

# NCSX CLOSE OUT NOTE

**TO:** Larry Dudek  
**FROM:** Erik D. Perry

**SUBJECT:** NCSX WBS 8215, Plant Design (General Arrangement Drawings)

**Date:** October 6, 2008

## **Scope**

This job covers the allocation of space within the NCSX Facility which includes the Test Cell and adjacent areas. Included is the development of models and drawings to define the routing and location of equipment in the Test Cell. Updated drawings of the NCSX Test Cell should be distributed to all NCSX WBS managers on a monthly basis when designs are actively being worked on.

## **Status**

The location of columns and stairs for the machine platform has been added to the general model of the facility. In addition, extensive input on the location of racks and cable trays has been collected from the lead electrical designer and the electrical field engineer. This information is ready to be added to the model. For several other systems (vacuum, cryogenic, neutral beam), general requests for real estate allocations have been collected and should be added to the model in a preliminary fashion so comments from all WBS managers can be requested.

## **Interfaces**

Interfaces are shown on the models.

## **Specifications**

N/A

## **Schematics and PIDs**

N/A

## **Models**

This scope is included in the main model of the General Arrangement of the NCSX Facility.

## **Drawings**

Drawings for sign-off have not yet been developed.

## **Analyses**

N/A

## **Testing**

N/A

# NCSX CLOSE OUT NOTE

## **Costs**

This is a Level of Effort activity. The existing cost estimates are still valid.

## **Remaining Work**

Only a small amount of the work of developing General Arrangement drawings has been done. Extensive input on the location of racks and cable trays has been collected from the lead electrical designer and the electrical field engineer and this information is ready to be added to the model. For several other systems (vacuum, cryogenic, neutral beam), general requests for real estate allocations have been collected and should be added to the model in a preliminary fashion so comments from all WBS managers can be requested.

Once this has been done, and all comments have been resolved, formal General Arrangement drawings should be issued and all future requests for real estate should be approved and incorporated on the General Arrangement drawing before design work on that aspect of a particular system continues.

## **Lessons Learned:**

None

## **Conclusion:**

This work has only just been started.

# Plant Design Integration, General Arrangement Drawings

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# Plant Design Integration



- Requirements
  - Allocate space within NCSX Facility - Includes test cell and adjacent areas
  - Maintain 3D model and use it to extract general arrangement drawings
  - Update general arrangement drawings
    - Distribute to all NCSX WBS Managers monthly
- Interfaces
  - Include input from
    - All WBS elements which have items to install
    - Safety personnel
    - Operations personnel
    - Maintenance/upgrade personnel

# Plant Design Integration



- Design status
  - 3D plant model developed over the past 8 years
  - Updated general arrangement drawings extracted from the 3D model are being emailed to WBS managers and posted on website
  - Brainstorming meetings being held for complex interfaces
- Cost and schedule estimates
  - To update models during April/May 2008:
    - 10 MD designer
    - 5 MD engineer
  - To maintain model/drawings until CD4 (based on cost of general arrangement drawings for NSTX)
    - 1.5 MD per month engineer
    - 1 MD per month designer



# General Arrangement Drawings



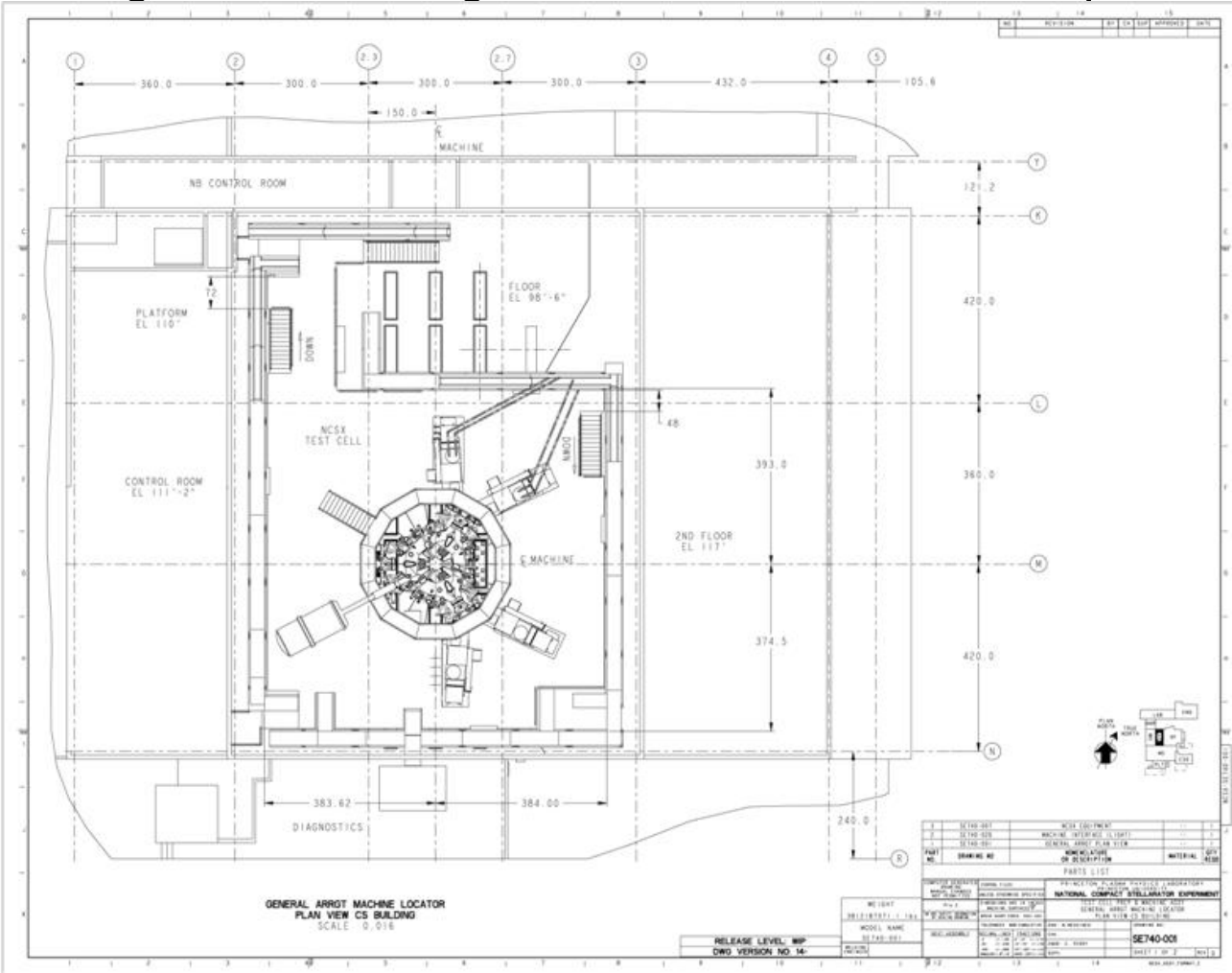
- NCSX Test Cell Model



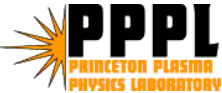
# General Arrangement Drawings



- General Arrangement drawing of NCSX Test Cell above platform



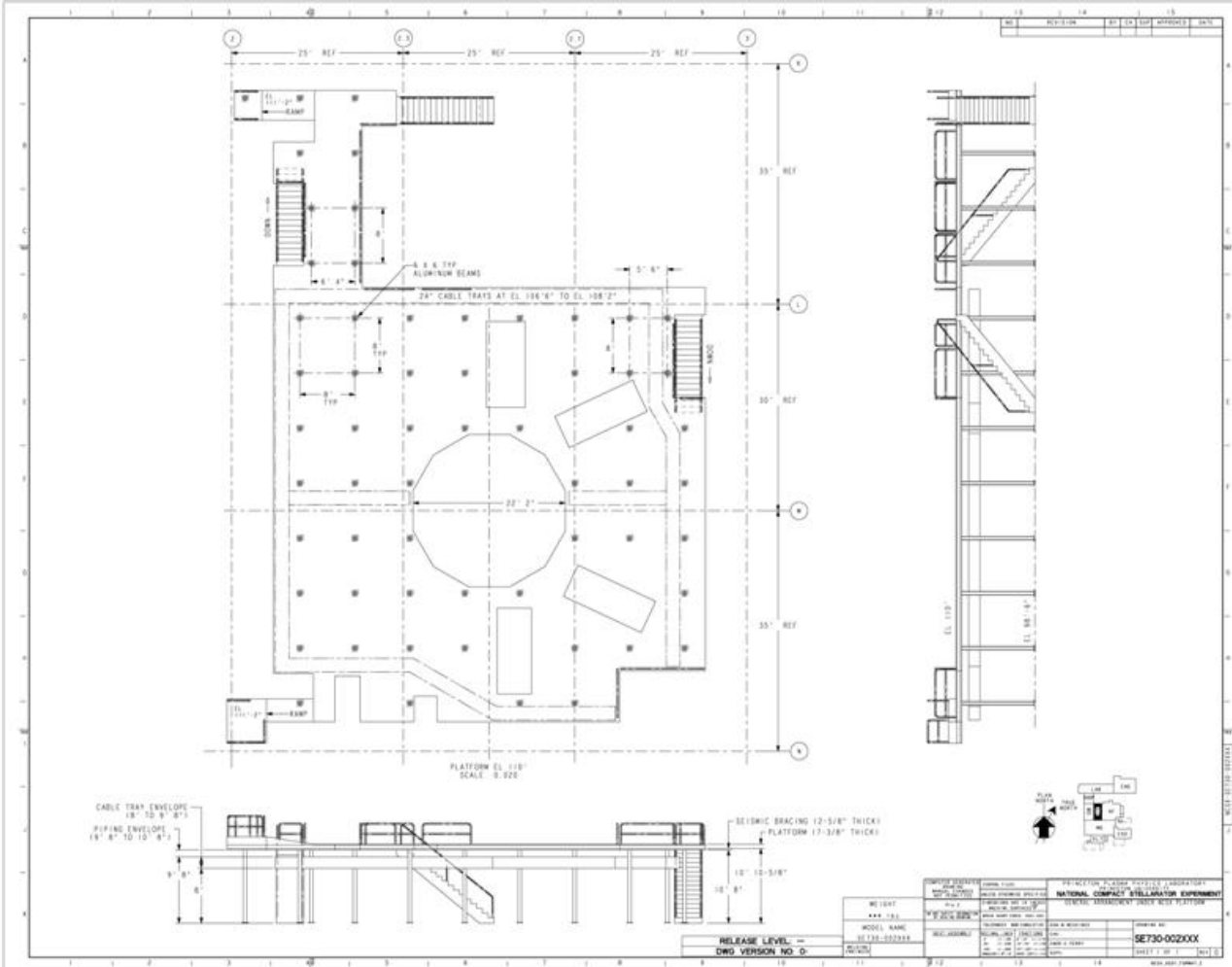
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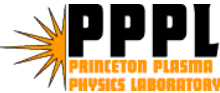
# General Arrangement Drawings



- General Arrangement drawing of NCSX Test Cell below platform



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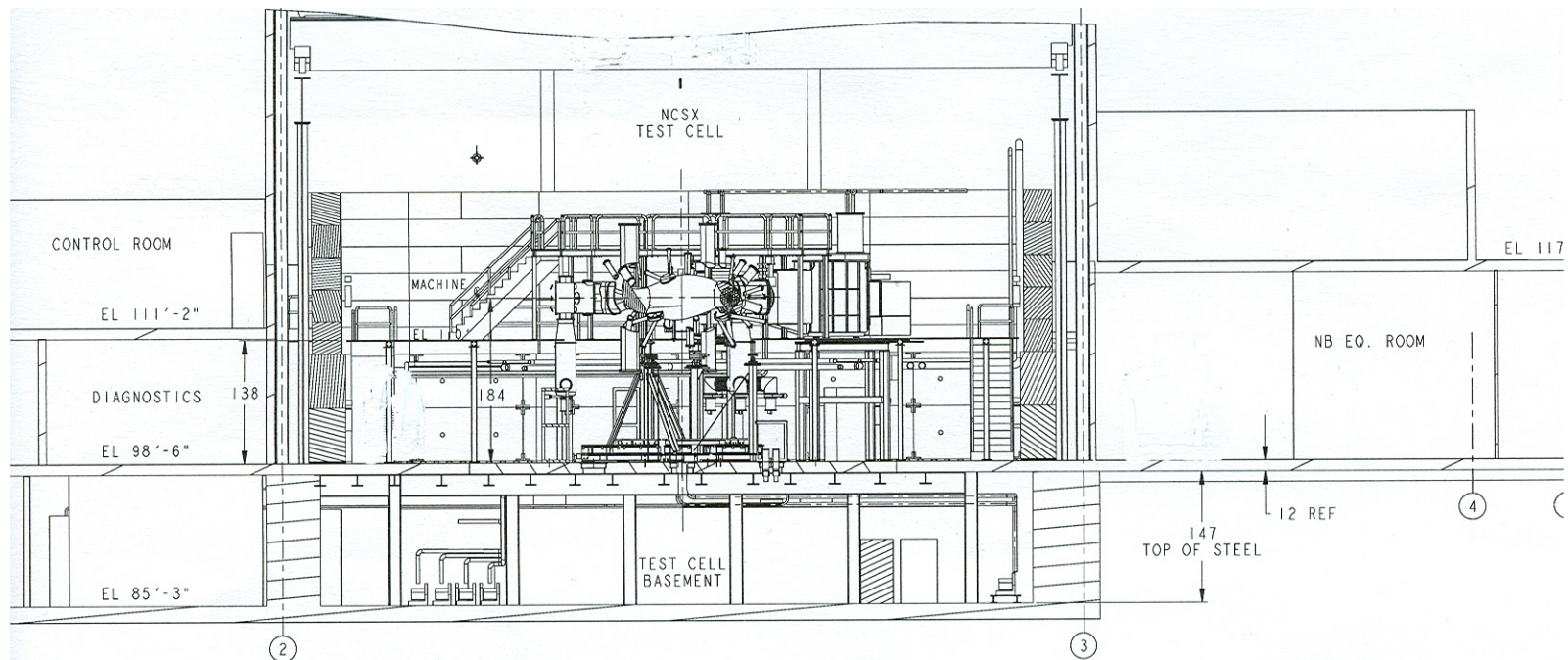




# General Arrangement Drawings



- General Arrangement drawing of NCSX Test Cell elevation
  - Basement / first floor / platform / catwalk around top of machine

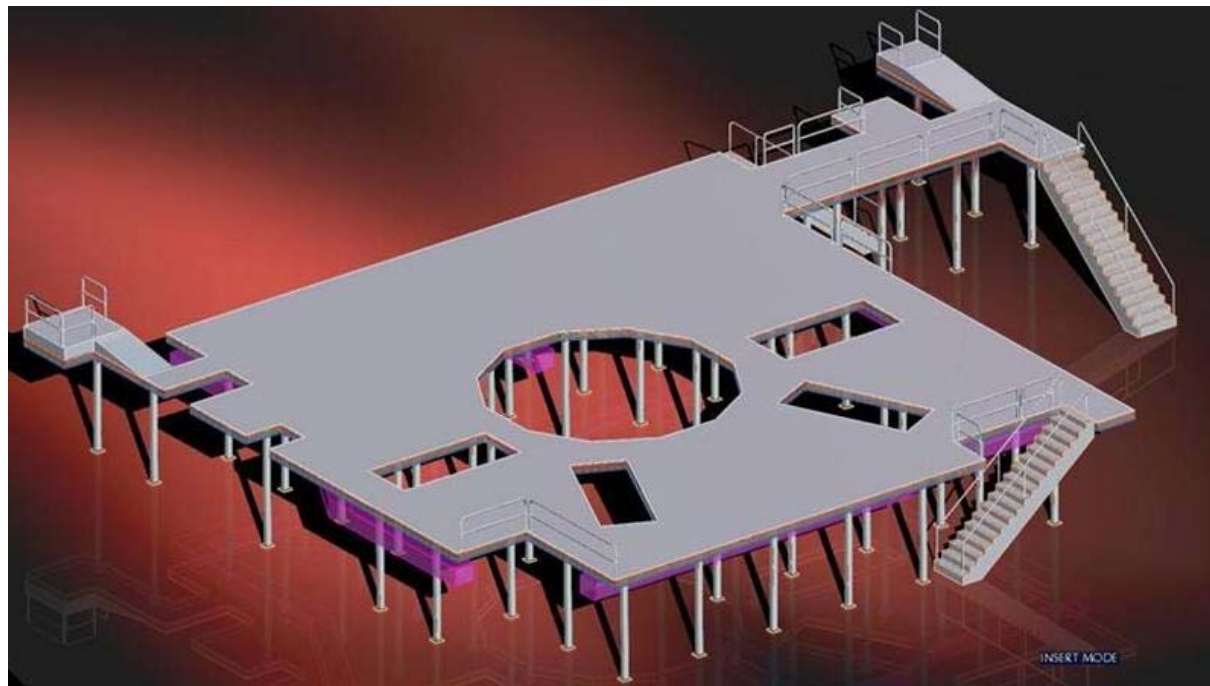


ELEVATION LOOKING NORTH  
SECTION Y-Y  
SCALE 0.020

# 3D Model of NCSX Platform



- 3D Model of NCSX Platform
  - Reviewing Life Safety Code requirements
  - Reviewing potential equipment interferences with platform legs
  - Reviewing placement of each item on/under platform to assure that all items can be installed, maintained and de-installed



# Integrated Plant Design Related Items



- Review installation plans from all WBS Managers to assure that each piece does not interfere with other installations / maintenance / operations
  - Review crane coverage and roll-up door sizes with respect to items which need to be moved into the NCSX Test Cell (NCTC)
  - Also review equipment to be used to move material into NCTC
  - Establish staging areas for items waiting to be installed
- Coordinate installation of plant services (electric, air, lighting, HVAC etc) with Facilities Division