1	Archer, S	2011
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13	Dawson, B	2011
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15	Dretke, G (2) DOE	1020
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19	Franciscovich, J	998
20	Freeman, K	2005
21	Gamble, M	2005
22	Gates, R	2004
23	Gilbert, P (25) PB/MK	2011
24	Gilman, F	2001
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26	Gunnels, J	2001
27	Haas, G	1020
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29	Harris, M	2004
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33	Henderson, P	2004
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37	Hovde, B	2004
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49	Leibold, P	2001
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54	Lundin, T	2011
55	Luth, V	2001
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41

SSCL Specification Change Notice

Document Control No.	E21-000046
Date	November 10, 1992
SCN No.	B010

Specification No.	Title	Revision
GCT-000001	Element Specification (Level 3B) for the Gamma, Electron, Muon Detector Collaboration (GEM) Experimental Facilities (User Requirements)	B

Page 1 of 19	ECR No. E20-000496	ECR Date Nov. 10, 1992	Contract Number DE-AC35-89ER40486
Date November 10, 1992	Level 1 ☐ Level 2 ☐ Level 3A ☐ Level 3B ☐ Level 4 ☒		
Superseding B002.A,B006			

TO ALL HOLDERS OF THE SPECIFICATION IDENTIFIED ABOVE:
The following items define changes to the identified specification. Please add this information to your document. These changes will be incorporated into the next revision of the document.

Item 1. Page 2-2, heading 2.2.1. "Tracker." In the first line of the paragraph, change "South" to "North". In the second line of the first paragraph, and in the first line of the second paragraph of heading 2.2.2., "Calorimeter", change "South" to "North". Under heading 2.2.3., "Muon Chambers", in the third line, change "North" to "South" and in the fourth line, delete "developed and barrel installation modules will be assembled. The endcap", and replace with "developed. The barrel and endcap".

Item 2. Page 3-2, heading 3.2.1. "Site and Infrastructure." In the paragraph relating to the South Assembly Building, delete the last sentence which begins "The building must also ...". In the paragraph relating to the North Assembly Building, insert the following sentence immediately after the first sentence, "The building must also have heavy access from off-site for the delivery of Calorimeter components and to both Installation Shafts for the movement of large, heavy Calorimeter assemblies from the building to the shafts.".

Item 3. Heading 3.2.2. "South Assembly Building." In the second paragraph under this heading, delete "for tracker and beam line assembly and testing; muon endcap component receiving, testing and storage," and replace it with "for muon parts receiving, storage, inspection, assembly and testing, and installation module production and storage."

Item 4. Heading 3.2.3. "North Assembly Building." Delete the three paragraphs under this heading and replace with the following:

The North Assembly Building is also a multiuse building. Initially, the building will

Approved:

Project Manager	[signature]	Date 11/10/92
EFD Dept. Head	Robert A. Richardson	Date 11/10/92
Division Head*	Frederick J. Pilmanis	Date 11/18/92

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*Division Head or Deputy Project Manager responsible for accepting, operating or maintaining the machine, building or facility.

provide space for assembly of the two halves of the magnet and an area for calorimeter parts receiving, storage, inspection, assembly and testing. The remainder of the building will be used for temporary storage and a restroom area.

After the magnet halves are assembled, tested, and completed, the areas previously used for those activities will be reapportioned to provide additional space for muon barrel and endcap module production and storage.

In the Storage and Staging Area adjacent to this building, the superconducting coil vacuum vessel components, the Central Detector Support Structure and the Forward Field Shapers will be fabricated.

Item 5. Figure 5-2. Delete the figure and substitute the new Figure 5-2 attached to this SCN.

Item 6. Page 6-1, Heading 6.1. "Building Parameters & General Requirements." Delete the listing of area requirements in its entirety, and replace with the following:

2,400 m^2 of high bay Coil Winding Area consisting of:
- prep station,
- two winding stations, and
- transport area;

900 m^2 of high bay Muon Barrel and Endcap Prototype Assembly Area.
440 m^2 of low bay Coil Winding Supply Storage & Shop Area;
110 m^2 of North Access Area;
330 m^2 of General Shop Area ;
330 m^2 of Miscellaneous Storage Area; and
1,750 m^2 of Office and Computing Area (on two levels) consisting of:
- 940 m^2 of Computing Area, including:
  - 145 m^2 of computer analysis,
  - 285 m^2 of detector operations (w/raised flooring),
  - 40 m^2 of systems management, and
  - 470 m^2 of event builder level 3 (w/raised flooring),
- office space for 20 people,
- conference area,
- copy center,
- general file storage, and
- general areas for 110 people consisting of:
  - vending area,
  - lunchroom, and
  - toilet, shower, and locker facilities for men and women.

1300 m^2 of Muon Module Storage Area

Item 7. Page 6-1, Heading 6.2.1. "Architectural Features." Delete the second sentence of the first paragraph, beginning with "This layout is preliminary ...". In the fifth line of the paragraph, change "floor between the coil" to "floor at each of the coil". Change the estimate of 33 males to be 36 males. Add the following paragraph between the first and second paragraphs:

> A floor plan layout of the high and low bay Muon prototype production areas is included in Figure 6-2. The general work flow is; in either of the north or east overhead doors, through the storage, inspection, testing and assembly processes, and out the east door to storage in the north building. Activities in these areas are estimated to involve 36 males and 4 females.

In the paragraph relating the general shop area requirements, delete the sentence "Office space for a

supervisor shall be provided in the area." Delete the five paragraphs relating the requirements for the Miscellaneous Storage Area, the high and low bay Calorimeter Areas, the Tracker and Beam Line Area, the Muon Endcap Production and Storage Area, and the Detector Operations Area, and replace them with the following:

> The Detector Operations area shall be on two levels in the south low bay of the building and shall include an elevator. Raised computer floors (24") shall be provided in the Detector Operations Room and Event Builder Level 3 Room. The office area shall be a modified open system with appropriate separation of space employing conventional drywall systems and movable partitions with self contained electrical circuits for maximum flexibility. The movable partitions will be provided by others ***(PRD)***. Dropped ceilings with removable panels are required to provide for acceptable appearance and access to electrical power and other utility services. The lunchroom shall have space for a refrigerator and cabinets for storage of miscellaneous supplies with counter space for a micro-wave, coffee maker, and wet sink. The size and number of windows shall be a balance between cost and providing a psychologically acceptable workplace. Shower and locker facilities shall be provided for the occupants of this building and the North Assembly Building. A janitor's closet, complete with slop sink, shall be provided on each floor of the area.

Item 8. Heading 6.2.2. "General Floor Loads." In the first sentence, change "the low bay Calorimeter Area, the high bay Calorimeter Assembly Area, and the Muon Module Storage Area" to "and the Muon Module Assembly and Storage Area". Delete the sentence after the list of general floor loads, beginning "In addition to the above ...".

Item 9. Heading 6.2.4. "Cranes." Delete all paragraphs under this heading and substitute the following:

> The high bay industrial area of the building shall be served by two identical bridge cranes on the same runway. Each crane shall have a 31.7 tonne (35 short ton) main hook capacity and a 9.1 tonne (10 short ton) auxiliary hook capacity. The required lift of all of the hooks of the cranes, and the minimum clearance under the bridge of this crane, is 14 m above the floor. Crane hook coverage requirements are shown in Figure 6-4.
>
> Each crane shall be a 4-motion, single trolley, top-running, overhead bridge crane and shall conform to the requirements of CMAA Class C Service. Each crane shall provide a lighted area below the bridge for load pickup. High intensity discharge fixtures using true color lamps (such as metal halide) shall be used to provide a minimum of 50 FC on the floor.
>
> Operation of the cranes shall be by radio control from separate, independent, portable control stations. Both the structural and electrical runway systems shall be designed to accommodate simultaneous, but independent, operation of all of the cranes. Tandem operation of two cranes from one control station is not required. All speed controls shall be stepped, variable from zero to the maximum speed with soft start and stop features. The following table specifies the speed and performance requirements for the motion systems of each crane:

	Maximum Motion Speed Required (m per min)	Required Spotting Accuracy (mm).
Main Hook	4.57	1
Aux. Hook	12.19	1
Trolley	18.29	3
Bridge	36.58	3

A 4.5 tonne (5 short ton) underhung bridge crane shall be provided in the north low bay areas as shown in Figure 6-4. The crane shall have a hook height of 6.5 m and shall be pendant operated.

Item 10. Heading 6.3.1. "HVAC." Delete all paragraphs under this heading and substitute the following:

The entire high bay area shall be heated and air conditioned to 72°F db ± 2°F/ 50% ± 10% relative humidity in the summer and 72°F db ± 2°F/35% ± 10% relative humidity in the winter, from the floor level to a height of 10 meters.

In the Detector Operations Areas, where raised computer floors are provided, the area shall be air conditioned with free standing units discharging down into the raised floor. Return shall be to the top of the unit. Air supply for the room shall be through perforated tiles in the floor located to coordinate with the equipment to be cooled. Room conditions shall be maintained at 72°F db ± 2°F/ 50% ± 5% relative humidity summer and 72°F db ± 2°F / 40% ± 5% relative humidity in the winter.

Other portions of the Detector Operations Area, as well as the remaining low bay areas on the north and south of the building, shall be heated and air conditioned to 75°F db ± 5°F/ 50% ± 10% relative humidity in the summer and 72°F db ± 5°F/35% ± 10% relative humidity in the winter.

Toilet, shower, and locker rooms shall be exhausted per the DOE requirements.

Item 11. Heading 6.3.2. "Technical Equipment Mechanical Interfaces." Delete the first paragraph under this heading. In the second paragraph under this heading, change "shall be provided for cooling electronic crates and racks" to "shall be provided for producing MCHW for coolong electronic crates and racks". Delete the third paragraph under this heading, beginning "Cooling Pond water ...".

Item 12. Heading 6.4. "Electrical Design Requirements" In the last sentence under this heading change "to be 3868 KVA including an allowance of 2448 KVA for" to "to be 3523 KVA including an allowance of 2103 KVA for".

Item 13. Heading 6.4.1. "Technical Power and Interfaces." Delete the paragraph beginning "Technical power in the low bay Calorimeter Area ...". In the first sentence of the next paragraph, change "in the Control Room, Event Builder Level 3 Room, System Management, and Analysis Area of the Detector Operations Area shall be" to "in the Detector Operations Room and Event Builder Level 3 Room shall be".

Item 14. Heading 6.4.2. "Technical Grounding." Change "Locations of grounding bars are TBD" to "Locate grounding bars near the center of each end of each room or area."

Item 15. Heading 6.4.3. "Convenience Outlets." Change "In the high bay Coil Winding Area, and the high bay Calorimeter Assembly Area, provide" to "In the entire high bay area, provide". In the second paragraph, delete the words ", the low bay Calorimeter Area".

Item 16. Heading 6.4.4. "Lighting." Change "In the high bay Coil Winding Area, and the high bay Calorimeter Assembly Area, lighting" to "In the entire high bay area, lighting". In the third paragraph under this heading, delete the words "and in the low bay Calorimeter Area,".

Item 17. Figures 6-1 through 6-5. Delete the figures and substitute the new Figures 6-1 through 6-5 attached to this SCN.

Item 18. Page 7-1, Heading 7.1. "Building Parameters & General Requirements." Delete the listing

of area requirements in its entirety, and replace with the following:

750 m^2 of high bay Calorimeter Assembly Area consisting of:
two half-barrel assembly stations, and
two endcap assembly stations;
1,710 m^2 of West high bay Magnet Assembly Area;
840 m^2 of East high bay Magnet Assembly Area;
730 m^2 of low bay Calorimeter Assembly and Testing Area consisting of:
inspection,
testing,
storage, and
rework;
140 m^2 of low bay Calorimeter Staging Area;
810 m^2 of low bay Tracker and Beamline Assembly Area;
1,500 m^2 of low bay Muon Barrel and Endcap Storage Area;
160 m^2 of vehicle access and unloading space; and
30 m^2 of restroom facilities for 44 males and 6 females.

Item 19. Page 7-1, Heading 7.2.1. "Architectural Features." Delete the sentence "Although not shown on the figures, toilet facilities shall be provided for men and women." Change the estimated number of workers in both the second and third paragraphs from "16 males and 4 females" to "22 males and 3 females". Insert the following paragraphs after the functional description of the two magnet assembly areas:

A floor plan layout of the low bay Calorimeter Area and high bay Calorimeter Assembly Area is shown in Figure 7-2. Since there is more than one calorimeter design being considered, specific work flows cannot be determined. However, the general flow of work is; in either the north or south overhead door, inspection and testing as required, eventually to one of the assembly stands in the high bay Calorimeter Assembly Area, and out the east overhead door. Activities in these areas will begin as magnet activities decrease, therefore there are no additional requirements for facilities for personnel.

A floor plan layout of the Tracker and Beamline Area is shown in Figure 7-2. The general flow of work in and out of the area shall be through the either the north overhead door or from the access area to the east. A door shall be provided to the other areas of the building. A utility sink shall be provided in the area. Activities in this area will not contribute to an increase in personnel facility requirements.

In the final paragraph, change "Endcap Prototype Assembly Area is shown" to "Endcap Storage Areas are shown". Change "door, assembly in the area, and" to "door, storage in either the high or low bay, and". Delete the last sentence of the paragraph and insert the following:

Activities in this area will not contribute to an increase in personnel facility requirements.

Item 20. Heading 7.2.2. "General Floor Loads." Delete the last paragraph under this heading, dealing with Magnet Assembly Area loads.

Item 21. Heading 7.2.3. "Technical Equipment Floor Loads." Delete the paragraph under this heading and substitute the following:

Preliminary layouts of the technical equipment to be used in the various areas are shown in Figure 7-2. Throughout the high bay area the floor must be designed to suppport a total load of 1600 tonnes, equally distributed on four areas large enough to keep the slab loading to a maximum of 500 tonnes per square meter. The four loaded areas will be at least 15 meters from center to center.

Item 22. Heading 7.2.4. "Cranes." Delete the paragraph under this heading and substitute the following:

The high bay industrial area of the building shall be served by two identical bridge cranes on the same runway. Each crane shall have a 41 tonne (45 short ton) main hook capacity and a 9.1 tonne (10 short ton) auxiliary hook capacity. The required lift of all of the hooks of the cranes, and the minimum clearance under the bridge of this crane, is 26 m above the floor. Crane hook coverage requirements are shown in Figure 6-4.

Each crane shall be a 4-motion, single trolley, top-running, overhead bridge crane and shall conform to the requirements of CMAA Class C Service. Each crane shall provide a lighted area below the bridge for load pickup. High intensity discharge fixtures using true color lamps (such as metal halide) shall be used to provide a minimum of 50 FC on the floor.

Operation of the cranes shall be by radio control from separate, independent, portable control stations. Both the structural and electrical runway systems shall be designed to accommodate simultaneous, but independent, operation of all of the cranes. Tandem operation of two cranes from one control station is not required. All speed controls shall be stepped, variable from zero to the maximum speed with soft start and stop features. The following table specifies the speed and performance requirements for the motion systems of each crane:

	Maximum Motion Speed Required (m per min)	Required Spotting Accuracy (mm).
Main Hook	4.57	1
Aux. Hook	12.19	1
Trolley	18.29	3
Bridge	36.58	3

An 18.2 tonne (20 short ton) underhung bridge crane shall be provided in the low bay Tracker/Beamline, access, and EM Calorimeter and Assembly Areas as shown in Figure 6-4. The crane shall have a hook height of 8 m and shall be pendant operated.

Item 23. Heading 7.3.1. "HVAC." Delete the paragraph under this heading and substitute the following:

The building shall be heated and air conditioned to 72°F db ± 5°F/ 50% ± 10% relative humidity in the summer and 72°F db ± 5°F/ 35% ± 10% relative humidity in the winter.

The design of the HVAC system which serves both the high and low bay Calorimeter Assembly Areas shall allow for the future installation of equipment which will be able to maintain a humidity requirement of 35% RH ± 5% in both the summer and the winter.

Toilet rooms shall be exhausted per the DOE requirements (6130.1A).

Item 24. Heading 7.3.2. "Technical Equipment Mechanical Interfaces." Delete second paragraph.

Item 25. Heading 7.4. "Electrical Design Requirements." In the last sentence under this heading change "to be 1787 KVA including an allowance of 367 KVA for" to "to be 2222 KVA including an allowance of 802 KVA for".

Item 26. Heading 7.4.1. "Technical Power and Interfaces." Between the two existing paragraphs under this heading, insert the following:

> Technical power in the low bay Calorimeter Area and the high bay Calorimeter Assembly Area shall be 60 Hz 208Y/120V clean power circuits for electronic testing of sub-assemblies. The 60 Hz interface will be at the load side of the branch breakers.

Item 27. Heading 7.4.2. "Convenience Outlets." In the first line of this paragraph, change "buildir provide" to "building, and in the low bay Calorimeter Areas, provide".

Item 28. Heading 7.4.3. "Lighting." Between the two existing paragraphs under this heading, insert the following:

> In the low bay Calorimeter Area, lighting shall be by high intensity discharge fixtures using true color lamps (such as metal halide), shall be room switched, and shall provide lighting levels in accordance with IES but not less than 50 FC at the floor.

Item 29. Figures 7-1 through 7-5. Delete the figures and substitute the new Figures 7-1 through 7-5 attached to this SCN.

Item 30. Table 18-1. "GEM Electrical Design Requirements, Page 2." Change the technical load in the North Assembly Building from 367 Kva to 802 Kva and change the total load in the North Assembly Building from 1787 Kva to 2222 Kva. Change the technical load in the South Assembly Building from 2448 Kva to 2103 Kva and change the total load in the South Assembly Building from 3868 Kva to 3523 Kva. Change the IR-5 site total technical load from 10074 Kva to 10164 Kva and change the IR-5 site overall total from 16408 Kva to 16498 Kva.

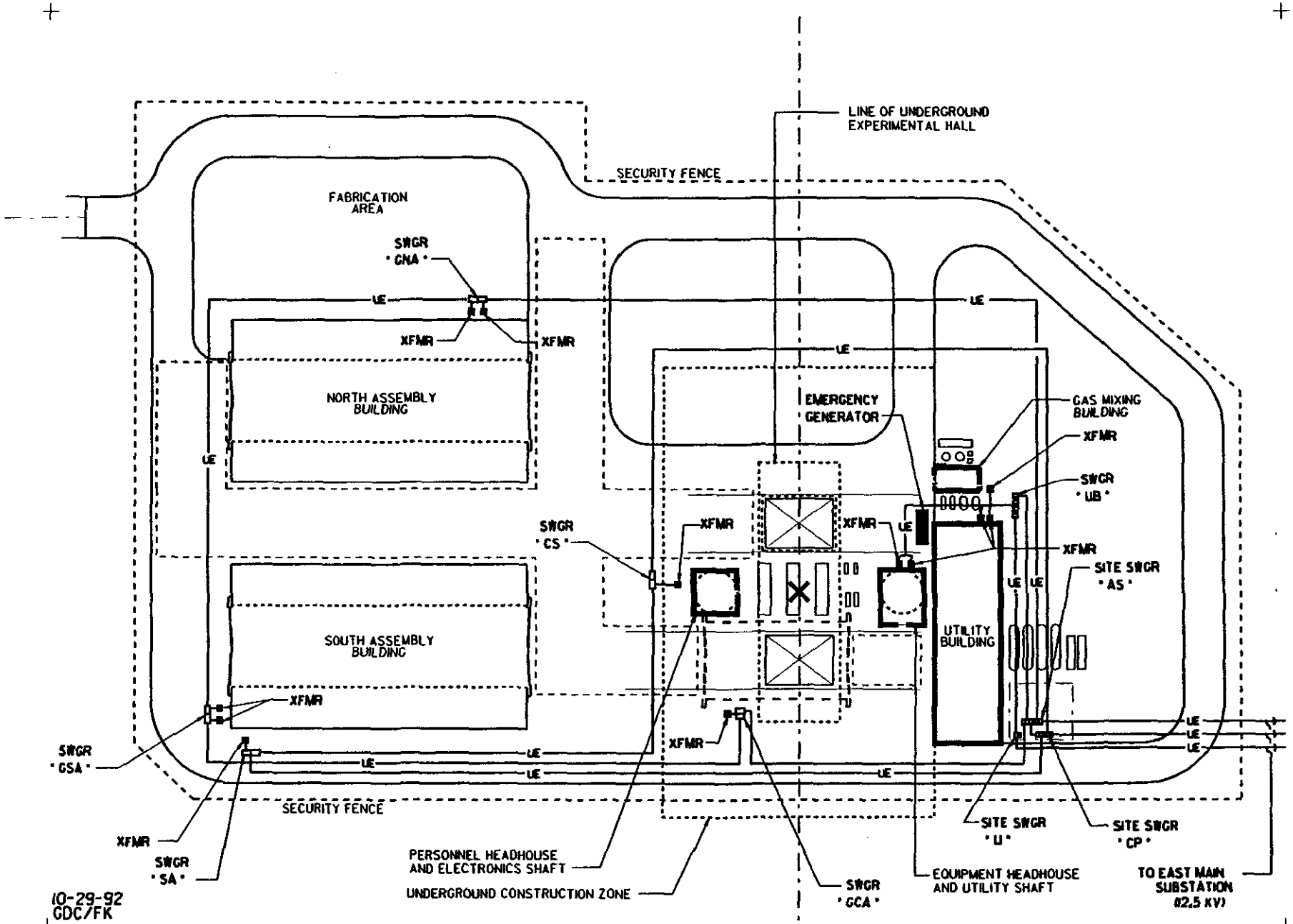

Figure 5-2 IR-5 Site Electrical Plan

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SCN No. B010

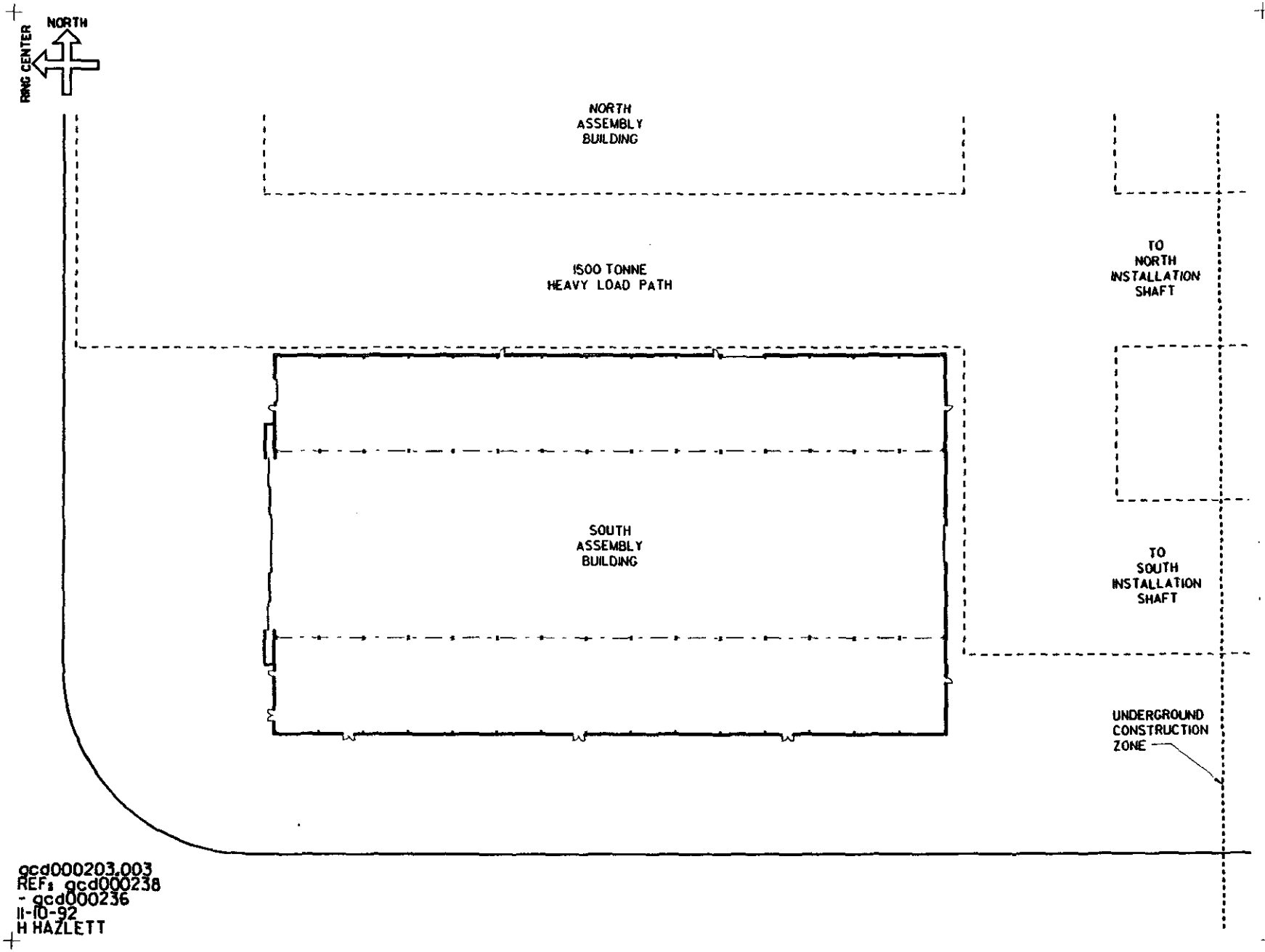

Figure 6-1 South Assembly Building Site Plan

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SCN No. B010

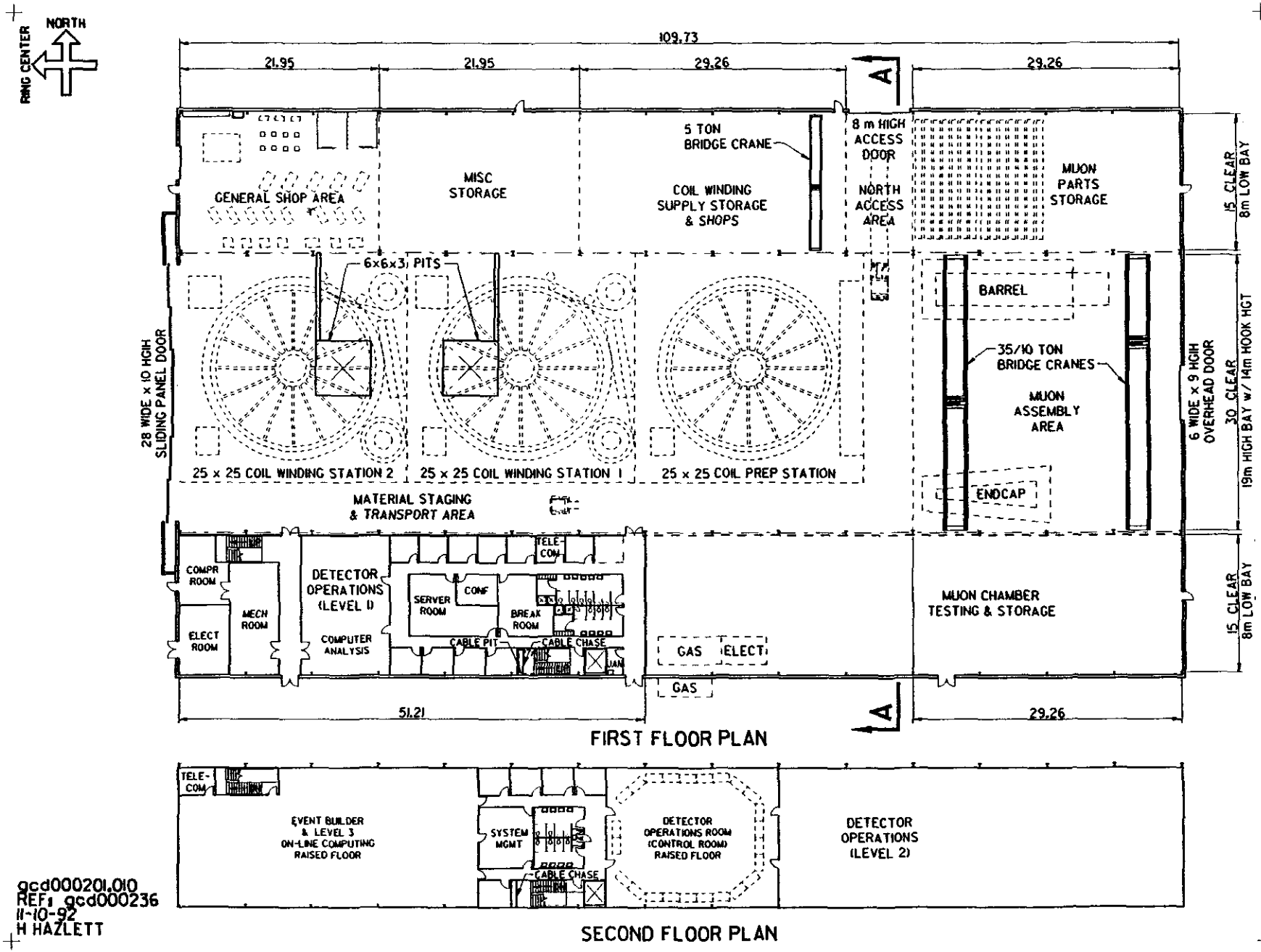

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Figure 6-2 South Assembly Building Floor Plan

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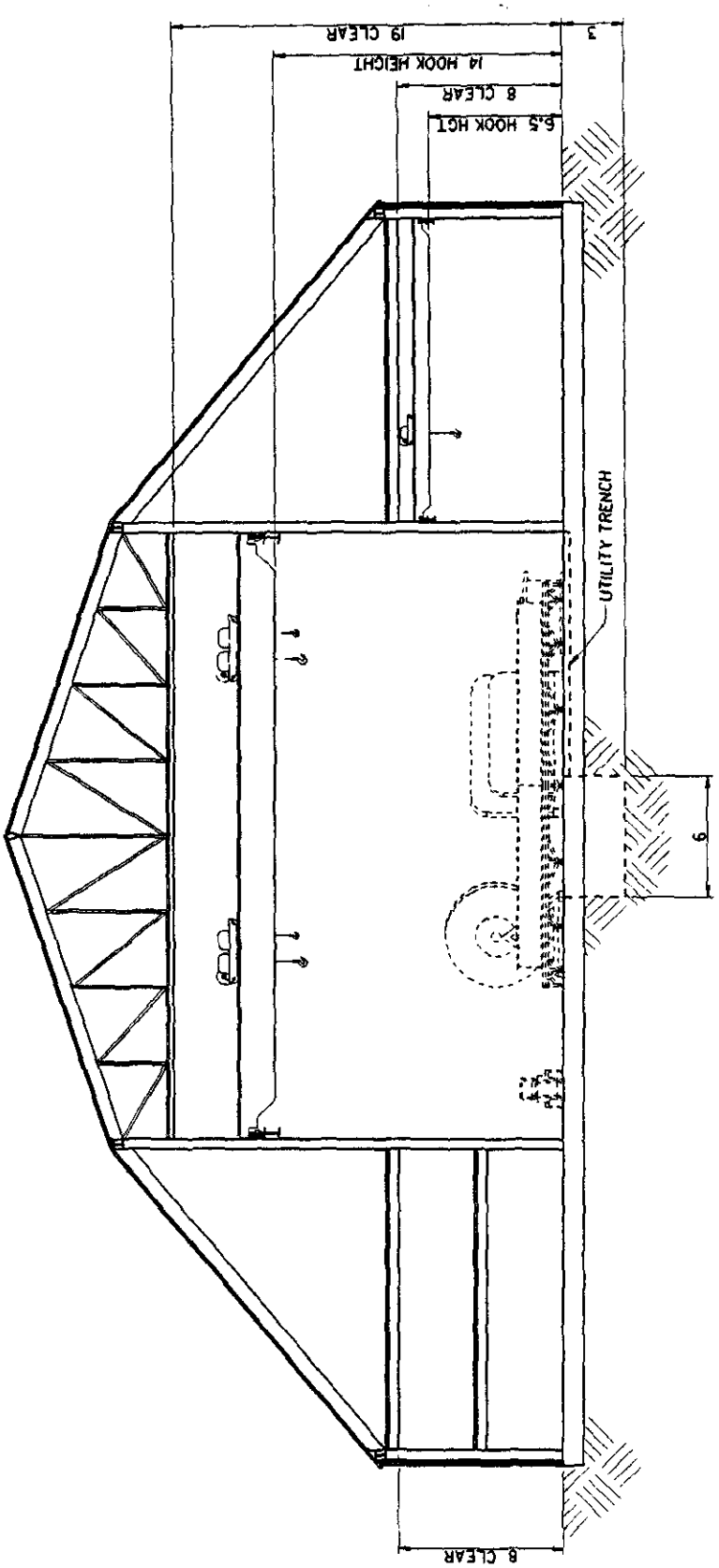

SECTION A-A

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REF1 gcd000237
11-02-92
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Figure 6-3 South Assembly Building Section

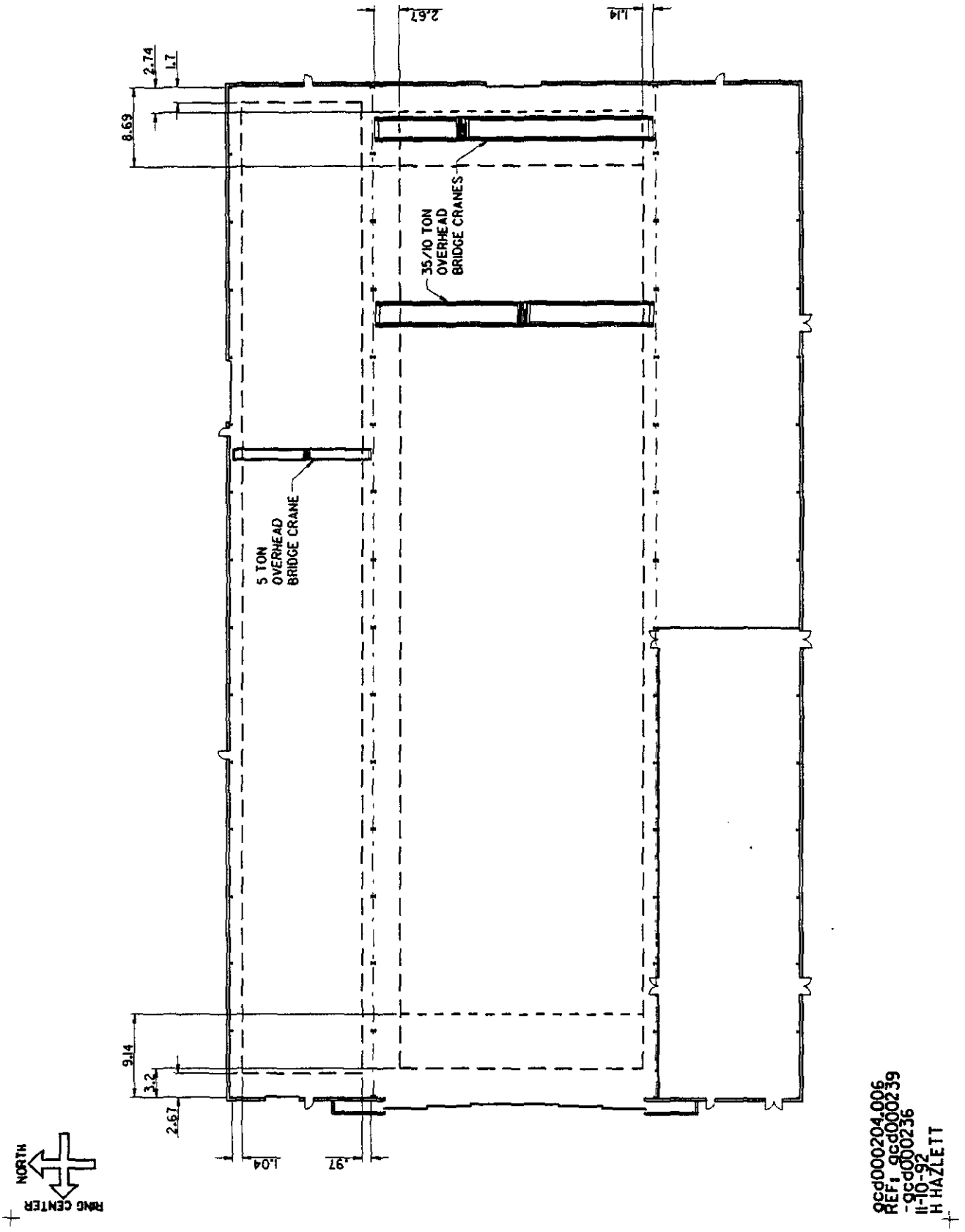

Figure 6-4 South Assembly Building Crane Coverage Plan

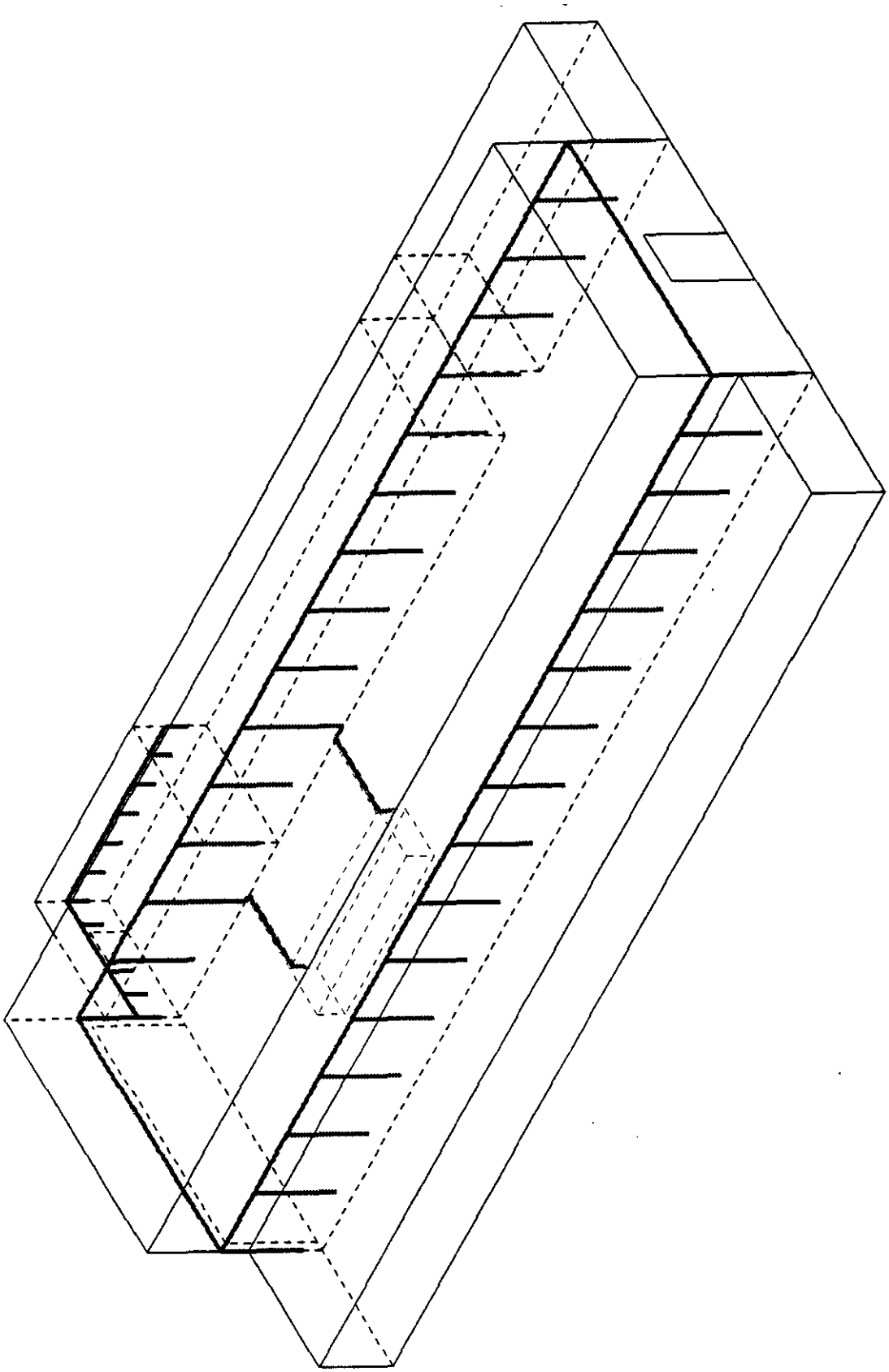

Figure 6-5 South Assembly Building Compressed Air Distribution

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11-10-92
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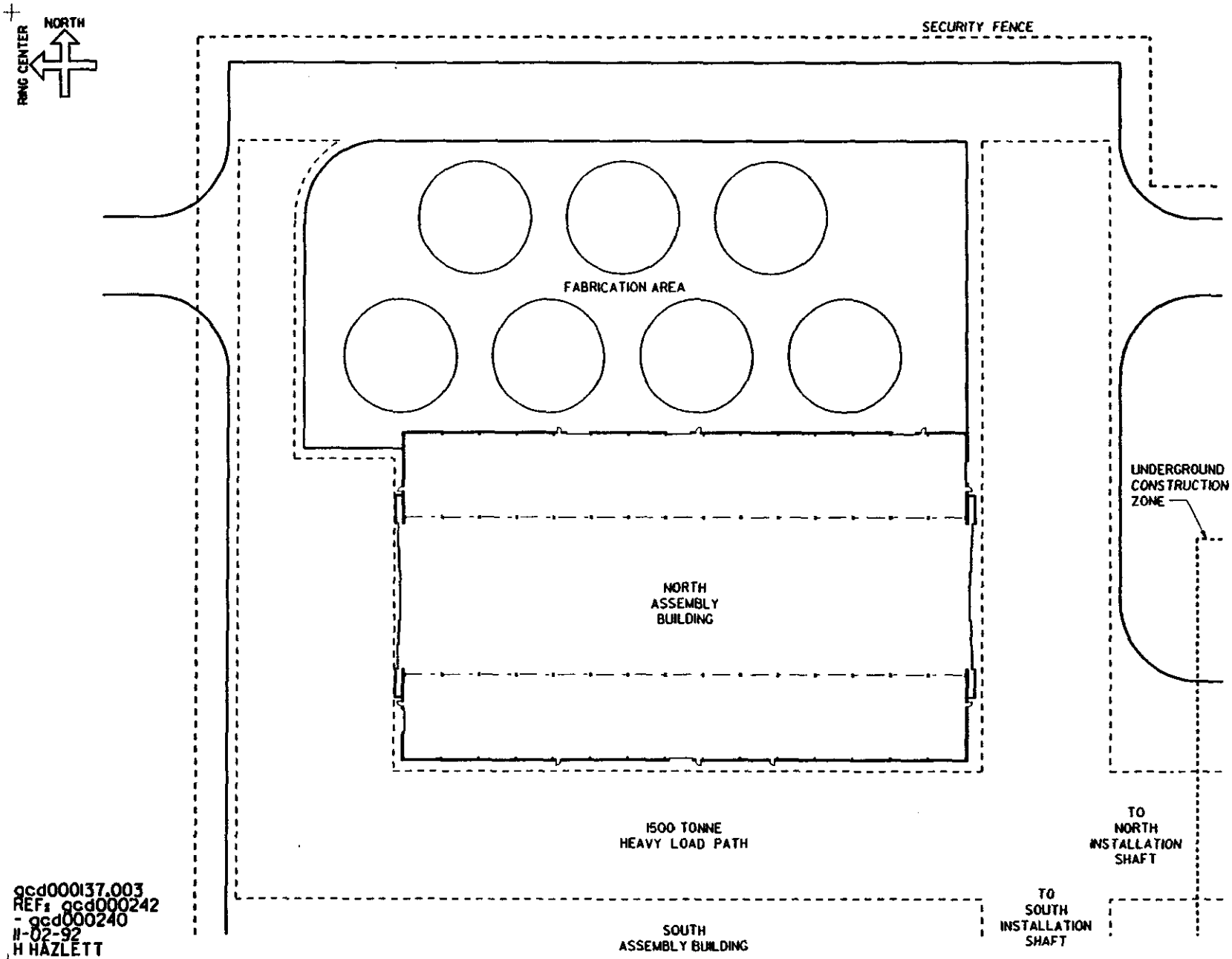
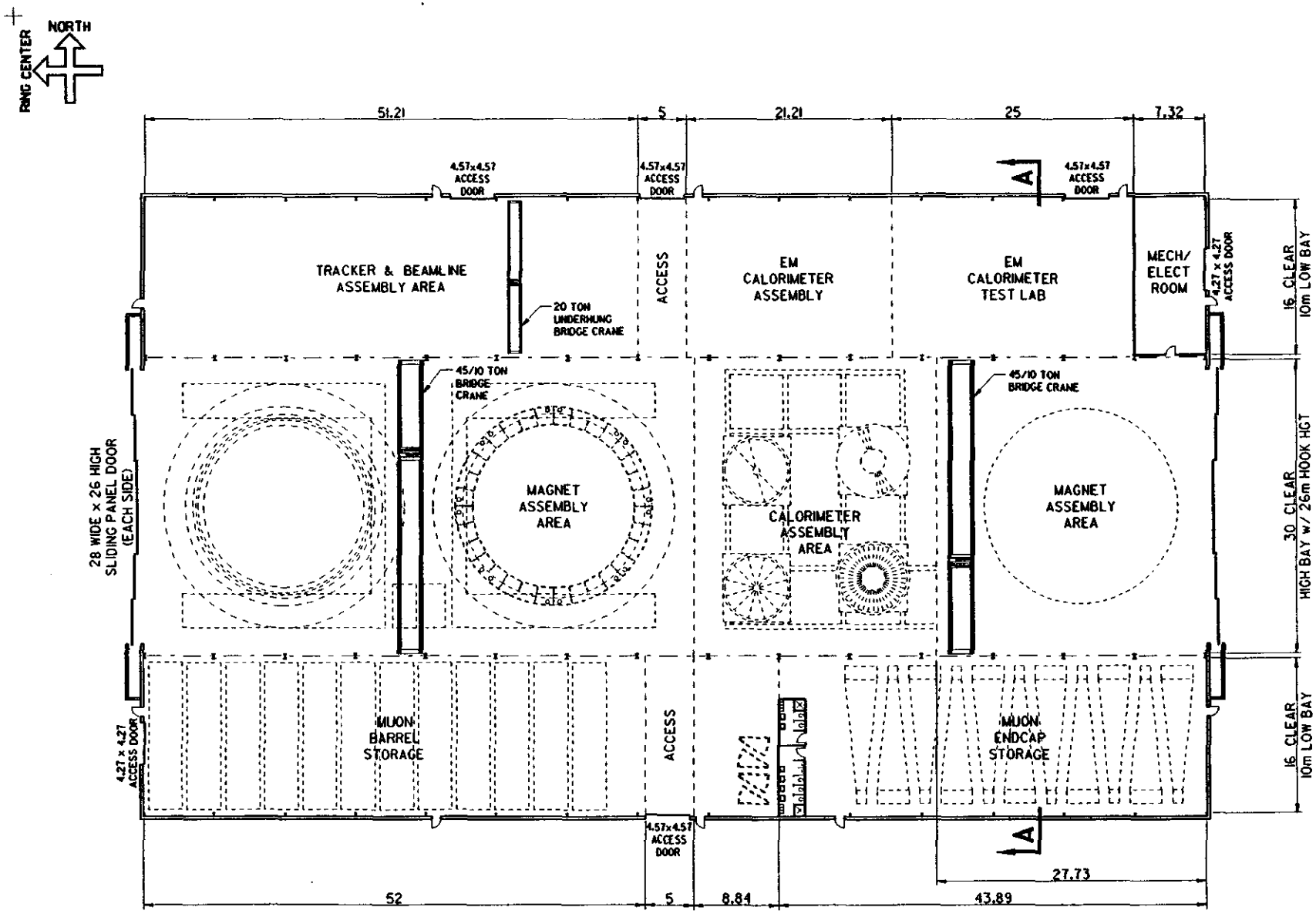


Figure 7-1 North Assembly Building Site Plan

Document Control No. E21-000046
SCN No. B010



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11-10-92
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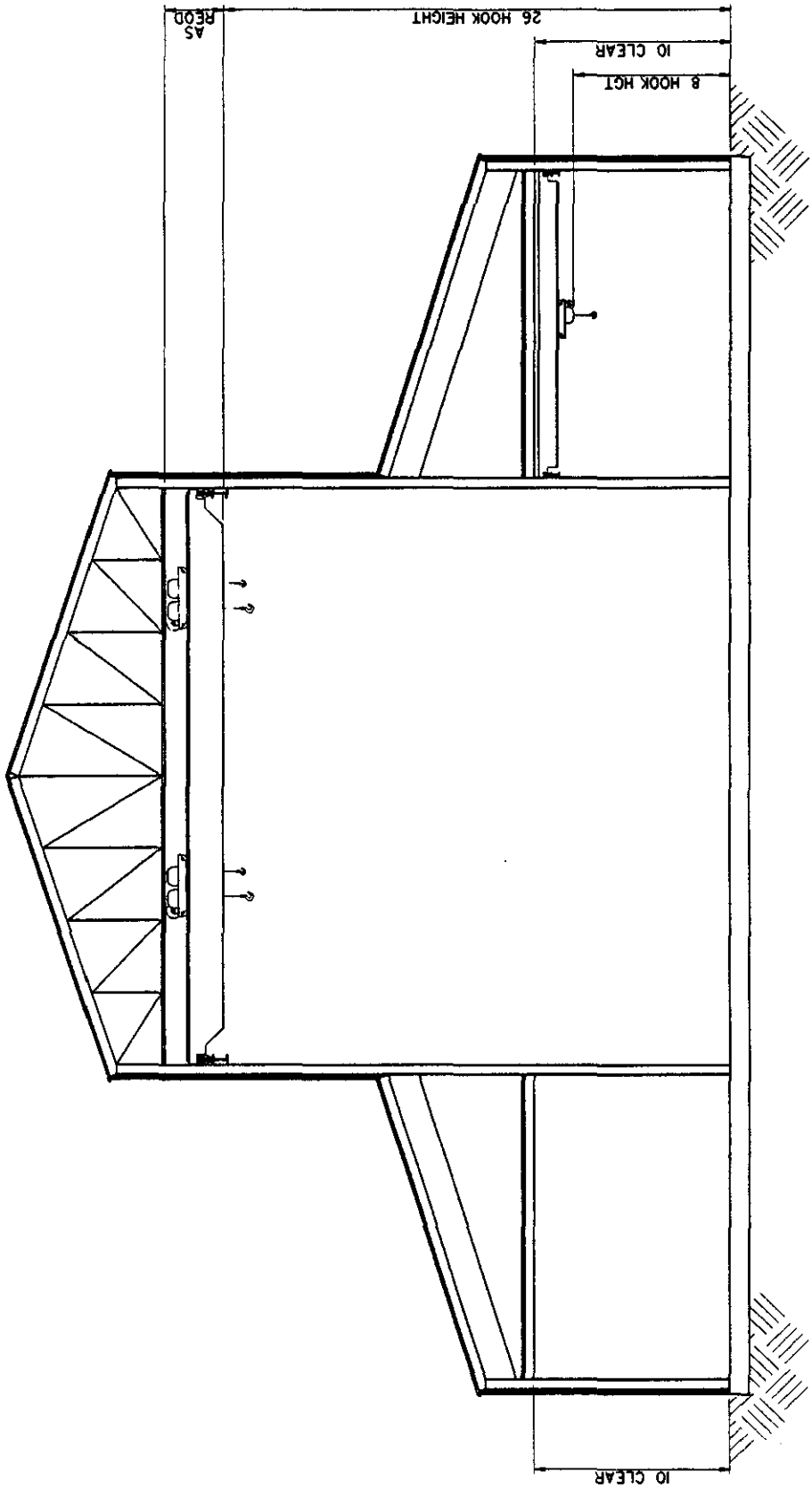
Figure 7-2 North Assembly Building Floor Plan

Document Control No. E21-000046
SCN No. B010



SECTION A-A

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REF: gcd000241
11-02-92
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Figure 7-3 North Assembly Building Section

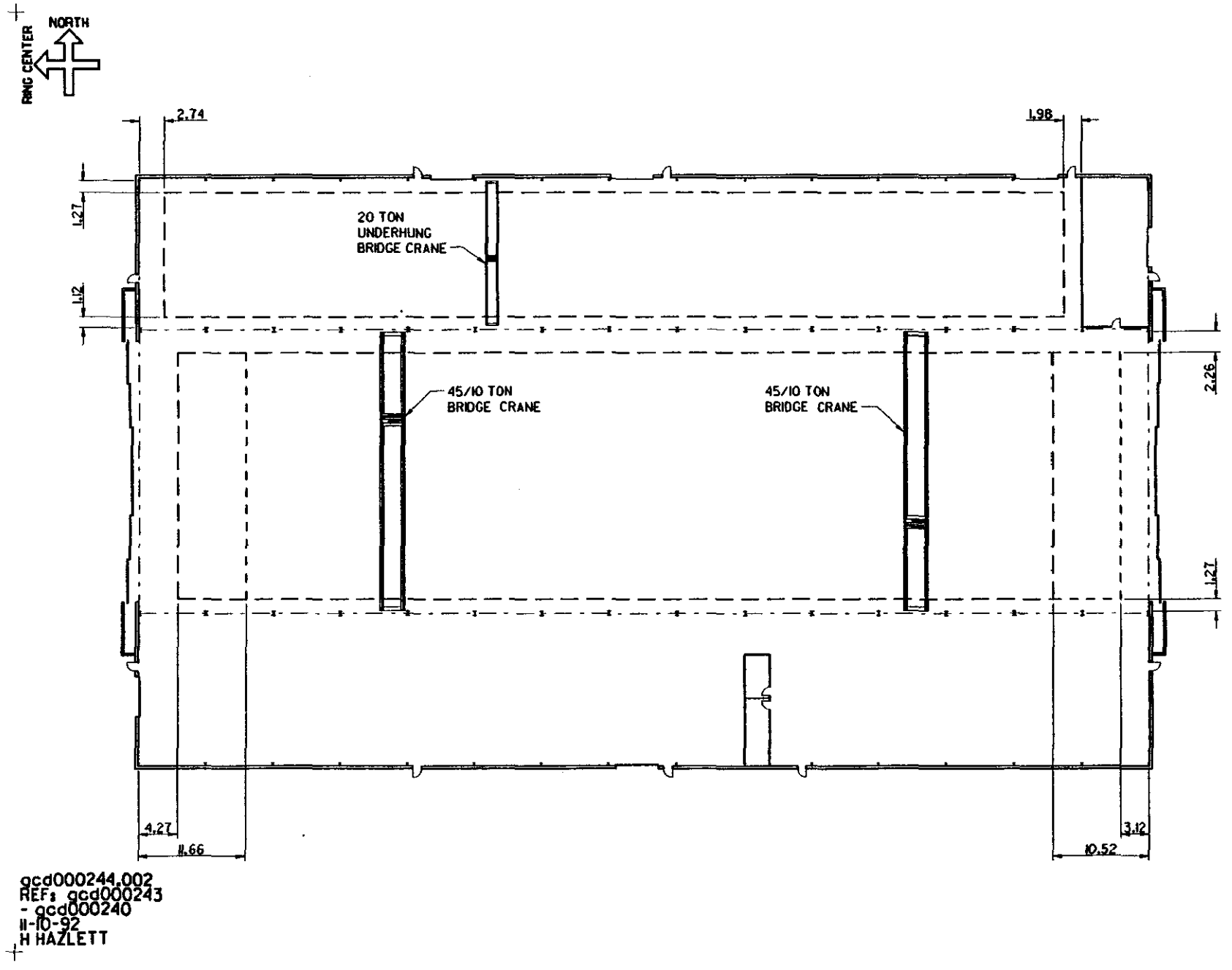
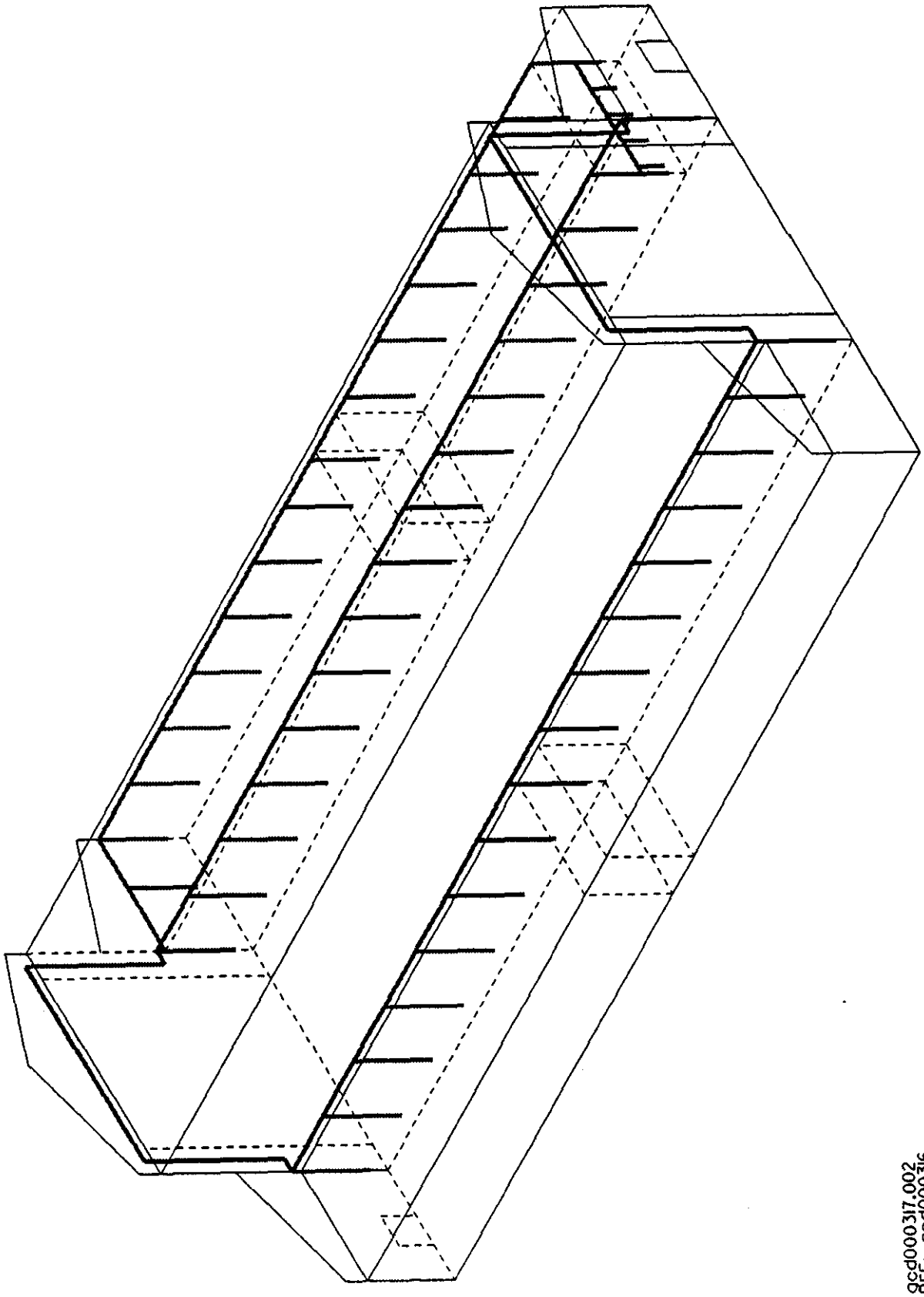


Figure 7-4 North Assembly Building Crane Coverage Plan



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11-10-92
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Figure 7-5 North Assembly Building Compressed Air Distribution

SSCL INTERNAL DISTRIBUTION

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3	Barish, B	2005
4	MSD DOC CONTROL	1000
5	Butalla, M	2011
6	Chapman, G	2004
7	Chen, Zuken	2005
8	Chessmore, G	2004
9	Cochran, R	2011
10	Collins, C	2004
11	Cornell, L	2003
12	Coulson, L	1071
13	Dawson, B	2011
14	Deis, G	2001
15	Doster, G	5001
16,17	Dretke, G (2) DOE	1020
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19	Eberle, C	2005
20	Elliott, W	2004
21	Freeman, K	2005
22	Gamble, M	2005
23-48	Gilbert, P (25) PB/MK	2011
49	Gilman, F	2001
50	Gober, N	2005
51	Golutvin, I	2005
52	Gunnels, J	2001
53	Haas, G	1020
54	Harris, M	2005
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61	Jones, B	1005
62	Jones, D	2010
63	Jones, M	1041
64	Kampmeier, W	2004
65	Kibat, F	2004
66	Kozman, T	4000
67	Krebs, J	2004
68	Lau, N	2001
69	Leibold, P	2001
70	Linkous, J	2011
71	Linville, D	2011
72	Little, Roy	7000
73	Lowrie, C	2004
74	Lundin, T	2011
75	Luth, V	2001
76	Lynch, H	2001
77	Martovetsky, N	2005
78	Marx, M	2005
79	McFarlane, K	2005
80	McNiel, S	2004
81	Mitselmakher, G	2005
82	Morgan, K	2000
83	Morris, T	2011
84	Murphy, T	2004
85	Nelson, P c/o Dale Montana	2011
86	Nonte, John	7000
87	Norman, L	2011
88	Olson, B	2011
89	Pier-Amory, J	2005
90	Prosapio, T	2004
91	Reardon, P	1075
92	Rees, J	7000
93	Richardson, R	2004
94	Richied, D	2004
95	Robertson G	1094
96-	Sabin, E	2005
97	Sanders, G	2005
98	Santos, H	2004
99	Schludermann, K	2005
100	Schneider, L	2004
101	Sims, B	2011
102	Spencer, D	2004
103	Stafford, P TNRLC	1080
104	Stocker, F	2005
105	Stringfellow, K	2004
106	Stroynowski, R	2005
107	Thompson, B	2004
108	Toohig, T	2011
109	Trimble, C	2011
110	Verminski, E	2001
111	Wiebe, R	2011
112	Willis, W	2005
113	Woolley, R	2005
114	Yost, G	2005
115	Zhou, J	2004
116	Offsite Storage	

SSCL Specification Change Notice

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Date	April 12, 1993
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Specification No.	Title	Revision
GCT-000001	Element Specification (Level 3B) for the Gamma, Electron, Muon Detector Collaboration (GEM) Experimental Facilities (User Requirements)	C

Page 1 of 4	CCSR No. E12-000221	CCSR Date March 22, 1993	Contract Number DE-AC35-89ER40486
Date April 12, 1993	Level 1 ☐ Level 2 ☐ Level 3A ☐ Level 3B ☐ Level 4 ☒		
Superseding			

TO ALL HOLDERS OF THE SPECIFICATION IDENTIFIED ABOVE:

1. The following pages, where existing, have been revised and superseded by the pages listed:

   20-1 i-1 ii-1

2. The location of the change, addition or deletion is identified by a vertical line in the right hand margin of the page.

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Approved:

Project Manager	[signature]	Date 4/13/93
EFD Dept. Head	Robert A. Richardson	Date 4/13/93
Division Head*	Frederick J. Mylnman	Date 4/13/93

*Division Head or Deputy Project Manager responsible for accepting, operating or maintaining the machine, building or facility.

INTRODUCTION TO REVISION C

The technical changes which have been incorporated by Revision C003 are as follows:

SCN No.	SCN Document Control No.	ECR No.	ECR Title
B002.A	E21-000020.A	E20-000301.A	Delete Five GEM Buildings, Add Two, and Move Two.
B003	E21-000030	E20-000393	Upgrade GEM Radiation & Magnetic Field Shielding Requirements.
B004.A	E21-000032.A	E20-000402.A	GEM Surface Building Shielding Requirements.
B005.A	E21-000036.A	E20-000446.A	Resolve GEFUR Section 4.0 TBDs.
B006.A	E21-000038.A	E20-000448.A	Resolve GEFUR Section 21.0 TBDs.
B007	E21-000040	E20-000450	Changes to GEFUR Utility Building, Section 8.0.
B008	E21-000044	E20-000491	Move center of the Experimental Hall to the IP
B009.A	E21-000045	E20-000495	Upgrade GEM Radiation Shielding for Title I Configuration & Add Cable Shaft Equipment Load Information.
B010	E21-000046	E20-000496	Change the Internal Layout of the GEM North Assembly Building and South Assembly Building.
* C001	E21-000057	E20-000519	IR5/IR8 GLOBAL - Conventional/ Technical Additions
* C002	E21-000071	E20-000775	Refinements to GEFUR Requirements.
C003	E21-000074	~~E20-000789~~ NONE REO 4/23/93	Revise BOD dates for IR-5 Gantry Cranes and shaft Covers

* Revisions identified by an * are pending and are not in force as of this SCN date.
REO 4/23/93

PAGES IN FORCE *

Future revisions of this document will be made on a per page basis. The following is a listing of the pages in force with the publication of Revision C003:

Page	Rev.	Page	Rev.	Page	Rev.	Page	Rev.	Page	Rev.	Page	Rev.
Title	C	3-1	C	5-1	C	8-1	C	14-1	C002	18-1	C001
		3-2	C	5-2	C	8-2	C001	14-2	C	18-2	C001
i-1	C003	3-3	C	5-3	C001	8-3	C001	14-3	C002	18-3	C001
		3-4	C	5-4	C002	8-4	C001			18-4	C001
ii-1	C003	3-5	C	5-4A	C002	8-5	C002	15-1	C002	18-5	C001
		3-6	C	5-5	C	8-6	C001	15-2	C	18-6	C001
iii-1	C	3-7	C	5-6	C	8-7	C001	15-3	C	18-7	C001
				5-7	C	8-8	C001			18-8	C001
1-1	C	4-1	C002			8-9	C001	16-1	C001	18-9	C001
1-2	C	4-2	C002	6-1	C	8-10	C001	16-2	C001	18-10	C001
1-3	C	4-3	C	6-2	C	8-10.1	C001	16-3	C001	18-10.1	C001
1-4	C	4-4	C001	6-3	C	8-10.2	C001	16-4	C	18-11	C001
1-5	C002	4-4.1	C001	6-4	C001	8-11	C	16-5	C	18-12	C001
1-6	C002	4-5	C	6-5	C001	8-12	C002	16-6	C		
1-7	C	4-6	C001	6-5.1	C001	8-13	C002			19-1	C
1-8	C	4-7	C001	6-6	C001	8-14	C	17-1	C002		
1-9	C	4-8	C	6-7	C	8-15	C002	17-2	C002	20-1	C003
1-10	C	4-9	C	6-8	C001	8-16	C	17-3	C002		
		4-10	C002	6-9	C	8-17	C	17-4	C002	21-1	C
2-1	C	4-11	C002	6-10	C	8-18	C001	17-5	C002	21-2	C
2-2	C	4-12	C	6-11	C	8-19	C	17-6	C002	21-3	C002
2-3	C	4-13	C	6-12	C	8-20	C	17-7	C002	21-4	C
2-4	C	4-14	C	6-13	C	8-21	C001	17-8	C002	21-5	C002
2-5	C	4-15	C	6-14	C001	8-22	C001	17-9	C002		
2-6	C	4-16	C	6-15	C001	8-23	C001	17-9A	C002	A-1	C
2-7	C	4-17	C	6-16	C001			17-9B	C002	A-2	C
2-8	C	4-18	C			9-1	C	17-10	C002	A-3	C
2-9	C	4-19	C					17-11	C002	A-4	C
2-10	C	4-20	C002	7-1	C	10-1	C	17-12	C		
2-11	C	4-21	C	7-2	C			17-13	C		
2-12	C	4-22	C001	7-3	C002	11-1	C	17-14	C001		
2-13	C	4-23	C001	7-4	C001			17-15	C		
2-14	C	4-24	C001	7-5	C001	12-1	C	17-16	C		
2-15	C	4-25	C001	7-6	C			17-17	C		
2-16	C	4-26	C001	7-7	C	13-1	C001	17-18	C001		
2-17	C	4-27	C001	7-8	C	13-2	C001	17-18.1	C001		
2-18	C	4-27.1	C001	7-9	C	13-3	C001	17-18.2	C001		
2-19	C	4-28	C001	7-10	C	13-3.1	C001	17-19	C002		
2-20	C	4-29	C	7-11	C	13-4	C	17-20	C002		
2-21	C			7-12	C001	13-5	C001	17-21	C001		
2-22	C					13-6	C001	17-22	C001		
						13-7	C001	17-23	C002		
						13-8	C001				

* Revisions identified by an * are pending and are not in force as of this SCN date. (C001 & C002)
RE Olson 4/23/93

20. SCHEDULE REQUIREMENTS.

20.1. Underground Facilities Schedule.

The required BOD (Beneficial Occupancy Date) for the Experimental Hall and its associated underground facilities and systems as specified in Sections 4, 17, 18, 19, and 21, is January 1, 1996.

20.2. Surface Facilities Schedule.

The JODs (Joint Occupancy Dates) and BODs of the surface facilities are as follows:

Facility	JOD	BOD
South Assembly Building as in Section 6	Apr 12, 1994	Jul 6, 1994
North Assembly Building as in Section 7	none	Oct 17, 1994
Utility Building as in Section 8	none	Jul 6, 1994
Installation Shaft Covers as in Section 11	none	Jan 2, 1996
Personnel Access Building as in Section 13	none	Mar 1, 1996
Equipment Access Building as in Section 14	none	Mar 1, 1996
Installation Gantry Crane as in Section 15	none	Jan 2, 1996
Gas Mixing Building as in Section 16	none	Aug 29, 1997

20.3. Utilities and Infrastructure Schedule.

The utilities and infrastructure systems, including roads, power, water, waste water and sewage, parking facilities and all other items necessary to support the functional operation of the underground and surface facilities shall be incremental activated to fully support the BODs specified in the forgoing paragraphs. The required BODs for detector power systems are:

System	BOD
Initial operational power for detector magnet tests	Nov 1, 1996
Full detector operational power	Mar 1, 1999

20.4. Applicable Figures and Tables.

None