Ohmics

AI ELECTRICAL REVIEW

AUTOMATED PRELIMINARY SCREENING

AI NEC Pre-Check

Report generated August 18, 2026

Prepared for	[REDACTED]
Prepared by	Ohmics automated review, PEFG, PLLC
Job ID	SAMPLE-NEC-01
Order ID	SAMPLE: anonymized production test run
Review type	Automated release

AT A GLANCE: 18 FINDINGS

2	12	4	0
CRITICAL	SIGNIFICANT	OBSERVATION	INFORMATION

EXECUTIVE SUMMARY

Findings and Recommendations Summary

This review found 18 findings: 2 critical, 12 significant and 4 observations. The critical findings concern set integrity and ratings. The recommendations below cover every critical and significant finding. Full detail begins on the following page.

SEVERITY DISTRIBUTION



Critical 2 Significant 12 Observation 4

RECOMMENDATIONS

Finding 1 · Critical
1. Reword the single-line note to match the grounding detail.

Finding 2 · Critical
2. Specify the rating the same way the transformer disconnects are specified.

Finding 3 · Significant
3. Add the transformer schedule, or remove the callout and show transformer data on the one-lines.

Finding 4 · Significant
4. Show the intended loads, or mark the positions as future others-scope and require the schedules to be updated at closeout.

Finding 5 · Significant
5. Choose one outcome for the transfer switch and fix the disconnect rating.

Finding 6 · Significant
6. Mark the PASS results as provisional and state who updates them and when.

Finding 7 · Significant
7. Add a load calculation for the 1200 A panel showing existing plus new load.

Finding 8 · Significant
8. Dimension the working space at the new equipment.

Finding 9 · Significant
9. Add the marking notes.

Finding 10 · Significant
10. Show the primary and secondary overcurrent device ratings for both transformers.

Finding 11 · Significant
11. Confirm its switch rating, and if it is out of scope, add a note saying so.

Finding 12 · Significant
12. State the cable outside diameter the tray size is based on, or specify a maximum.

Finding 13 · Significant
13. State the ground conductor size and add an upsizing note if the adopted edition requires one.

Finding 14 · Significant
14. Show the grounding electrode connection for the new transformers.

BY CATEGORY

Set integrity	10
Working space	1
Transformer protection	1
Equipment grounding	1
Overcurrent	1
Ratings	1
Marking	1
Ampacity	1
Separately derived	1

AI NEC Pre-Check

Job SAMPLE-NEC-01 · Order SAMPLE: anonymized production test run · Automated release

Anonymized sample. Client, site, people, dates, document numbers, equipment tags, part numbers and manufacturer names are removed or generalized, and identifying values are slightly modified. Findings are shortened; the engineering point of each is unchanged.

Read before relying on anything below.

This is a preliminary code screening, not a compliance determination.

This report checks your electrical drawings, one-lines, panel schedules, and install details against an owner-authored NEC article checklist, grounded in the code edition and amendments you provided. It is not a stamped or sealed engineering review, and it does not constitute a determination of code compliance by any Authority Having Jurisdiction.

Findings are limited to what is visible in the documents submitted. Absence of a finding does not indicate compliance. All findings must be independently verified by the Engineer of Record against the code edition and local amendments adopted by the Authority Having Jurisdiction for this project.

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You are responsible for confirming that the file you upload is the document you intend to have analyzed. Verify it before you submit — the intake step asks you to confirm this, and the report identifies the file it reviewed on its first page. An incomplete or partial submission — an extract, a summary page, a single sheet of a larger set, or a document missing the appendices the review depends on — is a valid submission of the correct type and will be reviewed and billed as one; the review will report the missing content as findings, and that consumes your payment. The one exception is a submission this engine refuses outright because it is not the kind of document this product reviews: that produces no review, no report, and consumes no paid unit.

Submission details

Report	AI NEC Pre-Check — Report NEC-01
Submittal reviewed	[issue-for-construction drawing set].pdf (16 sheets)
Client identity	Anonymized for public release

CRITICAL (2)

NEC-SET-01-2 · Set integrity · issue

Critical

1. Three notes disagree on grounding conductors for one parallel feeder

Two notes and the grounding detail call for one equipment grounding conductor (EGC) in each of two parallel raceways. A third note, on the sheet that carries the feeder notes, reads as a single EGC. An installer working from that sheet could pull one EGC in only one raceway.

RECOMMENDATION

Reword the single-line note to match the grounding detail.

Source: page not applicable, single-line notes sheet; grounding and bonding detail sheet

Code ref: none (general observation)

Confidence: high

NEC-110-06-5 · Ratings · issue

Critical

2. New disconnect has no interrupting or short-circuit rating

The new disconnect upstream of a panel with 10.7 kA available fault current has no interrupting or short-circuit rating, type or fuse designation. Another note in the set rates the transformer disconnects correctly at 25 kA.

RECOMMENDATION

Specify the rating the same way the transformer disconnects are specified.

Source: page not applicable, single-line notes sheet; fault current sheet

Code ref: none (general observation)

Confidence: medium

SIGNIFICANT (12)

NEC-SET-08-1 · Set integrity · issue

Significant

3. Symbol legend points to a transformer schedule that is not in the set

The symbol legend tells the reader to see the transformer schedule. No transformer schedule is in the sheet index or the set.

RECOMMENDATION

Add the transformer schedule, or remove the callout and show transformer data on the one-lines.

Source: page not applicable, symbol legend sheet, transformer note; sheet index

Code ref: none (general observation)

Confidence: high

NEC-SET-06-3 · Set integrity · issue

Significant

4. About half of two panel schedules reads "BY OTHERS"

On two 42-pole panels, about 19 circuits each read "BY OTHERS" at 0 VA. Scope notes explain the intent, but the schedules do not show what is connected or support a load calculation.

RECOMMENDATION

Show the intended loads, or mark the positions as future others-scope and require the schedules to be updated at closeout.

Source: page not applicable, panel schedule sheet, two panels, upper circuits

Code ref: none (general observation)

Confidence: high

NEC-SET-06-4 · Set integrity · issue

Significant

5. Three field decisions left open on an issue-for-construction set

One note offers three outcomes for an existing transfer switch (decommission, abandon in place or remove). Another moves breakers "if needed", and a third calls for a disconnect of "400A or greater" with no other rating.

RECOMMENDATION

Choose one outcome for the transfer switch and fix the disconnect rating.

Source: page not applicable, single-line notes sheet, three general notes

Code ref: none (general observation)

Confidence: high

NEC-SET-06-6 · Set integrity · issue

Significant

6. Set issued for construction while its fault current data is marked preliminary

The fault current sheet says updated calculations will be provided before construction. The eight PASS equipment ratings on the same sheet use the current values and are not marked provisional.

RECOMMENDATION

Mark the PASS results as provisional and state who updates them and when.

Source: page not applicable, fault current sheet, notes 1 and 2, and the revision block

Code ref: none (general observation)

Confidence: high

NEC-SET-07-8 · Set integrity · issue

Significant

7. No load calculation for the panel receiving a new 400 A feeder

A 400 A breaker is added to an existing 1200 A, 480 V panel. The set calculates UPS loading only and has no existing-plus-new load calculation for that panel or for the two new panels.

RECOMMENDATION

Add a load calculation for the 1200 A panel showing existing plus new load.

Source: page not applicable, load calculation sheet; single-line notes sheet; one-lines

Code ref: none (general observation)

Confidence: high

NEC-110-01-11 · Working space · issue

Significant

8. No working space information

No sheet shows working space, clearance or dedicated space for the new panels, transformers or disconnect. Confidence is medium only because no code text was supplied.

RECOMMENDATION

Dimension the working space at the new equipment.

Source: page not applicable, the whole set, including the plan routing sheet

Code ref: none (general observation)

Confidence: medium

NEC-110-04-12 · Marking · issue

Significant

9. No fault current or arc flash marking notes

The set calculates available fault current at the service and seven other buses, but has no note requiring field marking of the fault current or arc flash warning labels.

RECOMMENDATION

Add the marking notes.

Source: page not applicable, general notes, single-line notes and fault current sheets

Code ref: none (general observation)

Confidence: medium

NEC-450-01-13 · Transformer protection · issue

Significant

10. Transformer disconnects upgraded, overcurrent devices not shown

A note correctly upsizes the disconnects for two 112.5 kVA, 480 V transformers from 100 A to 200 A. The primary and secondary overcurrent devices are not shown for either transformer.

RECOMMENDATION

Show the primary and secondary overcurrent device ratings for both transformers.

Source: page not applicable, single-line notes sheet; one-lines

Code ref: none (general observation)

Confidence: medium

NEC-SET-02-14 · Set integrity · issue

Significant

11. A third transformer with the same 100 A switch is not addressed

A third 112.5 kVA transformer on the existing one-line appears to have the same 100 A switch. It is not in the upgrade note and may be outside the scope of this work.

RECOMMENDATION

Confirm its switch rating, and if it is out of scope, add a note saying so.

Source: page not applicable, existing one-line; single-line notes sheet

Code ref: none (general observation)

Confidence: medium

NEC-300-01-15 · Ampacity · issue

Significant

12. Tray sizing depends on cable diameters that are not given

The set sizes a 36 in tray for 26 cables at one-diameter spacing. That works only if each cable plus its spacing averages under 1.38 in, and the set gives no cable outside diameter.

RECOMMENDATION

State the cable outside diameter the tray size is based on, or specify a maximum.

Source: page not applicable, cable tray section and fill detail; UPS branch circuit notes

Code ref: none (general observation)

Confidence: medium

NEC-250-03-16 · Equipment grounding · issue

Significant

13. Branch conductors upsized with no EGC size stated

UPS branch circuits are upsized to #8 or #6 Cu for voltage drop. The cable's ground conductor size is not stated anywhere, a nd no note addresses upsizing it.

RECOMMENDATION

State the ground conductor size and add an upsizing note if the adopted edition requires one.

Source: page not applicable, UPS branch circuit notes B, C and D; feeder and panel schedules

Code ref: none (general observation)

Confidence: medium

NEC-250-04-17 · Separately derived · issue

Significant

14. No grounding electrode connection for new transformers

The bonding detail for the new separately derived systems is thorough. No grounding electrode conductor or electrode connection is shown for them.

RECOMMENDATION

Show the grounding electrode connection for the new transformers.

Source: page not applicable, grounding and bonding detail; the whole set

Code ref: none (general observation)

Confidence: medium

OBSERVATION (4)

NEC-SET-06-7 · Set integrity · issue

Observation

15. Duplicate list letter and a unit error on the load sheet

Two items in the fault current list share the letter G. The UPS load total shows 112.3 with the unit VA. It should be kVA, and the rows below already treat it as kVA.

RECOMMENDATION

Relabel the second G as H and correct the unit to kVA.

Source: page not applicable, fault current sheet, item list and UPS load table

Code ref: none (general observation)

Confidence: high

NEC-SET-01-9 · Set integrity · issue

Observation

16. Raceway weights show rigid conduit lighter than EMT

From the schedule's own weight and length, 2-1/2 in rigid galvanized conduit (GRC) works out lighter per foot than 2-1/2 i n electrical metallic tubing (EMT). The weights also appear to leave out the conductors, and the sheet indicates they are u sed for structural loading.

RECOMMENDATION

Confirm what the weight column includes and re-derive the two GRC runs.

Source: page not applicable, raceway schedule, four rows; sheet note A

Code ref: none (general observation)

Confidence: high

NEC-SET-01-10 · Set integrity · issue

Observation

17. Detail shows 3 in conduit that the schedule does not list

The cable tray termination detail shows 3 in EMT and GRC. The raceway schedule has no 3 in raceway. The detail may be a generic typical.

RECOMMENDATION

Add the 3 in runs to the schedule, or mark the detail as typical with sizes per the schedule.

Source: page not applicable, cable tray termination detail; raceway schedule

Code ref: none (general observation)

Confidence: medium

NEC-408-02-18 · Overcurrent · issue

Observation

18. Main-lug-only panels with no protection basis

The updated one-line shows ten existing main-lug-only panels with no note on which upstream device protects each bus. They are existing and outside the new work.

RECOMMENDATION

No action for the new work. Consider noting the upstream device for each main-lug-only panel.

Source: page not applicable, updated one-line; scope note

Code ref: none (general observation)

Confidence: medium