDL)

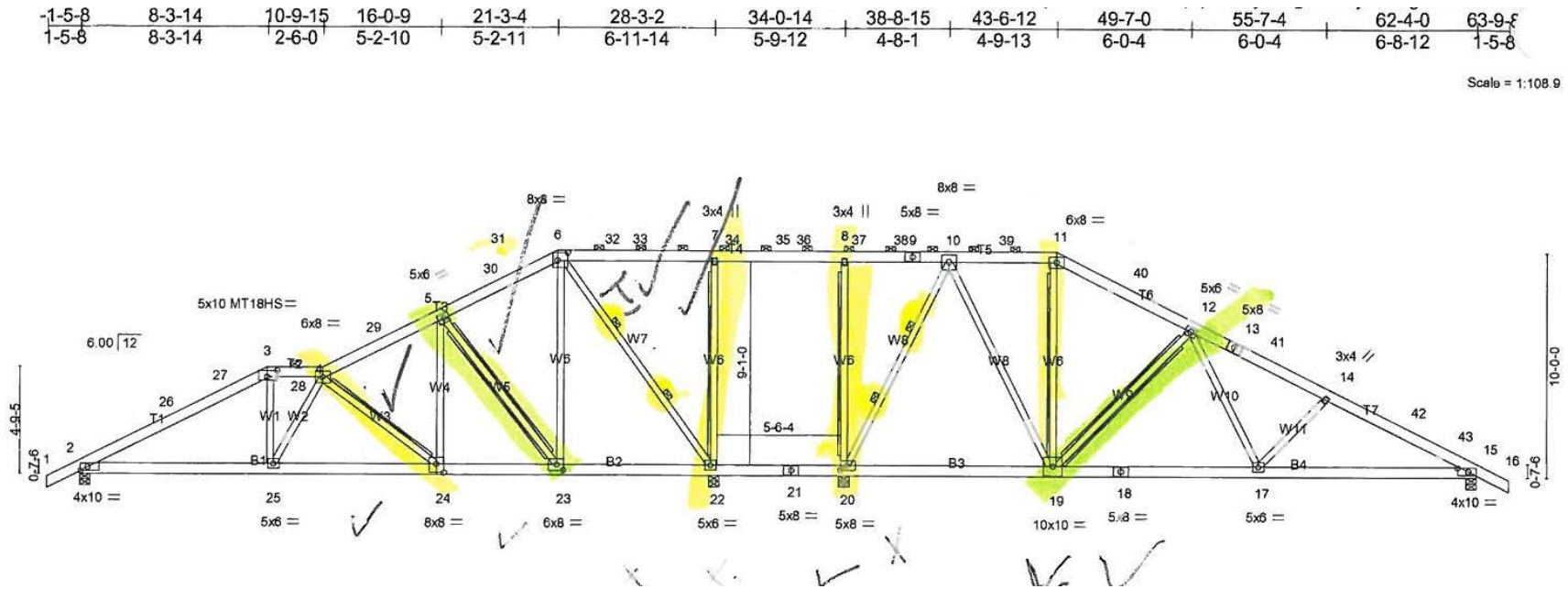
Review Definitions & Abbreviations

F. Attic or storage truss



Review Definitions & Abbreviations

H. Piggyback truss



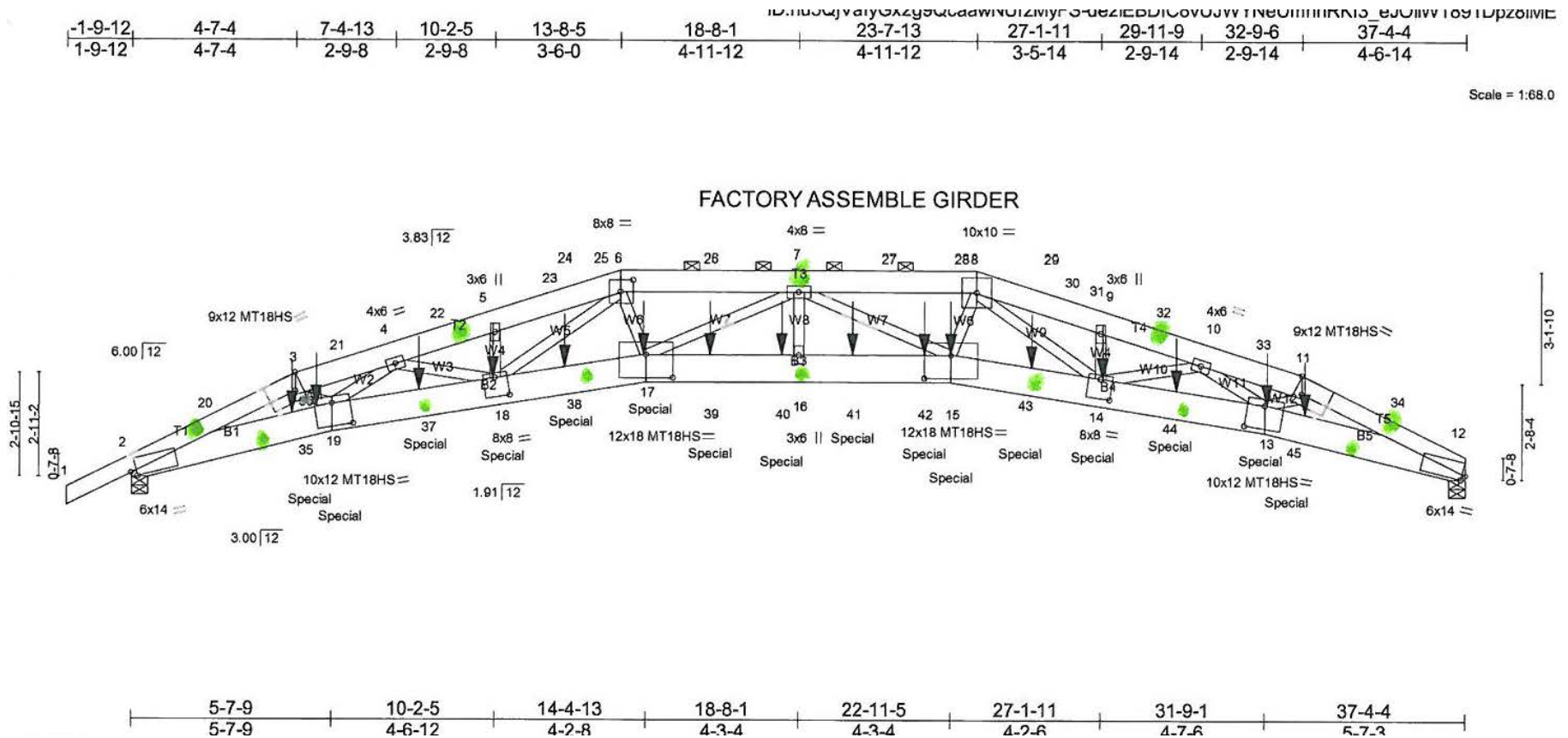
Review Definitions & Abbreviations

I. Multi-ply or girder truss



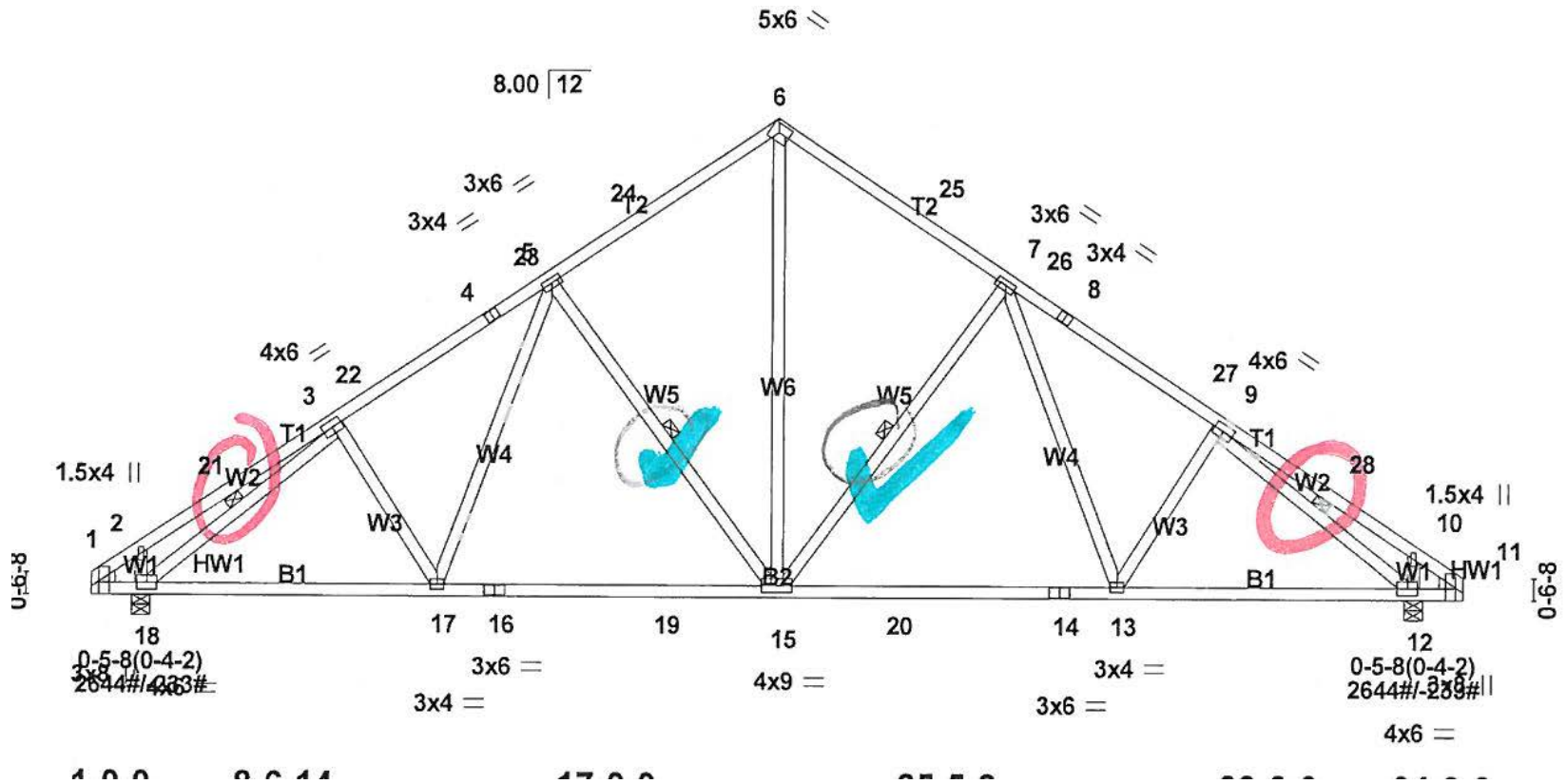
Review Definitions & Abbreviations

I. Multi-ply or girder truss



Review Definitions & Abbreviations

J. Regular truss



Review Definitions & Abbreviations

K. Web T-braces

Review Definitions & Abbreviations

K. Web T-braces

L. Web I-braces

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Roof Truss System Submission Review

A. Look at the overall layout of the system

Locate hips, valleys, multi-plies,
girders,

piggybacks, et cetera

(see sample layout sheet – large)

Roof Truss System Submission Review

B. Look at the individual TDDs

(see sample TDD handout – read notes)

Roof Truss System Submission Review

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(see sample TDD handout – read notes)

- Verify ground snow loads (GSL)

Roof Truss System Submission Review

B. Look at the individual TDDs

- Verify ground snow loads (GSL)
- Verify wind speed, category, exposure
(read the Notes)

Roof Truss System Submission Review

B. Look at the individual TDDs

- Verify ground snow loads (GSL)
- Verify wind speed, category, exposure
- Check for unbalanced loads

Roof Truss System Submission Review

B. Look at the individual TDDs

- Verify ground snow loads (GSL)
- Verify wind speed, category, exposure
- Check for unbalanced loads
- Look at the mechanical connections
(large range 100 to 700+ pounds)

Roof Truss System Submission Review

B. Look at the individual TDDs

- Verify ground snow loads (GSL)
- Verify wind speed, category, exposure
- Check for unbalanced loads
- Look at the mechanical connections
- Look at the multi-ply mechanical connections
(see example handout – read notes)

Roof Truss System Submission Review

B. Look at the individual TDDs

- Verify ground snow loads (GSL)
- Verify wind speed, category, exposure
- Check for unbalanced loads
- Look at the mechanical connections
- Look at the multi-ply mechanical connections
(see example handout – read notes)
- Differences between 2 trusses may be small

Roof Truss System Submission Review

C. Ask for a binder with truss sheets in order.

Roof Truss System Submission Review

- C. Ask for a binder with truss sheets in order.
- D. Beware of ducts that pass between and through trusses.

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Pre-installation meeting.

1. Let the installer know what you expect will happen, and will not happen. Go over items you will be inspecting.

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2. Storage and handling of trusses, what is your stopping point?

Pre-installation meeting.

1. Let the installer know what you expect will happen, and will not happen. Go over items you will be inspecting.
2. Storage and handling of trusses, what is your stopping point?
3. Trusses must be clearly numbered at an easily viewable location, such as the center of the BC, all on one side.

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Inspections

1. Be prepared, bring a flashlight, small binoculars, hi-liters, cart.

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2. Have a system in place, hi-lite items in blue that you verify, hi-lite items in red that you fail.

Inspections

1. Be prepared, bring a flashlight, small binoculars, hi-lites, cart.
2. Have a system in place, hi-lite items in blue that you verify, hi-lite items in red that you fail.
3. Make a list of deficiencies, including truss number, problem, location. Get help.
(Truss 814, web 5-12, T-brace missing, near elevator)

Inspections

4. Are the trusses installed according to the layout plan?

(Sometimes trusses get installed out of order)

Inspections

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(Sometimes trusses get installed out of order)

(Sometimes trusses get installed backwards)

Inspections

4. Are the trusses installed according to the layout plan?

(Sometimes trusses get installed out of order)

(Sometimes trusses get installed backwards)

(Sometimes trusses get field assembled incorrectly, AA and BB, not AB and AB)

Inspections

5. Bracing

a) What is the intent of the bracing on a TDD?

Inspections

5. Bracing

- a) What is the intent of the bracing on a TDD?
- b) TC, BC, and web bracing per TDD.

Inspections

5. Bracing

- a) What is the intent of the bracing on a TDD?
- b) TC, BC, and web bracing per TDD.
- c) T-bracing.

Inspections

5. Bracing

- a) What is the intent of the bracing on a TDD?
- b) TC, BC, and web bracing per TDD.
- c) T-bracing.
- d) I-bracing.

Inspections

5. Bracing

- a) What is the intent of the bracing on a TDD?
- b) TC, BC, and web bracing per TDD.
- c) T-bracing.
- d) I-bracing.
- e) Overall truss system bracing, from engineer or BCSI.

Inspections

6. Piggyback trusses

- Top trusses and bottom trusses connected per plan?

Inspections

6. Piggyback trusses

- Top trusses and bottom trusses connected per plan?
- Roof sheathing should not break at truss boundary.

Inspections

7. Multi-ply trusses

- Are the truss plies connected per TDD?

Inspections

7. Multi-ply trusses

- Are the truss plies connected per TDD?
- Nailing sizes, patterns, and on center distances.

Inspections

7. Multi-ply trusses

- Are the truss plies connected per TDD?
- Nailing sizes, patterns, and on center distances.
- Bolting sizes, patterns, and on center distances.

Inspections

8. Field assembled trusses

- Are segments assemble per TDD?

Inspections

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- Are segments assemble per TDD?
- Church example.

Inspections

8. Field assembled trusses
 - Are segments assemble per TDD?
 - Church example.
9. Damaged cord and web members.

Inspections

8. Field assembled trusses
 - Are segments assemble per TDD?
 - Church example.
9. Damaged cord and web members.
10. Damaged gusset plates.

Inspections

8. Field assembled trusses
 - Are segments assemble per TDD?
 - Church example.
9. Damaged cord and web members.
10. Damaged gusset plates.
11. Bowed trusses.

Inspections

12. Missing or incorrect hangers.

Inspections

12. Missing or incorrect hangers.

13. Missing or incorrect hanger fasteners.

Inspections

- 12. Missing or incorrect hangers.
- 13. Missing or incorrect hanger fasteners.
- 14. Cutting, boring, or notching cords & webs.

Inspections

- 12. Missing or incorrect hangers.
- 13. Missing or incorrect hanger fasteners.
- 14. Cutting, boring, or notching cords & webs.
- 15. Bearing points - designed.

Inspections

- 12. Missing or incorrect hangers.
- 13. Missing or incorrect hanger fasteners.
- 14. Cutting, boring, or notching cords & webs.
- 15. Bearing points - designed.
- 16. Bearing points – unintended.

Inspections

- 12. Missing or incorrect hangers.
- 13. Missing or incorrect hanger fasteners.
- 14. Cutting, boring, or notching cords & webs.
- 15. Bearing points - designed.
- 16. Bearing points – unintended.
- 17. Mechanical connections to bearing points.

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Re-inspections

1. Finding the trusses you failed.

Re-inspections

1. Finding the trusses you failed.
2. Getting a “Truss Repair Detail” from the truss designer/engineer.

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7. **Modifications**

Modifications

1. Who can modify a truss?

Modifications

1. Who can modify a truss?
2. Anyone can modify a truss as long as the modifications are approved by the registered Design Professional.

Modifications

3. What are reasons for truss modifications?

Modifications

3. What are reasons for truss modifications?
 - Repairs for damaged trusses.

Modifications

3. What are reasons for truss modifications?
 - Repairs for damaged trusses.
 - Modifications to installation errors.

Modifications

3. What are reasons for truss modifications?
 - Repairs for damaged trusses.
 - Modifications to installation errors.
 - Adding RTUs or other loads.