2-9-2010

Criticality alarm system design guide with accompanying alarm system development for the Radiochemical Processing Laboratory in Richland, Washington

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CRITICALITY ALARM SYSTEM DESIGN GUIDE WITH ACCOMPANYING ALARM SYSTEM DEVELOPMENT FOR THE RADIOCHEMICAL PROCESSING LABORATORY IN RICHLAND, WASHINGTON

BY

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2007

THESIS

Submitted in Partial Fulfillment of the
Requirements for the Degree of

Master of Science
Nuclear Engineering

The University of New Mexico
Albuquerque, New Mexico

December, 2009

Acknowledgements

I would like to thank Dr. Robert Busch. Your tireless effort and dedication is inspiring. The countless hours you have spent correcting my assignments and instructing me is truly appreciated. My work has been well received here at PNNL, and I feel that the credit is due to your patience and commitment to delivering a quality education to your students.

To all of my committee members, I would like to extend a heartfelt thank you for all that you have done. Through both undergrad and graduate levels Dr. Gary Cooper and Dr. Taro Ueki contributed so much to my education. The rigor of your classes may not have been entirely appreciated at the time, but is now more appreciated than you could know. Unfortunately I had finished my coursework before Dr. Adam Hecht arrived at UNM. However, from the very inception of this thesis writing process, he has offered his help and guidance, which was extremely valuable.

To all of those individuals at PNNL who have given me assistance over the last three years, thank you. With no exception, every staff member that I have encountered has been more than willing to lend a hand. Andrew Prichard deserves special mention. From the moment I arrived at the lab, he has painstakingly mentored me and taken the time to not just answer my questions, but to make me understand those answers. His never wavering patience and endless amounts of knowledge make him the ideal mentor.

And finally to my wife, Robin, words can not convey the heartfelt appreciation and love I have for you. Without your support I would be lost.

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ABSTRACT OF THESIS

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ABSTRACT

A detailed instructional manual was created to guide criticality safety engineers through the process of designing a criticality alarm system (CAS) for Department of Energy (DOE) hazard class 1 and 2 facilities. Regulatory and technical requirements were both addressed. A list of design tasks and technical subtasks was compiled and analyzed to provide concise direction for how to complete the analysis.

An example of the application of the design methodology, the Criticality Alarm System developed for the Radiochemical Processing Laboratory (RPL) of Richland, Washington is also included. The analysis for RPL utilized the Monte Carlo code MCNP5 for establishing detector coverage in the facility. Based on the design methodology, significant improvements to the existing CAS were made that increase the reliability, transparency, and coverage of the system.

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Chapter 1 – Introduction

There are a variety of hazards facing those who work with fissile material; the most severe of those hazards is a runaway chain reaction known as a criticality accident. A criticality accident can release enormous amounts of radiation that may injure or kill those who are near it. Great care is taken to minimize the chance of a criticality accident occurring, but the possibility cannot be totally eliminated. Therefore it is this minimal possibility that must be accepted and planned for.

One way to lessen the potential impact of an accident event is to install a Criticality Alarm System. The purpose of a CAS is to promptly detect a criticality accident and immediately issue an audible evacuation warning to personnel. It has been shown that rapid evacuation away from criticality accidents can considerably reduce the dose received by personnel (McLaughlin et al., 2000). Getting people out quickly can decrease injury and save lives. This is the motivation to design and implement detection systems in facilities where accidents could occur. Federal standards exist that establish the performance requirements of these systems and discuss their applicability. But nowhere, be it federal or private, is there a standard on how to design them. Currently, there exists no consolidated body of work that addresses how to design a CAS. Because these alarm systems have the potential to save lives, it is of the utmost importance that they be rigorously designed. It is the focus of this thesis to provide an instructional guide for the design of a robust CAS that will perform its functions with the highest reliability.

All non-reactor facilities that handle greater than or equal to:

- 700g of ^{235}U
- 500g of ^{233}U
- 450g of ^{239}Pu
- 450g of any combination of these three isotopes

are required by the Department of Energy to install and operate a criticality alarm system (U.S. DOE, 2005). For the specific performance and detector coverage requirements expected of a CAS, DOE Order 420.1B defers to ANSI/ANS-8.3-1997 Criticality Alarm Systems. ANSI/ANS 8.3.1997 is the primary standard used to judge the acceptability of a CAS design.

A CAS is generally comprised of 3 main components as described in Appendix B: a comparator panel, alarms, and radiation detectors. Selection and placement of the detectors is the most difficult part of a CAS design. The detectors must operate with a high degree of reliability and require infrequent servicing or repair. The detectors, as well as the system in general, also need to minimize the potential for false alarms. The final and most important requirement of the detectors is that they must respond immediately to the Minimum Accident of Concern (MAC).

Minimum Accident of Concern

The Minimum Accident of Concern represents the smallest accident in terms of fission yield and dose rate that the Criticality Alarm System must detect. ANSI/ANS-8.3-1997 defines the MAC as one that delivers “the equivalent of an absorbed dose rate in free air of 0.2 Gy/min (20 rad/min) at 2 meters from the reacting material.” The design engineer must determine what likely scenarios, specific to the facility, would meet this definition. The engineer must determine the forms of the reacting materials, configuration, concentration, and quantities involved in an accident that will reach the MAC dose rates. Establishing the appropriate MAC for the targeted facility is not trivial and requires considerable effort.

The MAC represents the most difficult accident scenario that the CAS must detect. Therefore, the MAC is used extensively during the design phase to prove or disprove adequate detector coverage in the facility. ANSI/ANS 8.3.1997 establishes what adequate coverage is by requiring that no single channel may cause an alarm or fault. This means that at least two detectors will alarm for every MAC regardless of the accident location. Proving the CAS meets the coverage requirements of ANSI/ANS 8.3.1997 is the ultimate goal of the design engineer and is the benchmark for an effective Criticality Alarm System.

Objective

The purpose of this thesis is to provide a thorough guide to CAS design. Each step of the design process is discussed in detail to show why the step is needed and how to best complete it. Estimates for the time commitment of each step are included, as well as potential pitfalls that may be encountered. A complete CAS design for the Radioisotope Production Laboratory of Richland, Washington is included in this thesis to provide clear illustrations of what is being explained. The included CAS design provides corresponding examples for each topic discussed in the Design Process Overview section.

A Criticality Alarm System designed based on this methodology will meet and exceed all current regulatory requirements.

Overview of Chapters

Chapter 2 provides a synopsis of the major federal requirements and standards that apply to CAS design. Each specific document is briefly summarized and discussed. After reading this chapter, the reader should have an understanding of the relevant regulations that drive the implementation and design requirements of a CAS. A general sense of how the regulations affect the system design is discussed. A more detailed analysis of the ANSI/ANS-8.3-1997 standard on Criticality Accident Alarm Systems completes the chapter.

Chapter 3 begins by giving a conceptual overview of what goes into the design of a CAS. A design process flow sheet is provided to illustrate how different design criteria affect the project. Following the process overview is the Design Methodology. An outline of tasks to be completed is presented as well as a technically-oriented subtask listing. The flow sheet and task outline form the foundation of how the remainder of the document is organized.

Chapter 4 uses a CAS developed for the Radioisotope Production Laboratory(RPL) in Richland, Washington to illustrate how to apply the methodology presented in Chapter 3. The task and technical subtask layout described in the previous chapter is applied to the RPL CAS. Results are given and evaluated for the MAC, coverage requirements, spectrum analysis, sensitivity analysis, and validation benchmarks. MCNP5 inputs (the facility model, validation benchmarks, spectrum analysis, MAC, and sensitivity analysis) are provided in Appendix D for the different RPL specific models discussed.

The conclusion portion of the thesis draws all the sections together by highlighting and summarizing the major points. The improvements made to the RPL CAS are also listed with some discussion on their potential impacts on the facility with respect to safety and operations. The potential for future work in this area is also evaluated.

Chapter 2 – Literature Review

There are a multitude of documents that regulate the design and performance of a CAS. The final compliance memo for a CAS must not only reference the applicable regulations but include an actual copy of them in an appendix. This is done because the rules change over time. It is crucial to have a hard copy of what the rules were at the time the analysis was performed. Doing so helps avoid liability for future design conditions and performance requirement alterations as well as providing documentation for future system analyses and upgrades.

To begin evaluating the regulations the engineer needs to recognize that different facility classifications require different sets of regulations. The largest difference in regulations is whether or not the facility contains a reactor. The rules are significantly different for reactor and non-reactor facilities. This analysis focuses on CAS systems for non-reactor facilities. An important note, some of the standards discussed apply to all types of facilities; however it is just as crucial to justify why the standard is not applicable as it is to show why it is. Below is list of the documents that should be pulled and checked for relevance for non-reactor facilities.

1) DOE 420.1B *Facility Safety* (USDOE, 1997)
2) ANSI/ANS-8.1-1998 *Nuclear Criticality Safety in Operations with Fissionable Material Outside of Reactors*
3) ANSI/ANS-8.3-1997 *Criticality Accident Alarm Systems*
4) ANSI/ANS-8.10-1983 *Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement*
5) ANSI/ANS-8.15-1981 *Nuclear Criticality Control with Special Actinide Elements*
6) ANSI/ANS-8.19-2005 *Procedures for Nuclear Criticality Safety*

These are the federal regulations and standards related to Nuclear Criticality Safety and Criticality Accident Alarm Systems. There will also be company specific procedures for how to comply with these documents. If the final compliance report does not apply to both federal and company specific procedure, it will not be accepted. The language used in the final reports will vary from company to company so the format of the report itself will not be discussed. The analysis performed for a Pacific Northwest National Laboratory facility had to comply with the following internal documents:

1) MEA001 *Nuclear Criticality Safety Basis Memo Evaluation, Documentation and Approval*
2) NQA1 *Quality Control*
3) MA250 *Criticality Safety Manual*
4) MA500 *Nuclear Material Control and Accountability Plan*
5) *Radiochemical Processing Laboratory Documented Safety Analysis*
6) *Radiochemical Processing Laboratory Technical Safety Review*
7) *Criticality Safety Specification 1*
8) *Criticality Safety Specification 2*
9) *Criticality Safety Specification 3*

Each of the documents listed above has the possibility of impacting the design, implementation, and final compliance report. The need to thoroughly analyze each document for applicability and to make a detailed list of notes while doing so to keep track of them all is vital to the successful completion of the analysis. Because the second list of requirements is company specific, they will not be discussed in detail. Most of the company specific documents are controlled and not available for public release. Topics that are typically universal regardless of the company, like quality control and method validation, will be discussed to illustrate how related to these topics tasks can be conducted.

Throughout the range of ANSI/ANS documents, the same definitions are used for the terms shall, should, and may. These terms are defined throughout the standards as follows: *The word "shall" is used to denote a requirement, the word "should to denote a recommendation, and the word "may" to denote permission, neither a requirement nor a recommendation. To conform with this standard, all operations shall be performed in accordance with its requirements but not necessarily with its recommendations* (ANSI/ANS 8.3, 1997). To avoid misinterpreting what has been said, it is important to keep in mind how these words are defined when reading the standards.

To establish facility and program safety requirements for the DOE, a good starting point for all of these regulations and standards is the Department of Energy Order 420.1B Facility Safety. This document is the fundamental regulatory driver for a CAS in a federal facility. DOE 420.1B then breaks down what is required from a CAS, but it generally does not list the requirements. What Order 420.1B does is reference the documents that specifically list the technical requirements, which are typically ANSI/ANS standards. Order 420.1B is structured this way, no doubt, because the ANSI/ANS standards are periodically reanalyzed and updated. There are some key sections of Order 420.1B that must be read and understood:

- 4.1.1 Nuclear Safety
- 4.3 Nuclear Criticality Safety
- 4.3.3 Specific Requirements

It should be noticed that Order 420.1B augments many sections of the different ANSI/ANS standards. Why it is important to note these modifications is discussed further in Design Process Overview Task II. There is a section in Order 420.4.3.3e part 4 that addresses what is known as quasistatic criticality accidents. Quasistatic accidents are tremendously challenging to detect and are not addressed within this Thesis. Order 420.1B then directs the user to ANSI/ANS-8.1-1998, which is the overarching criticality safety standard. All other criticality related standards address implementing the general philosophy contained in ANSI/ANS-8.1-1998.

1) ANSI/ANS-8.1-1998 – Nuclear Criticality Safety in Operations with Fissionable Material Outside Reactors:

> Scope **–** *This standard is applicable to operations with fissionable materials outside nuclear reactors, except for the assembly of these materials under controlled conditions, such as in critical experiments. Generalized basic criteria are presented and limits are specified for some single fissionable units of simple shape containing U-233, U-235, or Pu-239, but not for multiunit arrays. Requirements are stated for establishing the validity and areas of applicability of any calculational method used in assessing nuclear criticality safety. This standard does not include the details of administrative controls, the design of processes or equipment, the description of instrumentation for process control, nor detailed criteria to be met in transporting fissionable materials.*

This standard lays out the general methodology and techniques for how work with fissionable materials should be carried out. It thoroughly discusses what an acceptable analysis would be for meeting safety requirements, and then it discusses what must happen if this analysis is based on computer simulations. This standard also discusses how computer systems must be validated using established experimental benchmarks to ensure that the code is performing as claimed.

2) ANSI/ANS-8.3-1997 – Criticality Accident Alarm System

> Scope **–** *This standard is applicable to all operations involving fissionable materials in which inadvertent criticality can occur and cause personnel to receive unacceptable exposure to radiation. This standard is not applicable to detection of criticality events where no excessive exposure to personnel is credible, nor to nuclear reactors or critical experiments. This standard does not include details of administrative actions or of emergency response actions that occur after alarm activation.*

This standard contains a range of vital information. There is so much useful material in this standard that to discuss it all would be to almost reproduce it in its entirety. The most important parts with regard to design impact are the description of the coverage requirement, false alarm tolerance, detector failure, and the minimum accident of concern. Each of these parameters should be understood because each can impact the physical layout of the system. A brief discussion on the interplay among these parameters is useful to illustrate how one can affect another, and to show how important this standard is to CAS design.

The coverage requirement is the number of detectors that must alarm for the MAC. To meet the coverage requirement, the engineer would like the threshold (trip) setting for the detectors to be as low as possible, but if set too low, then there is a greater risk of false alarms. If the CAS is designed to meet only the minimum detector coverage requirement, then a fault at any one node takes the entire system out of compliance, thereby stopping work in the facility. However, the more detectors required for the system, then the greater the cost of installation and operation becomes. The most important piece of information this standard supplies is the general definition of the MAC.

The minimum accident of concern can be thought of conceptually as the worst case scenario for what a criticality safety engineer must design for. ANSI/ANS-8.3-1997 defines the minimum accident of concern as "the smallest event in terms of yield and dose that a criticality alarm system must detect." It then goes on to define the MAC even further as "to deliver the equivalent of an absorbed dose rate in free air of 0.2 Gy/min (20 rad/min) at 2 meters from the reacting material." For the system to be accepted in a DOE facility, CAS must be able to detect the MAC.

The purpose of the MAC definition is to give a clear lower limit of what must be detected, while still giving the criticality engineer some freedom with how to design the system. The standard does this by listing a minimum dose rate and by not listing how this dose rate is detected. From a practical sense not defining what the dose results from, neutrons, gammas, etc., lets the engineer decide what particles the system should detect. Having some freedom here allows the alarm system to be tailored to the individual facility.

3) ANSI/ANS-8.10-1983 – Criteria for Criticality Safety Controls in Operations with Shielding and Confinement:

> Scope – *This standard is applicable to operations outside of nuclear reactors with U-235 U-233, Pu-239, and other fissile and fissionable materials in which shielding and confinement are provided for protection of personnel and the public, except the assembly of these materials under controlled conditions, such as in critical experiments. Criteria are provided that may be used for criticality control under these conditions. The standard does not include the details of administrative procedures for control (which are considered to be management prerogatives) nor details regarding the design of processes and equipment or descriptions of instrumentation for process control.*

This standard outlines a possible exception to requiring a CAS in a facility that is over the mass limit cutoff but has large amounts of shielding. This obviously warrants some attention because nothing makes project managers angrier than spending thousands of dollars on completely unnecessary work. Without going into great detail, the standard's basis for omission of a CAS deals with sufficient shielding requirements, remote operation, and personnel restrictions.

4) ANSI/ANS-8.19-2005 – Administrative Practices for Nuclear Criticality Safety:

> Scope – *This standard provides criteria for the administration of a nuclear criticality safety program for outside-of-reactor operations in which there exists a potential for nuclear criticality accidents. Responsibilities of management, supervision, and the nuclear criticality safety staff are addressed. Objectives and characteristics of operating and emergency procedures are included.*

This addresses the administration of a criticality safety program. Like the other standards mentioned in this section, it references many of the other criticality focused ANSI/ANS standards including ANSI/ANS-8.3-1997 Criticality Accident Alarm Systems. This standard is more focused on how programs are implemented and documented. Because the CAS design will have to be administered adherent to this standard, it should be reviewed during the CAS design process.

5) ANSI/ANS-6.1-1991 – Neutron and Gamma-ray Fluence-to-Dose Factors:

> Scope – *This standard presents data recommended for computing the biologically relevant dosimetric quantity in neutron and gamma-ray radiation fields. Specifically, this standard is intended to for use by shield designers to calculate effective dose equivalent per unit fluence for neutron energies from 1eV to 14 MeV and for gamma-ray energies from 0.01 to 12 MeV. Establishing maximum permissible exposure limits is outside the scope of this standard.*

This is used convert gamma-ray fluence to dose in free air. The previous analysis of the RPL used this standard in conjunction with the MAC to find the smallest, and therefore most limiting, neutron fluence resultant from a criticality accident. It should be noted at the time of this analysis, ANSI/ANS-6.1-1991 could not be used because the standards' status had been changed from Active to Historic. The status was changed to Historic because the standard was not reevaluated within the 10 year time frame designated by ANSI/ANS. The criticality safety engineer should be cautious about using it until the status is updated.

Based on the facility description, the judgment can be made as to which ANSI/ANS standards are applicable. As stated previously, it is important to make clear arguments why or why not each standard is specifically applicable to the design. These arguments will be included in the final report and checked over by quality control engineers. Of all the ANSI/ANS standards, the most applicable is obviously 8.3-1997 Criticality Accident Alarm Systems. This document will likely guide the majority of the technical design and warrant a good deal of attention.

Chapter 3 – Design Process Overview

Below is a brief overview of what goes into a complete CAS design. Each of the following steps is discussed in greater detail in the Methodology section. Throughout the design phase, frequent reviews of completed work and of the progress being made are advisable. In such a long process there are innumerable chances for mistakes to be made. If mistakes are made early on and go unnoticed, they can render the finished product useless. It is strongly recommended to have senior criticality safety engineers or other peers periodically review completed work. To provide an itemized summary of what lays ahead, the rather sprawling job of CAS design has been condensed into seven major tasks, which are:

I. **Become familiar with the facility where the CAS will be installed;**

II. **Obtain, read, and summarize all of the pertinent standards and guidelines; then compare company specific requirements to others, so that the most likely scenarios for the Minimum Accident of Concern can be found;**

III. **Outline a schedule of deliverables;**

IV. **Evaluate and choose a computer simulation package to perform the analysis based on validation benchmarks that clearly demonstrate the code chosen will perform as expected;**

V. **Design and model the criticality alarm system for the facility;**

VI. **Show the calibration method follows simple and concise methodology for setting the minimum detector trip points; and**

VII. **Assemble the final report;**

The tasks are roughly in chronological order. Lengthy projects such as this, more often than not, require tasks to be juggled simultaneously or to be moved around to meet deadlines. This project will likely be no different. The list above was constructed to help the novice engineer move from the beginning of the project to the end with organization and traceability.

Design Methodology

This section focuses on how to carry out the design of the CAS. Each task from the outline listed at the beginning of this Chapter is thoroughly described. The approach to each task, as well as any corresponding potential issues, is examined. Task VI contains the majority of the technical design, and it includes a numbered list of specific technical subtasks. This numbered list is then revisited in the Application of Design Methodology Chapter where the same numbering is applied to the RPL Criticality Alarm System analysis.

I. Become familiar with the facility where the CAS will be installed

Initial Phase

Begin by conducting walk downs of the targeted facility. Take general notes of the layout and the construction materials of the building. If a current CAS exists, make thorough notes about it; pay especially close attention to the detectors and their current locations. New CAS system installation and validation is very expensive so there is strong motivation to utilize existing components.

While in the facility, talk to people to get a sense of what day-to-day operations are like. The engineer needs to develop a sense for what typically occurs in the facility because it will help avoid incorrect assumptions during the modeling phase. Some questions to ask personnel are:

- How often are renovations performed?
- What fissile material movements occur?
- Where are operations with fissile material conducted?

- Do people and/or laboratories move around?
- Are there any neutronically significant materials present?

II. Obtain, read, and summarize all of the pertinent standards and guidelines; then compare company specific requirements to others, so that the most likely scenarios for the Minimum Accident of Concern can be found;

After the walk downs are completed, the engineer should have a better understanding of the operations and environment that the CAS design must accommodate. Using this knowledge, pull all of the references listed in the literature review section. Do not worry initially about whether or not they are specifically applicable.

- Spend the time to read them.
- Most are not terribly long.
- Pay close attention to the scope of each document.
- Obtain hard copies of all the references because they are often required in the final CAS design report.
- Make a summary of each document including:
    - Scope/applicability –specify any direct requirements for the facility.
    - Technical limits.

Repeat this process for the company specific regulations. Depending on the size of the company, it may or may not have a document clerk or department. If so, these personnel can be tasked to find and assemble all the applicable documents. Also, some companies maintain libraries that will have most if not all of the documents required. For example, the Hanford Technical Library at PNNL employs fulltime librarians that can be tasked with locating project specific documentation.

After all of the standards and guidelines have been assembled and summarized, it is time to select the most limiting accident scenarios to be modeled. It was found that inserting the summarized lists into a spreadsheet was very useful. The determination of which requirements represent the most limiting accident scenario is not always clear. For example, one standard may define a dose rate where another may define fluence. Unless the difference in magnitude for each situation is considerable, it can be difficult to discern what the most limiting parameter is. Therefore, it is recommended to perform some quick calculations to verify any conjecture.

Once an accurate assessment of the most likely minimum accident scenarios has been made, the assessment must be checked by experienced criticality safety engineers. PNNL requires that the limiting design conditions be peer reviewed, and there is a very explicit list of who can review what types of work. If for some reason, quality assurance is not required at this level, the engineer should seek it out independently. To reiterate, these limiting cases drive the analysis, so if they are incomplete, the design can be incomplete. An example of a final limiting case assessment is shown in Design Methodology Minimum Accident of Concern subtask.

III. Outline a schedule of deliverables

The management responsible for the project may provide a time frame or they may ask the engineer for an assessment of the expected duration of the project. It is generally beneficial for all those involved to have the person(s) with the most applicable experience construct the time line. It is much more difficult to make an accurate judgment of how long a task will take if the individual has never performed it before.

The schedule is also highly dependent on the size of the facility that the CAS is being designed for. The length of time to complete the design phase seems to roughly scale with facility size. There are several factors that drive this relationship. The larger the facility is, the longer it will take to model. The larger the model, the longer it will take to QA. The number of potential accident locations increases with building size, which adds to both the computational time and the analysis phase. For reference, the RPL building description is given in Chapter 4 as well as schematics for each floor in Appendix A. It took approximately four months to perform the analysis and write the final report. The time it will take to draft the report depends on company requirements and individual writing speed. The final Basis Memo for PNNL was written, reviewed, and re-written in about 80 hours. More on the report is discussed later in this section.

There are a few key factors that can reduce the CAS design time. Most time saving factors are human-based. For example computer code writing skills, general criticality safety knowledge, and regulatory knowledge can all aid the design engineer in completing tasks more quickly. For all the duration times listed from this point on, it is assumed that the user has the skills of an average entry-level engineer.

IV. Evaluate and choose a computer simulation package to perform the analysis based on validation benchmarks that clearly demonstrate the code chosen will perform as expected

ANSI/ANS-8.1-1998 requires that any code used for criticality analysis be validated prior to its use. This part of the process is really several tasks combined: choosing a code, evaluating the codes usability, and validating the codes accuracy relative to the specific situation being modeled. The goal in this step is to choose a computer simulation package that can show detector coverage and to perform sufficient analysis of the code package chosen, to prove that it does operate as assumed. Meeting this goal is the focus of this section, and it is highly recommended that this goal be met before the design phase is undertaken.

There are some common sense reasons for performing the tasks mentioned above, but there is also a regulation that clearly invokes the need to do them as well. DOE Order 420 mandates that all facilities categorized hazard level 1 or 2 must implement a quality assurance program to oversee and ensure the legitimacy of the work being performed. So throughout the design process all of the work performed, must be checked in accordance with the facility specific QA program. At PNNL, as it should be elsewhere, the code package used to perform ANY analysis most certainly falls into QA space.

A brief word of caution, ANY code used to perform analysis on the system that will be included in any way in the final report must be validated and put through QA. Hopefully it is obvious then that it would be wise for the engineer to pick as few codes as possible to simplify this requirement. It should also be noted that many companies maintain a list of approved code packages that are specific down to the version and release dates. If the code the engineer would like to use is not on this list, it can not be used.

Once the code has been selected, if not already familiar with it, spend a few days learning the basics. It is important to do this because the validation phase is somewhat time consuming and requires a working knowledge of the code to complete. Naturally, it is a good use of time to ensure that the work can be completed in a timely manner with the selected code package. It is just common sense to not waste time validating software that will never be used. After getting acquainted with how the code works, it is time to proceed with the validation phase. Note, that validation is required for every project, and must be included in the final report regardless of whether similar work has been previously performed.

Computer code validation is accomplished by modeling known, well documented, and very similar real world experiments. Then the results of the simulation are compared to actual real world experiment data. The code is deemed acceptable when it is shown to model similar situations with a prerequisite accuracy. The accuracy varies from company to company. The most important part of the validation process is the selection of relevant benchmarks.

The term, "relevant benchmark" is used in reference to established experiments that are well documented and reviewed and that clearly demonstrate the phenomena being investigated. To put it simply, if modeling fission in ^{235}U, then find a ^{235}U benchmark to compare it to. But this is indeed too simple an explanation. Depending on the situation it is also usually important to match the energy spectrum, chemical state of the material, geometry, and in some cases the magnitude of the fluence. The closer the benchmark physically resembles the system being investigated, the easier it will be to argue that the results obtained from the model are indeed acceptable. Luckily there exists a collection of benchmarks that fulfill these requirements.

In the last 50 years there has been a wide variety of criticality experiments conducted all over the world. These experiments were used to gain an understanding of a range of phenomena. Since these experiments were conducted, an organization has been formed to find and assemble them into a readily accessible database. Currently that organization is the Nuclear Energy Agency (NEA) and their database is known as The International Handbook of Evaluated Criticality Safety Benchmark Experiments (IHECSBE) (NEA, 2008). The NEA has focused on compiling and checking the validity of the experiments and then issuing very high quality detailed reports about there findings. Many evaluated experiments also include computer input and output files for the experiment. The IHECSBE database is a widely acceptable source for validation benchmarks and offers a large variety of experiments.

V. Design and model the criticality alarm system for the facility;

As a certain professor of mine always used to say, “Here lies the meat and potatoes of your work.” Contained in this section are guidelines on how to complete the more technical aspects of this project. Below is an outline of the design phase of the project. Each number represents a subtask of the design process.

1) **Find the MAC including fluence and spectrum**
2) **Identify potential locations for detector placement**
3) **Model the facility**
    a. Assumptions/omissions/simplifications
    b. Dimensions
    c. Materials Used in Computational Models
    d. Detectors
    e. Source
    f. Tallies
    g. Accident Locations
4) **Find count rates of the criticality detectors for known conditions**
5) **Model the Calibration/Counting Setup to find the Detector Cell Tally Efficiencies**
6) **Adjust the value for the detector minimum trip setting**
7) **Verify that adequate coverage has been obtained at the new minimum trip setting**
8) **Modify the Calibration Procedure**

9) Apply Variance Reduction as needed

10) Perform sensitivity analysis on the final CAS design

Each numbered item is discussed in greater detail below. Chapter 4 describes these steps when applied to the design of the RPL criticality alarm system. Figure 1, a design process flow sheet, is included to illustrate how each piece of Task 5 is used to establish detector coverage. Each box colored in grey represents the output of the different subtasks.

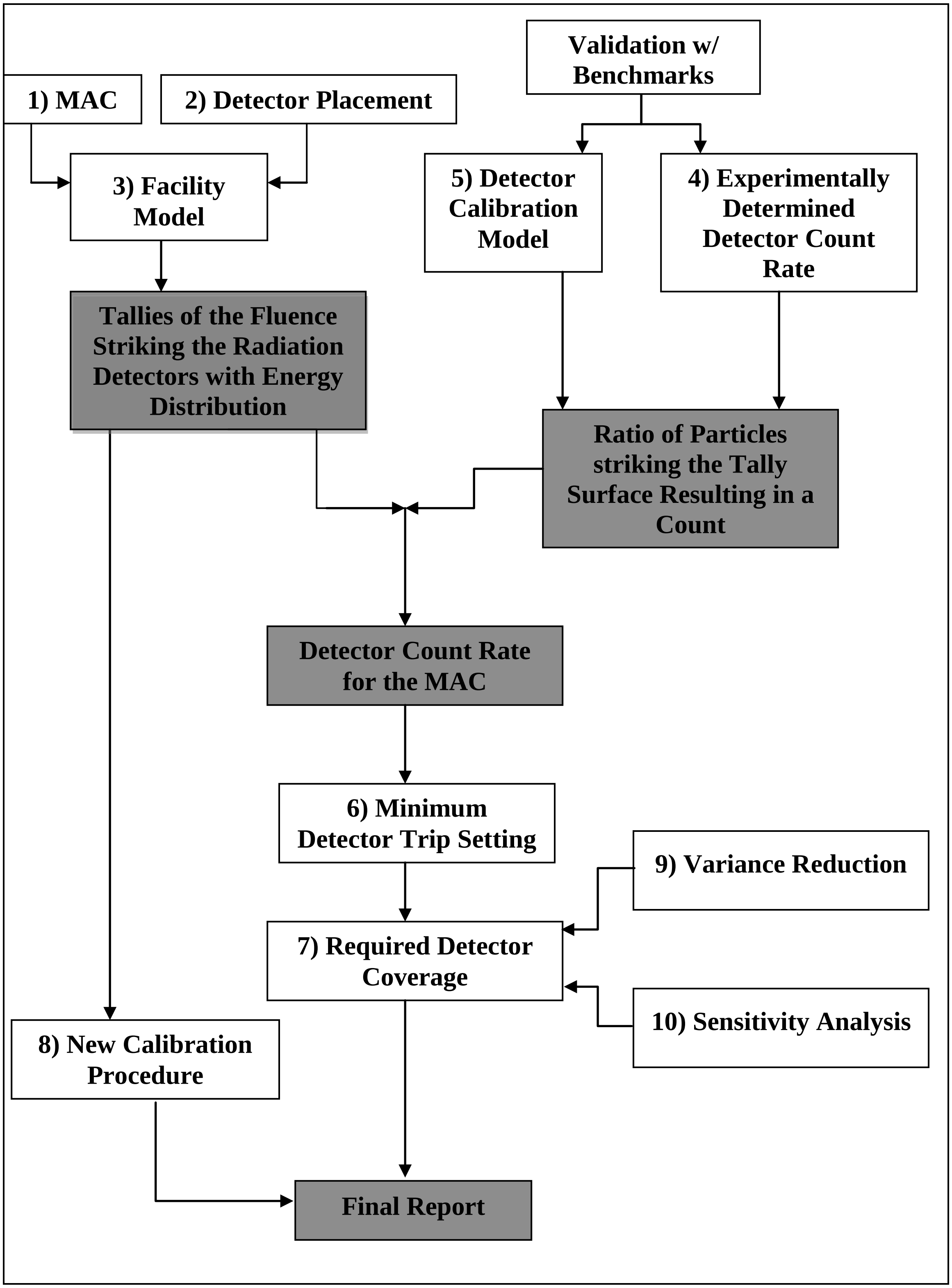

Figure 1. Design process flow sheet

Subtask 1 - Find the MAC – Fluence and spectrum

What the engineer seeks here is the determination of which accident is the most difficult accident to detect. The justification for the need to do this was discussed previously in Design Methodology Task II. How to actually make the determination is the focus of this section.

To find the MAC, start with the definition listed in ANSI/ANS-8.3-1997. Then pick the most probable physical scenarios that are most likely to reach the ANSI/ANS-8.3-1997 dose limit with the smallest number of detectable particles. So if the system employs gamma detectors, then look for the accident condition that maximizes the number of neutrons that contribute to the absorbed dose rate and vice a versa for a neutron detection system. Of course, it is not reasonable to model every conceivable accident scenario to be able to say with absolute certainty what the right answer is. What is reasonable is to pick a handful of the most likely candidates and model those.

To make a guess of what the likely accident scenarios are, it is very useful to remember the shielding properties of both gamma rays and neutrons. Low Z materials shield neutrons the best: increasing density, high Z materials shield gamma rays the best. It is clear that maximizing this discrepancy will likely generate the most limiting accident condition for the respective particles.

If both Uranium and Plutonium are present in the facility, then fission from each isotope should be looked at to determine which is more difficult to detect. Several accident conditions were analyzed for both Plutonium and Uranium including bare metal spheres, metal shielded cask type scenarios, and water reflected sources. Eventually it was determined for the neutron detection system in RPL that optimally moderated Plutonium and water solutions yielded the fewest neutrons for the required dose rate. Of course Plutonium and water mixtures are not very physically meaningful for chemical reasons, but that is not as important as establishing an absolute lowest bounding accident condition.

Computer models should be made for the most likely accident scenarios: one complete set using ^{235}U sources, and one complete set using ^{239}Pu sources. For the accident scenarios, the dose rate in free air from neutrons and photons must be found. Finding this dose rate per neutron and per photon is necessary to determine the corresponding minimum fluence for the accident. The smallest fluence found then identifies the most difficult accident to detect for the ANSI/ANS-8.3-1997 MAC definition.

An advantage of using MCNP5 is absorbed dose can be tallied directly by using the F6 Tally, which is discussed further in the **2)** f. Tallies subtask. MCNP5 makes a track length estimate in a designated cell for the absorbed dose there. The dose conversion equation listed as a footnote can be used to convert the result of a standard F6 tally to a final neutron fission source term.[1] KENO can not directly tally absorbed dose at a location. To find dose with KENO, the fluence must first be found with the code and then converted to dose by using published fluence to dose factors. One such standard is ANSI/ANS-6.1-1991 Neutron and Gamma-ray Fluence to Dose Factors. Be aware that currently the status of this standard has been changed to “Historical,” because it has not been reevaluated in the mandatory ten year review period.

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[1] **F6 Result (MeV/g)*1.00e6 (eV/MeV)*1.60218e-12 (erg/eV)*0.01 (g-rad/erg)*ν(neutrons/fission)**

The result of the most limiting fluence found from the MAC absorbed dose analysis will be used as the source weighting factor in the facility model. This weighting factor will therefore scale the results of the simulations to the correct MAC.

Subtask 2 - Identify potential locations for detector placement

Before the facility can be modeled in subtask 3, a preliminary number and location of the criticality detectors must be found. As stated in ANSI/ANS-8.3-1997, there must be at least two detectors that will alarm for every MAC. It is up to the user if a greater degree of coverage is desired. This initial detector placement should be viewed as a starting point, and not as the complete effort for detector placement. It should be noted that for the project, each detector represents a significant installation and maintenance cost. From a fiscal standpoint then, the engineer should optimize the design to use the fewest number of detectors to meet the coverage needs. To simply install dozens of detectors throughout the facility would be very expensive. Also, every detector must be periodically recalibrated and serviced, which adds cost over the lifetime of the system.

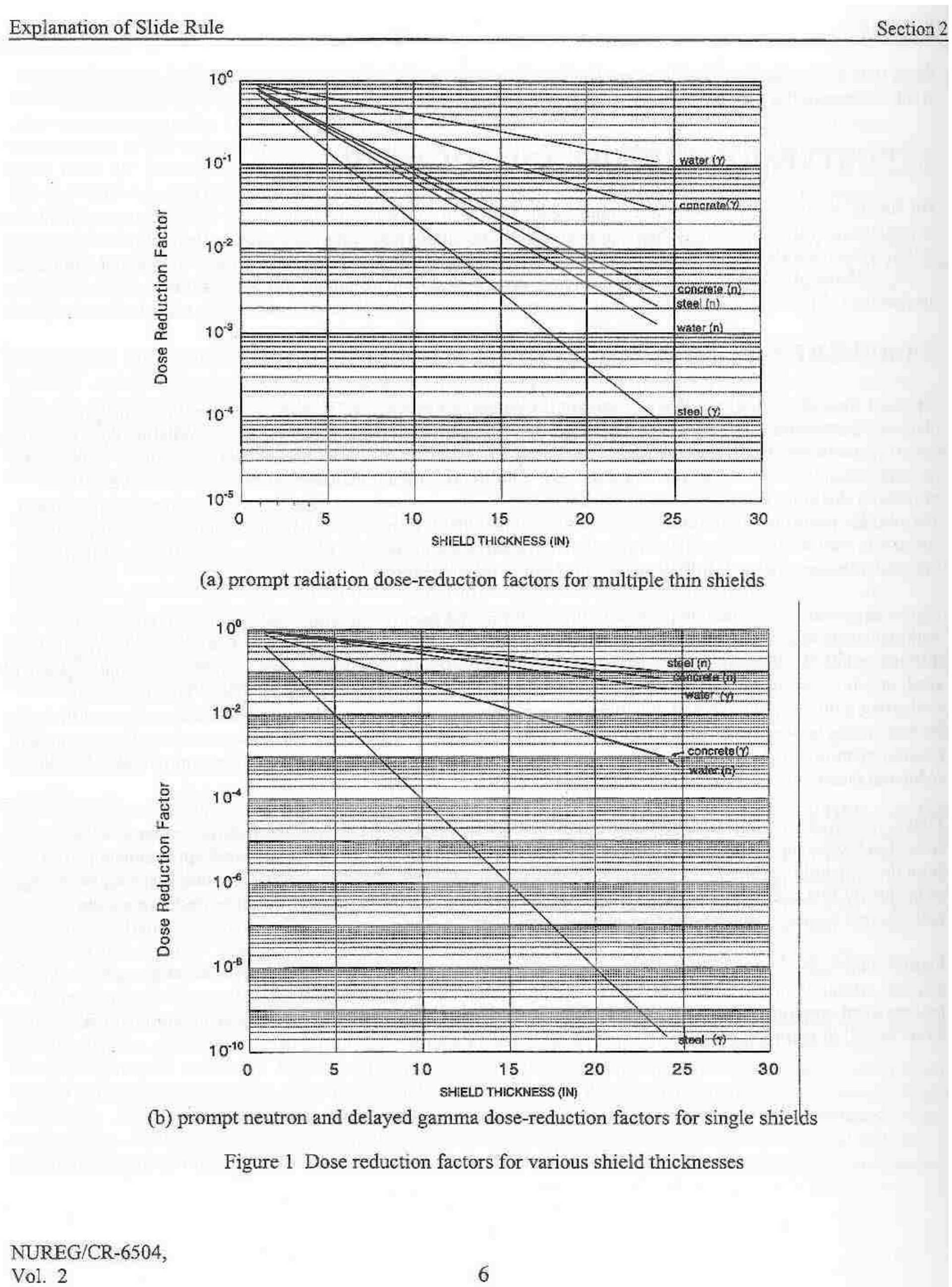
It was found that the fastest and simplest method for determining detector placement was to use the Updated Nuclear Criticality Slide Rule (UNCSR) (Hopper & Broadhead, 1998). The UNCSR can be used to estimate dose resultant from a user specified fission yield. This reference allows the user to select the fission yield and then see the corresponding dose from neutrons, gamma rays, and the total at a distance. The UNCSR also provides dose reduction factors as a function of shielding thickness. This allows the yield to be adjusted for different thicknesses of interceding materials.

Preliminary placement of the detectors needed in the facility can be made by inserting the yield from the MAC into the UNCSR. Then using engineering judgment, sufficient accident locations should be chosen for a good estimate of the coverage. For each accident location chosen, the UNCSR can be used to find the absorbed dose in rads, at a distance. It is recommended that floor by floor drawings of the facility are obtained and the appropriate scaling factors established.

To begin placing the detectors, the user must pick a threshold value of dose that represents a detectable fluence for the system. There are a number of ways to reach an estimation of the detection threshold. For both neutron and gamma ray-based systems, the average energy from fission can be used to calculate fluence as a function of absorbed dose in free air. Equation 1 shows the relationship between absorbed dose and fluence.

$$\text{Dose in Air} = \Phi * E_{avg}/\rho_{air} \qquad (1)$$

In Equation 1, Φ is the fluence in # of particles per MAC, E_{avg} is the average particle energy from fission, and ρ_{air} is the density of air. Equation 1 does not contain time values or rates because the dose is assumed to be entirely from prompt fission. The values found with Equation 1 have to be corrected for the amount of intervening shielding. The UNCSR provides tables that make it easy to approximate the reduction caused by shielding. Figure 2 shows a table of dose reduction factors for prompt fission, which is included in the UNCSR.


Explanation of Slide Rule — Section 2

(a) prompt radiation dose-reduction factors for multiple thin shields

(b) prompt neutron and delayed gamma dose-reduction factors for single shields

Figure 1 Dose reduction factors for various shield thicknesses

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Figure 2. UNCSR dose reduction factors for various shield thicknesses

Once the dose threshold value is found and corrected for shielding, the corresponding distance for the MAC can be established with the slide rule. Figure 3 is an example of a slide rule provided in the UNCSR.

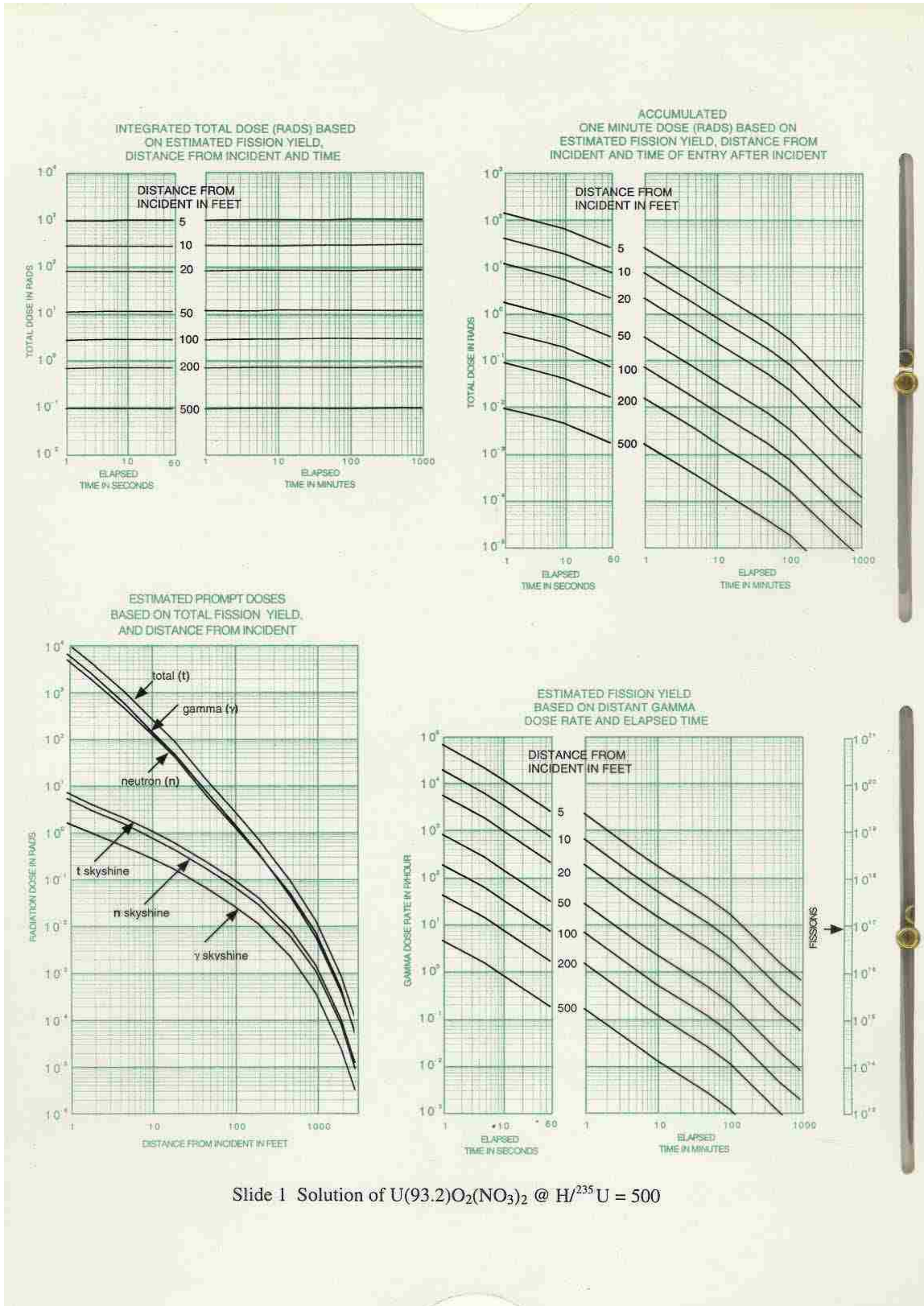


Figure 3. UNCSR sample slide rule for $U(93.2)O_2$-$(NO_3)_2$ @ H/X=500

Using facility drawings, plot an arc of that distance value on the drawing(s) for each accident location. Areas with the most overlapping arcs will logically see the greatest number of accidents and are therefore the optimal locations to place detectors.

If the facility has multiple stories, then the process is repeated for each floor. Once a detector layout is found for each floor, then the facility as whole can be examined. Keep in mind that particles will travel through floors and ceilings. The UNCSR can be used to find the neutron fluence reduction rates through the floors and ceilings for the MAC. Do not spend an extensive amount of time trying to get a perfect detector arrangement here because the computer simulations will provide more accurate guidance. Examples of how the arcs can be drawn are included in the corresponding subtask in Chapter 4.

Subtask 3 - Modeling the facility

a. Assumptions/omissions/simplifications

Assumptions, if any, must be clearly documented because they will need to be included as an appendix to the final report. The QA engineer will check the validity of the claims made to ensure that they all result in increased model conservatism. The guiding principle for making assumptions is that they are allowable so long as they increase the amount of conservatism, not decrease it. An example assumption could be to not model the dirt surrounding the building to save computational time. This is an example of an acceptable assumption because it only results in decreasing the number of particles that could be reflected back into the facility from the MAC. Therefore the same guiding principle still holds of being able to detect the worst case possible. An unacceptable assumption goes in the other direction and could then potentially invalidate the CAS. An example of an incorrect assumption is to avoid modeling the contents of offices located in the facility to save modeling time. This assumption is not conservative because taking material out of the interior of the model decreases the amount of absorption taking place. Removing a loss term inside of the facility artificially "increases" the source of the MAC, which is not conservative.

b. Dimensions

There is no substitute for good structural drawings, preferably digital CAD files. Not much needs to be said on the model geometry if it is mostly complete. Model everything that affects the particles being detected, e.g., concrete for neutrons and metals for gammas. If dimensions must be estimated, then always error on overestimating the size of bodies located within the facility and in the opposite direction for bodies located outside of it. In some instances, it may be useful to make hand drawn sketches of the facility. If this is done and the sketches are used as reference material for the model, then they must be included in the Appendices of the final report. This is a generally accepted practice.

c. Materials Used in Computational Models

Modeling the materials contained within the facility can be done with a mixture of facility inspections and published material definitions. It is very useful to physically inspect walls, ceilings, offices etc. to determine their contents. Walk-downs should be conducted to determine what amount and type of material is located in the facility.

Generally, it will be unreasonable and unnecessary to model the interiors of every office or laboratory space. It would take too much time to include this level of detail in most facility models. But as mentioned before, the interior fill material must be included to preserve conservatism. The size of the facility, the computational resources, and the time available to perform the CAS analysis should all be considered in how the interior material will be accounted for. The sensitivity analysis conducted on the final design will show how the addition and subtraction of material in the model affects the outcome and ultimately the applicability of the design.

d. Detectors

If at all possible the detectors should be modeled to resemble the actual detectors to be installed in the facility. Geometrically accurate detector models may not be usable when the facilities get sufficiently large because computational times grow considerably. For larger facilities it can become necessary to run trillions of particles to get acceptable statistics at the detector surfaces. This number of particles can correspond to very long run times, sometimes weeks or more. Depending on project requirements and company resources, it may become necessary to look at ways of reducing the time required to run the respective codes. Methods for decreasing run times are first discussed in the tally subtask below and then again in more detail in the variance reduction subtask.

Once the computational model of the detector has been made, it must be held constant for every input. However the detectors are modeled in the facility is how they must be modeled in the calibration setup, and likewise for any other model that includes them. Keeping the modeled detectors unchanged is vital to the validity of the method being applied for finding the minimum trip settings and ultimately the detector coverage verification. Why keeping the detectors unchanged is so important will be discussed further in Chapter 4.

e. Source

Getting the correct source in the facility model is very important and can also be very difficult. Whatever situation that was found to be the MAC in the specific facility is the foundation of the source term for the facility model. The resultant minimum fluence found in the MAC is used as the source weighting factor in the model. MCNP5 provides a multitude of methods for modeling different sources. MCNP5 contains fission spectrums for several isotopes as well as a range of distribution functions (X5 Monte Carlo Team, 2003).

It is important to check the computer modeled source distributions for accuracy. The simulated source used in the computational model should mimic what occurs in the real world MAC. It should be understood that modeling a time dependent criticality event is extremely difficult and is beyond the needs of this project. An acceptable substitute is to make an approximate match of both the energy spectrum and fluence of the criticality accident to the simulated source. To verify that this has been done, it is recommend to use the program Vised, which is the visualization tool provided by RSICC with MCNP5. Vised has proven invaluable for catching the numerous source distribution errors made along the way. It is highly recommended to spend some time becoming familiar with the array of uses Vised has to offer. More specifically, time should be spent learning how to check source distributions using the particle tracking features. Vised will “run” a user designated number of particles through the model using what has been defined as the source. Vised will then produce a picture that will show a variety of useful information about what occurred with the source particles, making it very easy to see errors.

f. Tallies

The tallies chosen for the model will yield the results that are used to determine whether or not a detector has alarmed. The tallies can also be used in clever ways to decrease computational run time. MCNP5 provides eight basic tallies for recording particle information but for this project only four of them are of any use (X5 Monte Carlo Team, 2003). The tallies of interest for this design are the F1, F2, F4, and F6. Correspondingly they are surface current, surface flux, track length estimate of cell flux, and the track length estimate of energy deposition. Equations 2, 3, and 4 show, respectively, the F1, F2, and F4 tally equations. The F6 tally equation is merely the F4 cell flux tally multiplied by a heating function.

$$\mathrm{F1} = \int_{E_i} dE \int_{t_j} dt \int_{\hat{\Omega}_k} d\hat{\Omega} \int dA \left|\hat{\Omega} \cdot \hat{\mathrm{n}}\right| vn(\vec{\mathrm{r}}, \hat{\Omega}, E, t) \qquad \textbf{(2)}$$

$$\mathrm{F2} = \frac{1}{A} \int_{E_i} dE \int_{t_j} dt \int dA \; \phi(\vec{\mathrm{r}}, E, t) \qquad \textbf{(3)}$$

$$\mathrm{F4} = \frac{1}{V} \int_{E_i} dE \int_{t_j} dt \int dV \; \phi(\vec{\mathrm{r}}, E, t) \qquad \textbf{(4)}$$

The units are important to note for the output of each tally. In their standard modes, the F1 tally has units of number of particles, the F2 and F4 tallies both have units of particles/cm^2, while the F6 tally has units of MeV/gram. MCNP5 will attempt to calculate the corresponding areas, volumes, or masses for each tally but is prone to error (X5 Monte Carlo Team, 2003). It is recommended that the user supply any and all of the aforementioned parameters by using the tally modification cards available in MCNP5.

The F4 tally was found to be the most reliable for tallying fluence. It should be noted that the method MCNP5 uses to calculate the F2 surface flux contains a large angle cosine approximation, which was found for this investigation, to report larger fluence values than did the F4 tally. The surface flux approximation used in the F2 tally for large angle approximation is given in Equation 5 (X5 Monte Carlo Team, 2003). The parameters in Equation 5 are W for the particle weight, δ for surface thickness, A as the surface area, n for the unit normal vector, and Ω as the particle position vector. Therefore, to be conservative, the decision was made to only use the F4 tally for the detectors in the building and calibration models.

$$\bar{\phi}_S = \lim_{\delta \to 0} \frac{W \quad \delta}{A\delta\left|\hat{\Omega} \cdot \hat{n}\right|} \qquad \textbf{(5)}$$

The F6 tally worked very well for the MAC determination because it was very easy to show the conversion from MeV/gram to the absorbed dose value listed in ANSI/ANS-8.3-1997. The F1 current tally can be used to find amounts of reflection provided by different pieces of the facility. This information can then be used to greatly speed up the computational time by creating ALBEDO boundary conditions or modified cell importance. Run times may be decreased by up to 40 percent using these techniques. This significant decrease in run time is mostly attributed to limiting the amount of time spent on tracking particles in the sand surrounding the facility. Another way to decrease the time spent tracking particles in sand is to change the composition from pure Silicon Dioxide to include a small fraction of Boron. So many collisions can occur in the surrounding sand that a small amount of Boron makes large contributions to absorption. The discussion on tallies and variance reduction more specific to the needs of this project is continued in the Variance Reduction subtask below.

Subtask 4 - Find count rates of the criticality detectors for known conditions

A bridge must be made between what is tallied in the model to what is counted in reality. The first step in establishing this link is to find a count rate for the detectors in a known configuration that can be modeled in subtask 4 with the same code packaged used for the analysis. The quantity sought in this task will be used in conjunction with the Detector Cell Tally Efficiency to ultimately determine what count rate the minimum trip setting will be.

One possible source of well-documented count rate data would be any existing calibration procedures or operations for the detectors in question. If the calibration procedure has already been developed, then there will be extensive records for count rates as a function of source activity. If this is the case, then acquire all the data regarding the calibration setup that would be needed for modeling it in the designated code package and proceed to subtask 5. If the calibration procedure does not exist then more discussion is needed.

The bulk of how the calibration procedure is developed and implemented is discussed in subtask 8 and hence out of the scope of this subtask. But to proceed with next task, modeling the calibration setup to find the DCTE, some preliminary work for the calibration must be conducted here. For reasons that will be discussed in subtasks 6 and 8, it is important to establish a set of 3 or 4 core detectors that will be used for finding the count rates in this subtask. This set of core detectors will be important for establishing the minimum trip setting and instating the calibration method in subtasks 6 and 8, respectively. Ensure that these core detectors are easily traceable and identifiable. Once this set of detectors has been established, find at least one set of count rates for each in a well defined counting setup. The better the counting setup is documented, the easier subtask 5 becomes.

Subtask 5 - Modeling the Calibration/Counting Setup to find the Detector Cell Tally Efficiencies

The next piece of the puzzle is to find the detector cell tally efficiency (DCTE), which is basically the computational equivalent of the detector efficiency. The DCTE has the units of real world detector count rate divided by the number of simulated particles entering the modeled detector. The quantity being sought here is the fluence striking the modeled version of the detector in the same geometry that the experimental count rate was obtained in. The following provides a simple example of how the DCTE is applied.

Hypothetically, during the MAC runs in the facility, a detector recorded 1000 particles striking it. Using an exact replica of the facility detector in a model of a known counting setup, for a source of weight W, 750 strikes were recorded. The actual count rate data obtained in the same setup as was modeled, with the same geometry and source used as weight W, was found to be 500 counts per second. Dividing the recorded count rate of 500 counts per second by 750 simulated strikes recorded yields a DCTE of 0.66. The DCTE can then be applied to the number of particles recorded in the MAC scenario to find an actual count rate. Multiplying the simulated 1000 particle strikes found in the facility model by the DCTE of 0.66, equates to a real world count rate of 666 counts for that detector for that MAC. This argument is valid because ANSI/ANS-8.3-1997 states that the MAC is assumed to happen in 1 millisecond, or essentially instantly.

The reason for the assumed duration of the MAC in ANSI/ANS-8.3-1997 is because modeling time dependent criticality is very challenging. Currently there is no widely accepted simulation package that will accurate depict a time dependent criticality event. The current solution for modeling a criticality accident is to simply eliminate the time dependence and assume a prompt yield, thereby ignoring the delayed contributions to the total yield. Experience with criticality accidents has shown that this prompt burst assumption is valid for all non-delayed critical excursions (McLaughlin et al., 2000). Order 420.1B does not require CAS be able to detect delayed critical accidents. Therefore, the source can be weighted by the number of particles resultant from the MAC and not the time dependent fluence.

The DCTE also provides a way to check the validity of the experimentally observed count rate and efficiency. The DCTE allows the computer simulated fluence at the detector location to be compared to the fluence recorded in the real world experiment. If the computational fluence striking the detector versus the recorded count rate is considerably different than the experimentally determined detector efficiency, then something may be amiss. If necessary a simple solid angle approximation should identify which is wrong –the model or the experiment.

Because the DCTE is so important, the setup used to calibrate the nuclear criticality detectors needs to be modeled with greater precision than the building model. There will be activity data for whatever source is used to find the count rates or to calibrate the detectors. It is important for some, but not all sources, to very accurately decay correct their activities. For example, the neutron source ^{252}Cf, has a half life of only 2.6 years so it is very important to correct for the change in activity over time. Make sure to use the same energy bin structure for the calibration model as was used for the tallies in the facility model. The same goes for the orientation and configuration of the detectors in each model. Finally, it is very important that the exact same tally be used for both the calibration and the facility models.

Subtask 6 - Adjust the value for the detector minimum trip setting

In theory the minimum trip setting is desired to be as high as possible to avoid false alarms. In practice the engineer wants this value to be as low as possible to make the system design easier. It is advised to take a preliminary look at the count rates being recorded for the detectors in the facility model and the coverage requirements to make an initial trip setting approximation. Based on the radioactive material inventory in the specific facility, an assessment of the likelihood of a false alarm resulting from internal radioactive sources should be made.

With regard to false alarms, it is far more important to get the minimum trip setting as high as possible for gamma detection systems than it is for neutron detection systems. This is because there are far more natural sources of gamma radiation that could potentially cause a false criticality alarm than there are for neutrons. However, with regard to minimum accident detection it is more important to get the trip setting as low as possible for the neutron based systems than it is for the gamma. Neutron-based systems are not really affected by cosmic radiation sources like their gamma counterparts but neutrons levels are typically lower during a MAC making them more difficult to detect. There is no hard and fast way to identify the minimum trip setting. Only a best guess with sufficient documentation can get a reasonable answer.

Subtask 7 - Verify that adequate coverage has been obtained at the new minimum trip setting

The final steps in the design are focused on proving and optimizing the detector coverage of the facility. Enough data has been determined to evaluate the detector coverage in the facility. General intuition about detector and accident placement has already been discussed, so proceed with proving that the system detects the MAC everywhere in the facility. Once the coverage has been verified at the minimum trip setting by using the DCTE, then the analysis in regards to detector placement is completed. After the detector coverage has been shown, focus should be shifted to the spectrum incident on the detectors. All that remains is to modify the calibration procedure to better mimic the average spectrum observed at the detectors in the facility model during the MAC.

Subtask 8 - Modify the Calibration Procedure

When the coverage has been thoroughly proven, it is time to take the spectrum incident on the tally surfaces of the facility and compare it to the calibration models' incident tally spectrum. It makes sense conceptually to calibrate the nuclear criticality detector to a similar spectrum of what it is expected to detect. There are a variety of ways the calibration source spectrum can be modified. The methods are somewhat different for neutrons and gammas.

For neutrons, low Z materials can be used to increase the ratio of thermal to fast neutrons, or conversely cadmium can be used to almost entirely eliminate neutrons below about 0.4eV. Reflection can be increased by placing materials behind the detectors, which increases the fluence hitting the detectors. Increasing the fluence hitting the detector may be crucial if significant portions of the fluence are lost when the spectrum is modified to better emulate what is seen in the facility.

Gammas require slightly different treatment than neutrons. Equation 6 gives the formula for the linear photon attenuation coefficient μ.

$$\mu = \tau + \sigma + \kappa \quad \textbf{(6)}$$

Equation 6 contains the three main physical processes that remove or slow photons in a beam, which are τ for the photoelectric effect, σ for the Compton Effect, and κ for pair production. Using these three parameters, materials can be found to modify the spectrum in a targeted way. Contributions from Rayleigh scattering and photonuclear effects can usually be ignored because they are small in comparison to the three processes in Equation 6. Gamma sources are generally cheaper and have a larger intensity than neutron sources. So eliminating too much of the incident beam is not as significant a concern as it is for neutron sources.

Subtask 9 - Variance Reduction

It should be readily apparent that even in small facilities the volume of the radiation detector is many orders of magnitude smaller than that of the facility. Computationally this presents a problem that is increasingly exacerbated as facility size grows. In stochastic codes, the statistics get ever worse as the detector to building volume ratio decreases. Getting usable statistics can become very arduous for large models. The run times necessary to produce tolerable variance can become unrealistic. The ensuing discussion addresses techniques for reducing computational run times by providing a few possible solutions.

It is extremely important to note that incorrectly applying variance reduction techniques can completely invalidate the results and worse still the errors can be very hard to catch. Each code package has a variety of options available for reducing variance in a problem. There are code specific options, such as invoking deterministic transport for Monte Carlo codes, and there are techniques based on engineering intuition like omitting the material surrounding the facility to decrease time tracking particles there. The following is a brief list of other code specific variance reduction methods:

- Minimum Energy Cutoffs
- Importance/weight Cutoffs
- Weight windows
- Simplified Scattering treatments
- Source direction biasing

Each technique must be thoroughly analyzed before it is implemented. It should be noted that many organizations' quality control programs explicitly disallow some or all code-invoked variance reduction techniques. Next is a list of engineering-based simplifications that can significantly decrease run times:

- Reduction of MAC locations in the facility needed to show full coverage
- Modifying the numbers of particles being run according to ease of detection in a location
- Form arguments based on proving worst case scenarios to eliminate situations that are obviously easier, simpler, etc.

Each type of simplification has drawbacks and should be used with caution. If any method, be it code specific or engineering based, is used to reduce variance of computations, it must be well documented and peer reviewed.

Subtask 10 - Perform sensitivity analysis on the final CAS design

Sensitivity analysis is the investigation of how different factors could affect the operations of the alarm system. For example, in the computer model, fill all of the rooms within the building with "paper" to see how the neutronics are affected. This is done to say that even in the almost totally inconceivable event of the building turning into a paper repository, the alarm system will still function properly. It might sound outlandish that this type of analysis would need to be performed, but knowing how tolerant the alarm system is to potential facility modification can add credibility to the design.

Sufficient sensitivity analysis should be conducted so that clear bounding limits can be included in the final design memo for what can, and cannot be done, to/in the facility and not interfere with the CAS. The data collected during facility inspections is especially useful here. Much of what is investigated here will be based on what typically occurs in the facility. Depending on the facility, the following parameters could be important to investigate:

- Modifications and remodeling
- Movement of large amounts of various materials into and out of the facility
- The effect of fire suppression systems
- Changes to the material surrounding the facility

This analysis is done just as much to say what the CAS will not tolerate as it is to say what it will. Both are important for establishing the bounding operational tolerances that the system can endure.

VI. Show the calibration method follows simple and concise methodology for setting the minimum detector trip points

After all the technical analysis is completed and reviewed, it is time to make the recommendations of how to perform detector calibration and movement. It is crucial to make recommendations and corresponding instructions as clear and concise as possible. First, it is a good engineering practice to not over complicate things. A saying from another professor applies in this instance, "keep it simple, stupid." The more instructions there are, the greater the chance of error. Those who have to implement the recommendations should receive instructions that give abundant measurements to a single common reference point. They should see very few, if any, ambiguous words like around, near, or approximately. All dimensions should be given in one system: mks, cgs, etc.

The second reason to keep things clear and concise is for the regulators. One of the drivers for redoing the analysis of RPL was that the DOE found the minimum trip setting for the neutron detectors to be very poorly worded. What the DOE wanted was a clear minimum trip setting that was easy to confirm or refute. The old criterion was related in terms of absorbed dose per source particle referenced to a Plutonium-Beryllium source. The new definition is, “The neutron detectors in RPL are set to alarm at 600 counts per minute, which corresponds to an absorbed dose rate in free air of 80mrem/hr.” -a clear improvement.

VII. Assemble the final report

The structure of the final report is likely to vary greatly from institution to institution, so it is of no use to go into great detail about how to write it. Also the final report drafted for PNNL is classified as business sensitive, thereby prohibiting it from being used outside of the organization. Accordingly the time needed for writing the report is likely to fluctuate considerably. It took approximately 80 hours to draft, review, rewrite, review again, and finalize the report as a whole. For time estimating purposes it should be taken into consideration that the PNNL report requirements did not seem excessive. It should also be noted that the 80 hour time estimate was not all used at once, but rather over the duration of the project. The report drafted for PNNL contained several sections that were not affected by technical design changes so they could be written ahead of time. Writing report sections early on is highly recommended. The sooner the sections are written, the sooner they can be reviewed. Having fewer sections to go over in the final review will greatly expedite the final submission process. To give a general sense of what may be included in the final design report, an outline is provided below.

1) Introduction-State the purpose and scope of the evaluation

1.1) Review of Previous Methods

2) Description-Describe the process/system

3) Requirements Documentation

Indicate specific DOE Orders and Guides, ANS Standards, Code of Federal Regulations or other requirement documents that are uniquely applicable to the analysis

4) Methodology

4.1) Evaluation Methodology

When using computer codes, indicate what codes and cross section libraries were used and reference the applicable code configuration control information and the code documentation. Identify the type of computing platform.

4.2) Benchmark Evaluation and Bias Determination

List the benchmark experiments chosen and discuss their applicability to the problem. Show the calculation of the bias and the uncertainty in the bias. Describe how the bias is applied to the results of this evaluation.

5) Evaluation and Results

Provide a detailed description of any models used. Reference code generated drawings in an Appendix. State assumptions and simplifications made. Include all calculation results.

7) Design Features\changes\improvements

8) Summary and Conclusions

State the systems, processes or facilities that the analysis is applicable to and indicate any limitations on the evaluation.

9) References

List all original references. Avoid referencing documents that reference other documents.

Appendix Containing Materials and Compositions

List and reference all materials. Include atom densities.

Appendix Containing Sketches and Drawings

Include sketches of the actual process (hand-drawn sketches are generally acceptable and expected) and as-built or design drawings.

Appendix Containing Code Input Listings

Include input listings for all computer code runs.

One final note on the report - a hard copy of all the references used along the way was required to be inserted as an Appendix. The definition of references at PNNL was not as expected, so it would be wise to get a clear description of what a reference is before even conducting the building walk downs.

Chapter 4 – Application of Guideline Methodology

This set of tasks deals with the technical application of the CAS design methodology. The CAS designed for RPL is used as an example of the design methodology. Sample MCNP5 computer code inputs are listed in Appendix F for the RPL facility model, the detector calibration setup, the MAC evaluation, and the validation benchmarks. These inputs will help to guide the user through the modeling phase and ultimately the detector placement.

I. Familiarization with the facility where the CAS will be installed;

Over the 6 month duration of this project, roughly a dozen facility inspections were conducted. These inspections provided a solid fundamental understanding of the facility and the operations conducted therein. To form a better understanding of how the system works, a test of the existing criticality alarm system in the building was observed. This is highly recommended because seeing the test put into perspective how the testing procedures were performed.

Until the test of the CAS was witnessed, it had not been readily apparent that the people carrying it out did not have very technical backgrounds. This observation is important because it brings up a very crucial point; the procedures must be written for those who have to read them. Rigorous technical analysis can be performed but if the conclusions drawn from it can not be communicated clearly to those who must enable them, then the analysis itself is trivialized.

The inspections of the facility repeatedly proved to be useful so it is highly recommended to conduct them frequently. Doing so can make many facets of the project go more efficiently.

II. Obtain, read, and summarize all of the pertinent standards and guidelines; then compare company specific requirements to others, so that the most likely scenarios for the Minimum Accident of Concern can be found;

After much debate three scenarios, with two different sources, were assumed to be the most likely limiting cases that would reach the MAC. The three cases contained either pure ^{235}U or pure ^{239}Pu in an optimally moderated water filled sphere as the source. The three cases were: a bare sphere, a water reflected sphere, and an iron reflected sphere. These three cases were chosen because they resemble some possible physically relevant accident scenarios in the facility. The bare and water reflected spheres were chosen to represent laboratory type accident scenarios. RPL is a radioisotope production facility where much bench top radiochemistry takes place. The iron reflected sphere was selected because it resembled an accident occurring in a shipping cask. A significant amount of material is moved in and out of the facility, including into and out of the High Level Radiochemistry Hot cells. Then all six permutations of these scenarios were modeled to find the most limiting fluence during the MAC. The result of the limiting plutonium accident runs with the final determination of the most limiting scenario is presented in this chapter under Subtask 1.

III. Outline a schedule of deliverables;

Assembling the schedule of deliverables was taken care of by the project manager and is included in Appendix D. The project manager assembled a preliminary timeline, and then asked for feedback on whether the timeline was acceptable. It is very important that the timeline is carefully examined because it is the criticality safety engineer that is responsible for the majority of the work. Voice any concerns as soon as they are uncovered because it gives management more time to address any issues, which is in everyone's best interest for completing the project. The single largest use of time for this project was the development and quality analysis of the facility model. It should be noted that no results are acceptable for the facility model until after it has been put thru QA. This makes it a high priority to finish as soon as possible. Do not put off either job.

IV. Evaluate and choose a computer simulation package to perform the analysis based on validation benchmarks that clearly demonstrate the code chosen will perform as expected;

The decision was made early on to use MCNP5 because it was felt that it had the capacity to perform the analysis, and it had been accepted by the Quality Assurance program at PNNL. To ensure that MCNP5 could perform as assumed, a series of benchmarks were modeled to prove that it was indeed an appropriate tool for the design. This task goes through the process of validation per the quality control requirements of PNNL.

MCNP5 was used extensively for modeling many aspects of this project. An MCNP5 model was created for each of the following;

- A thorough representation of RPL

- 6 different accident scenarios involving ^{235}U
- 6 different accident scenarios involving ^{239}Pu
- The current setup used for calibrating the BF_3 Nuclear Criticality Detector(NCD) to a specified dose rate
- The recommended modified calibration setup
- 6 different scenarios for sensitivity analysis

It is necessary then to model a set of accepted, experimentally confirmed, benchmarks that resemble the models created above with the same code package. Modeling these benchmarks in the same code allows experimentally confirmed results to be compared to those received from simulation. Showing that the simulation correctly reproduces the published physically similar benchmark results therefore validates the use of this code for the work being performed.

The benchmarks selected to validate the models described above were all taken from the Nuclear Energy Agency International Handbook of Evaluated Criticality Safety Benchmark Experiments, September 2008 edition (IHECSBE). The benchmarks in the IHECSBE are an extensive set of criticality experiments that have been thoroughly peer reviewed and modeled in a variety of computer codes. The physical details of each experiment, as well as their inherent uncertainty, are listed for each benchmark. Experimental results are given with how they were obtained, detectors/type, location, etc. Then these experiments are reproduced using a common software simulation package. Results from the simulations are included in the write up of the benchmarks and generally an accompanying input file is also listed. Such an extensive degree of detail in these benchmarks allows the user to model the experimental results with a good deal of confidence.

Now it is necessary to discuss how these benchmarks are chosen and how they directly apply to this project. Much of the CAS analysis performed hinges on the overall ability of MCNP5 to correctly model criticality events. More specifically this code must accurately account for fission of ^{235}U, ^{239}Pu, and ^{252}Cf and the resulting myriad of interactions that the particles may undergo after fission. The following criteria should be used to judge the applicability of a benchmark to what is being modeled:

- Reflection
- Energy range of the particle(s) being investigated
- Geometry
- Magnitude of the fluence being investigated
- Material compositions

There is no way to assert that if x number of the above criteria are met then the benchmark is relevant. What can be said is that the more closely the benchmark resembles what is being investigated, the easier it will be to argue that it is relevant.

A set of evaluated benchmarks was selected from the fundamental physics section of the IHECSBE. This set of experiments is designated in the handbook as FUND-NIST-CF-MULT-FISS-001 (Kim, 1995). These experiments were performed from 1989-1990 at the National Institute of Standards and Technology facility in Gaithersburg, Maryland. This research was performed using a spherical stainless steel container and fission chambers to investigate discrepancies in neutron transport being observed in subcritical assemblies. A lightly encapsulated ^{252}Cf neutron source was placed at the center of the spherical shell of Stainless steel. Absolute fission rates of ^{235}U, ^{239}Pu, ^{238}U, and ^{237}Np deposits in fission chambers positioned outside the spherical container were measured. The measurements were performed for spherical containers of three different diameters;

3-in., 4-in. and 5-in., with and without water in the spherical container. So it is clear that these experiments thoroughly investigate fission in all of the isotopes used in the CAS models. To replicate the results of the benchmarks, MCNP must track particles through several materials before a normalized fission rate is calculated. It is asserted that if the model created in MCNP5 can accurately replicate these experimental results, then MCNP5 is valid for use in this analysis for the design of a CAS.

It was selected to use 3-in., 4-in. and 5-in spheres filled with water and the same set repeated for the sphere filled with air. Absolute fission rates were obtained for all four isotopes listed above, but only the ^{235}U and the ^{239}Pu results are relevant to these models and hence the validation. Each case was modeled with the same version of MCNP5 used for the CAS analysis. A diagram of the general setup for the NIST experiments is shown in Figure 4.

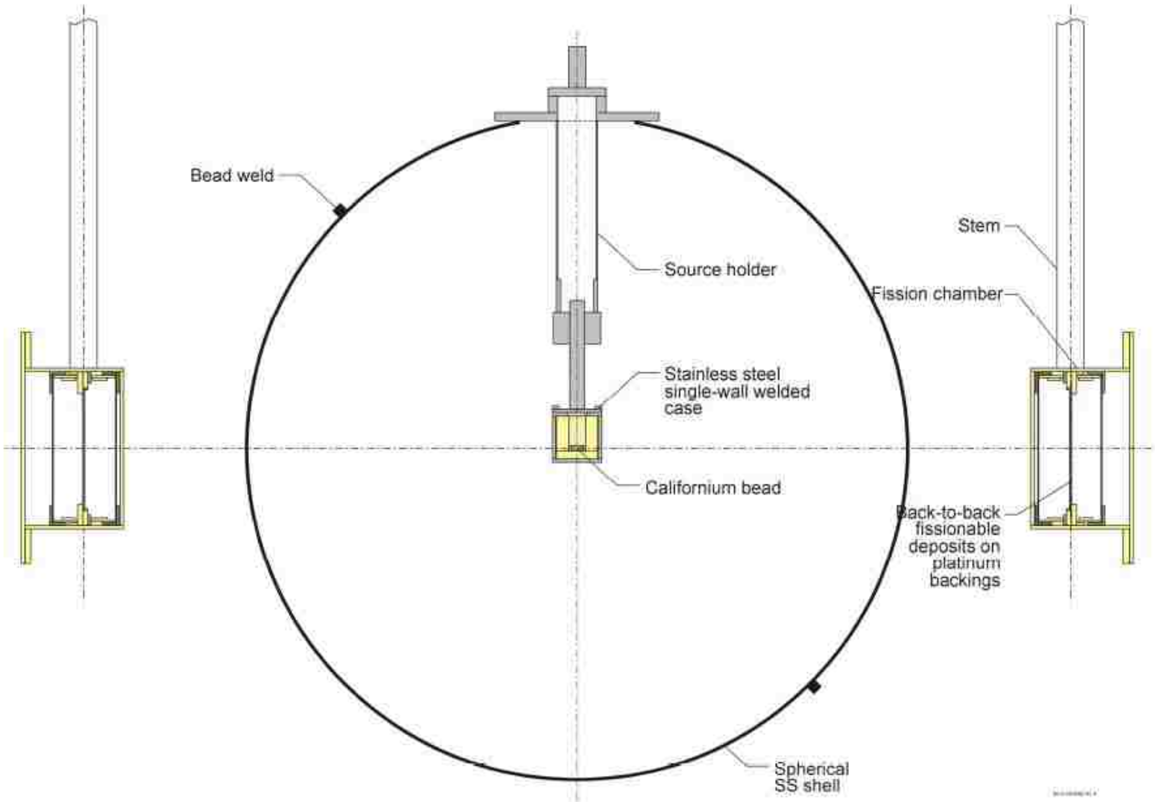


Figure 4. Experimental setup for the NIST Sphere Benchmarks

The Spherical Stainless Steel Shell had a diameter of 3, 4, or 5 inches. The detectors remained in the same location for both the 3- and 4-inch Shells –distance from the source was unchanged. In the 5-inch experiments, to facilitate the increase in radius of the shell, the detectors had to be moved 0.75 inches outward. To keep the source at mid-plane with the fission chambers for each shell size, the source holder was either lengthened or shortened accordingly. For the water-filled experiments, the sphere shown above was completely filled with room temperature water. These are the only geometric parameters altered for the experiments.

Table 1 gives the experimental results for the normalized fission rates in barns, as well as the associated relative error. MCNP5 will output a variety of cross section values including single group effective fission cross-sections in barns. That cross-section value multiplied by the fluence striking the fission detector yields the benchmark designated Fission Rate in barns shown in Table 1. Further details on how the Fission Rate was calculated can be found in (Kim, 1995).

The implications of having data for both water-and air-filled spheres are important to note. It is imperative for proving validity that the code is able to accurately account for the scattering and fission of neutrons. Demonstrating that MCNP5 can track neutrons through a strong scattering medium such as water, for all the isotopes involved in this analysis proves the code will perform as needed. The air-filled sphere data is important because the spectrum of the neutrons is much harder than that of the water-filled experiments. Showing that MCNP5 can track and account for fission of both thermal and fast neutrons is crucial to the dependability of the CAS analysis.

Table 1. Experimental normalized fission rates for ^{235}U and ^{239}Pu

Isotope	Condition	Sphere	Fission Rate (barns)	Relative Error (%)
U-235	dry	3-inch	1.278	1.6
	dry	4-inch	1.279	1.6
	dry	5-inch	No Results	
	wet	3-inch	19.6	1.7
	wet	4-inch	45.7	1.7
	wet	5-inch	72.2	1.7
Pu-239	dry	3-inch	1.916	1.5
	dry	4-inch	1.924	1.5
	dry	5-inch	No Results	
	wet	3-inch	36.7	1.5
	wet	4-inch	82.3	1.5
	wet	5-inch	125.5	1.5

Table 2 shows the results found from modeling the experiment in MCNP5 and the percent that this computational result differs from the experimental value.

Table 2. MCNP5 Computational results with comparison to experimental results

Isotope	Condition	Sphere	Fission Rate (barns)	MCNP5 Results	Variance from Experimental (%)
U-235	dry	3-inch	1.278	1.280	0.186
	dry	4-inch	1.279	1.281	0.175
	wet	3-inch	19.6	20.237	3.250
	wet	4-inch	45.7	46.245	1.194
	wet	5-inch	72.2	72.536	0.465
Pu-239	dry	3-inch	1.916	1.850	-3.457
	dry	4-inch	1.924	1.847	-4.027
	wet	3-inch	36.7	37.339	1.742
	wet	4-inch	82.3	81.753	-0.664
	wet	5-inch	125.5	124.669	-0.662

The requirement at PNNL for dose modeling accuracy is only plus or minus 20 percent of the accepted values. Table 2 clearly shows that MCNP5 exceeds this requirement. Table 2 shows the largest variance is -4.027 percent in the ^{239}Pu dry 4-inch sphere model. The results obtained with MCNP5 clearly show that MCNP5 can accurately model fission of ^{235}U, ^{252}Cf, and ^{239}Pu. It is also clear that MCNP5 models neutron transport through strong scattering media substantially well.

V. Design and model the criticality alarm system for the facility;

Subtask 1 - Finding the MAC including fluence and spectrum

Table 3 shows the results for the minimum accident scenarios that contained Plutonium. The Uranium accident scenarios were not included because the Plutonium accidents were found to generate fewer neutrons. These results were obtained using MCNP5 with F6 dose tallies. The inputs for all the Plutonium scenarios used to determine the MAC are listed in Appendix F. Looking at Table 3 it makes sense based on the shielding properties of neutrons that a water moderated system shields the most neutrons. Table 3 shows the minimum neutron fluence for RPL, which was found to be 3.94E15 (n/cm^2-s) for the MAC. This fluence was the result of an optimally moderated bare Plutonium and water sphere. This scenario had the largest portion of gamma-rays contributing to the dose limit. For reference the RPL minimum accident of concern MCNP5 input file is included in Appendix F.

Table 3. Plutonium minimum accident scenario data

Accident Scenario for Optimally Moderated 1kg Pu-239 and H2O Spheres	Neutron Dose per Source Particle (MeV/g)	Photon Dose per Source Particle (MeV/g)	Total Source Neutrons Required to Reach the MAC
Unreflected	1.34E-08	8.92E-08	3.94E+15
Water Reflected	2.94E-10	8.84E-08	4.90E+15
Iron Reflected	3.86E-09	4.74E-09	5.06E+16

When tracking photons in MCNP5, the user must designate the appropriate cross-sections for both neutrons and for photons. Cross-sections must also be included for photonuclear effects if the physics card does not explicitly disable them. Correctly defining the cross-sections and the physics options are not trivial exercises. Using the wrong libraries or incorrectly tracking the particles can result in much different answers. Chapter II of the MCNP5 manual goes into greater detail on this matter so refer to it for specific guidance (X-5 Monte Carlo Team, 2003).

It is important to remember that the F6 tally output is normalized to per starting particle. This means that the branching ratios of the fission events taking place are not represented in the tallied quantities. So they must be included to determine the Total Source Neutrons Required to Reach the MAC quantity listed in Table 3. For example, a non-kcode calculation, for californium-252 emulates the fission energy spectrum but it does not account for the average number of neutrons emitted per fission (nu). Not including the correct branching information would result in source numbers that were at least a factor of Nu too high, which could invalidate the calculated detector coverage.

Also it is important to remember that MCNP5 does not track delayed photons. It is essential to include the delayed photon contribution because it ultimately lowers the source term needed to reach the minimum dose level. Omitting the delayed fraction is then non-conservative and should be addressed. Depending on how much time is available, burn up calculations can be performed to determine the isotopics as a function of accident history. Then another MCNP5 input can be constructed that tracks only the resultant photon contribution from these delayed products. It was attempted to get this dose contribution for the delayed fraction but the total delayed contribution never amounted to more than roughly 3.5 percent of the total dose contribution. Several engineers felt that 3.5 percent was too small of a delayed fraction to guarantee conservatism. It was advised to assume a delayed dose contribution of 7 percent to be sure. It is unlikely that the delayed photon contribution is that high. Because there was not great confidence in the numbers found with MCNP5, the decision was made to error on the side of conservatism.

Subtask 2 - Identify potential locations for detector placement

An analysis of the detector placement in RPL was performed using the Criticality Slide Rule (UNCSR) and an assumed minimum detectable dose value. To find the minimum detectable dose value, assumptions had to be made for the following quantities:

1. Average neutron fission energy of 2.1MeV for ^{239}Pu
2. Average value of interceding shielding of 8 inches of concrete
3. Minimum detectable fluence of 1e5 neutrons

Assumption 1 was made because the only fissile material that the MAC contained for RPL was ^{239}Pu. Assumption 2 was found by looking at the materials between the accident locations and the detectors. The actual shielding values are different for every MAC location but an average value was used to save time.

The final assumption for the minimum detectable fluence was not as straightforward as the first two. At this point in the analysis, detector count rates, efficiency, and spectral dependence were not known for the system. Not knowing these parameters for the detectors to be used in the facility made choosing the minimum detection value difficult. Because no alternative was found a typical value was assumed for a similar detector type found on the General Electric (GE) website for a Reuter-Stokes BF_3 tube. The GE tube value had a lower detection threshold than the 1e5 fluence chosen for this system but the BF_3 tubes that were available for this CAS were legacy tubes, some over 40 years old. To compensate for the age, the decision was made to increase the GE minimum detection value by a factor of 100.

Using Equation 1 and the assumed parameters discussed above, the final equivalent minimum detectable dose was calculated to be 0.028 rad. The resulting dose reduction factor for 8 inches of concrete was 0.70. This yielded a final dose of 0.02 rad at a distance of 200ft. An arc was traced over facility drawings using the correctly scaled distance for each MAC. Figure 5 and Figure 6 show the arcs for the basement and first floors of RPL, respectively.

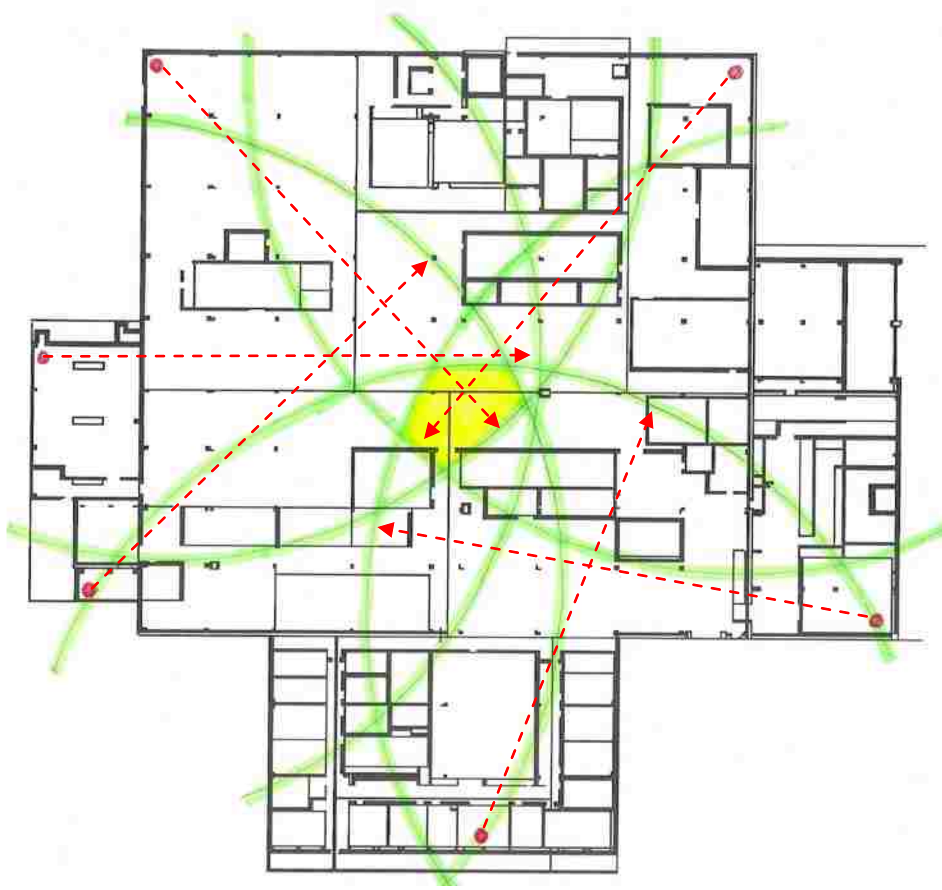


Figure 5. 0.02 rad arcs for the outlying MAC's in the basement of RPL

Figure 6. 0.02 rad arcs for the outlying MAC's in the first floor of RPL

The green arcs are the assumed minimum detectable distances for the specified parameters. The red dots are the MAC locations that correspond to the arcs. The highlighted areas represent the greatest number of arc unions on that floor. The most outlying MAC locations were chosen because they represent the most challenging detection locations. Comparing Figures 5 and 6 to Figures 7 and 8 shows how good of an approximation the Criticality Slide Rule provides. The actual detector locations for the basement are very near the highlighted areas. The first floor is slightly less accurate but the majority of the actual detector locations are within a small distance of highlighted area. It can be concluded from Figures 5 and 6 that the assumed minimum detectable distance was slightly conservative, but still relatively accurate for predicting the detector coverage in the facility.

Subtask 3 - Modeling the facility

a. Assumptions/omissions/simplifications

All of the assumptions made for the CAS design of RPL are given in Appendix E. One major assumption for the RPL facility model was to standardize the fill material for the different spaces in the building. As mentioned in the Design Methodology section to be conservative, the material located inside of the facility must be included in the model. The method used for the RPL project was to make fill approximations based on facility inspections. The following classifications were made based on the average contents of the spaces in RPL, *Empty Rooms, Full Office, Full Laboratory, Half Full Office* and *Half Full Laboratory*. The contents of each classification are given in subtask c. These fill definitions were used to characterize the spaces within the facility.

To make the application of these fill definitions easier, the items located in the requisite space, i.e., desks, glove boxes, bookshelves, are homogenized for material definition. What this means is that the volumes of the corresponding items are conserved, but the items do not retain their geometric shape. The corresponding number densities for each item desks, glove boxes, bookshelves, etc., are all found independently and then added together to make the final appropriate room fill definitions.

b. Dimensions

Figures 7, 8, and 9 are floor layouts for RPL generated with the program Vised mentioned earlier. The red dots represent where each MAC was placed for the simulations. The green squares represent the existing detectors. Figure 9 shows the 2nd floor of RPL. There is only one laboratory on that level and the rest of the space in the northwest corner is taken up by offices. On the east side of that same figure is the top of High Level Radiochemistry Facility (HLRF). At that altitude HLRF is only open space and structural material.

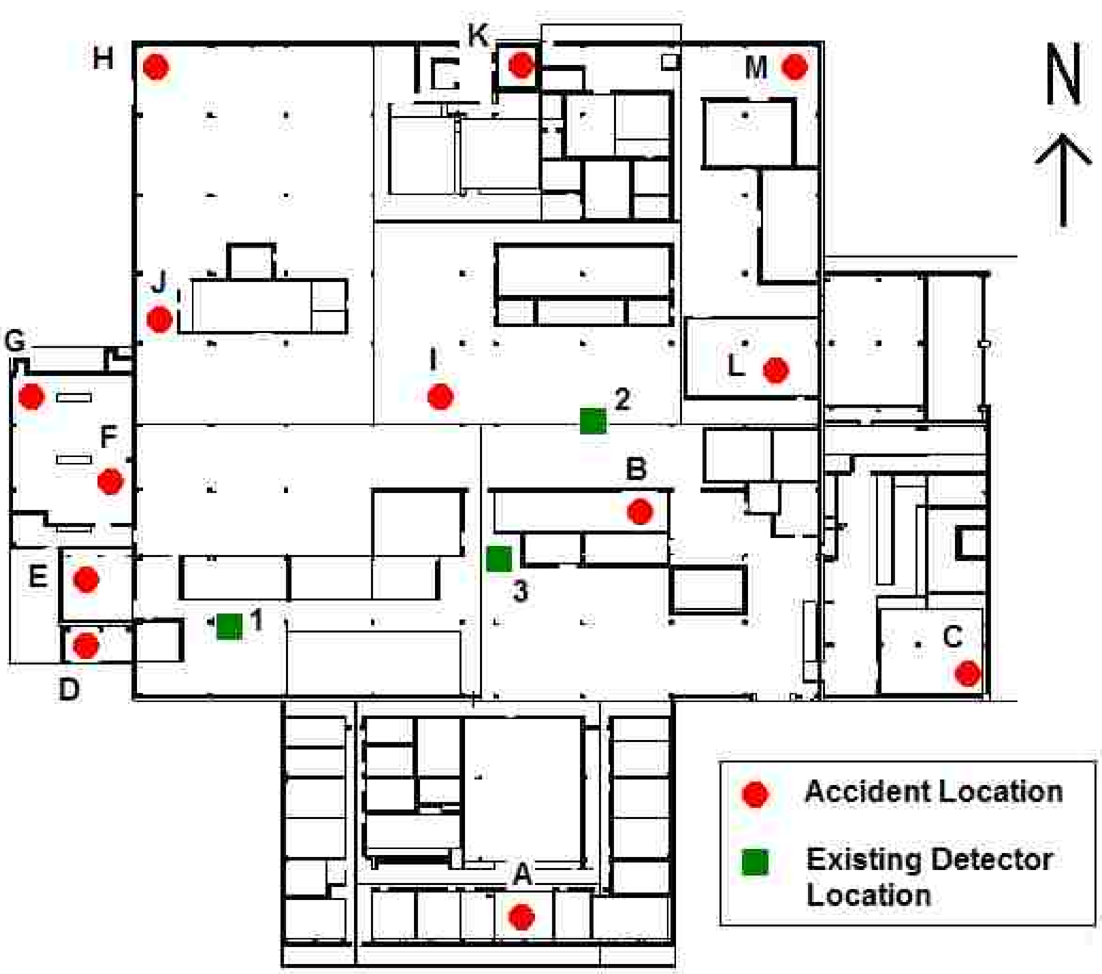


Figure 7. RPL Basement shown with modeled accident locations and the existing detector placement

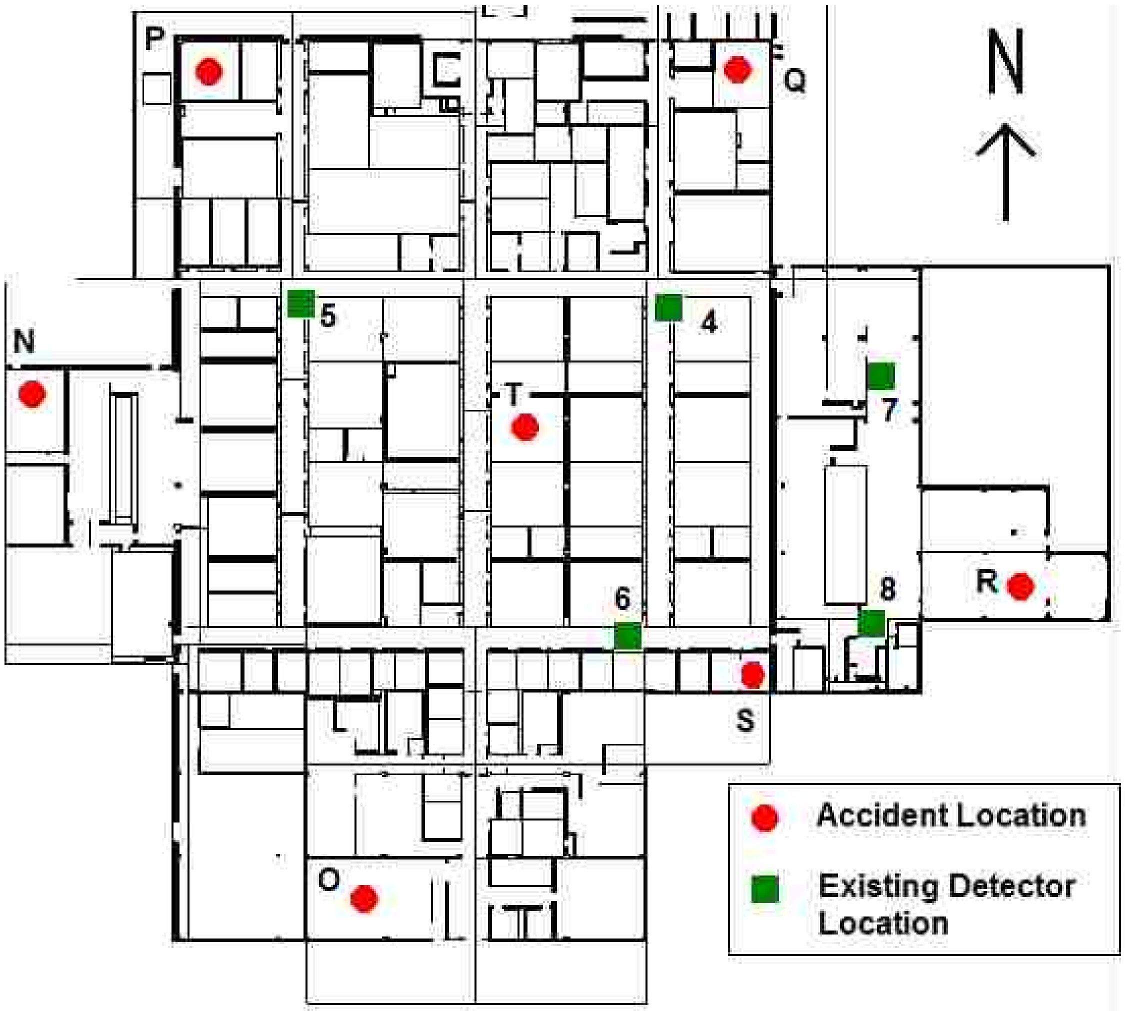


Figure 8. RPL First floor shown with modeled accident locations and the existing detector placement

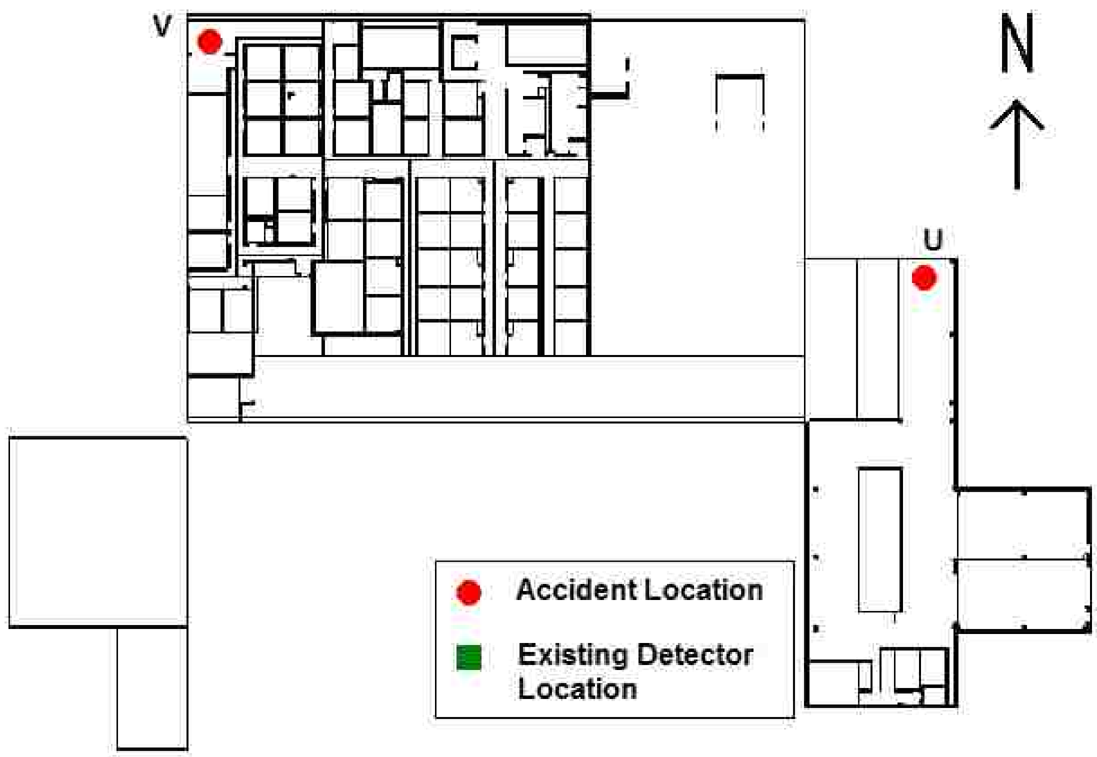


Figure 9. RPL Second floor layout

Facility Description

Building 325 houses the Radiochemical Processing Laboratory (RPL). It is located in the 300 Area of the Hanford Site in Washington State. The building is used to conduct radiochemical research. RPL contains laboratories and other facilities designed for work with non-radioactive materials, microgram-to-kilogram quantities of fissionable materials, and up to mega-curie quantities of other radionuclides. It is a Class 2 nuclear facility.

The RPL consists of a central portion, a south (front) wing, east and west wings. The central portion of the building contains over 100 laboratories and offices on three floors. The second floor and basement contain mechanical areas such as supply fans, steam lines, etc. The south wing (two floors) contains offices, a conference room, a machine shop, a lunchroom, and rest rooms. The east wing (one floor) houses the high-level radiochemistry facility (HLRF), truck lock, and manipulator repair area. The west wing (one floor) houses the shielded analytical laboratory (SAL).

c. Materials Used in Computational Models

A note of caution: it was not determined until late in the analysis that the cinderblock walls of RPL were not hollow. During a QA mandated facility walkdown, it was discovered that the cinderblock walls were actually back-filled with concrete. Because this finding increases the amount of intervening material in the building, the models had to be updated and restarted. Fortunately the mistake was found early enough to not adversely impact the schedule.

Empty Rooms

Any room found to be "empty" was filled with air. The chemical composition of air is found in Appendix C. "Empty" was defined in the following way. Hallways were considered empty, including entryways and any space that looked to be wide open. Rooms void of furniture were likewise modeled as empty. Laboratories with empty cabinets built into the sides were modeled as empty. Bathrooms were modeled as empty.

Full Office

Offices that were fully functional, filled with a desk, full bookshelves, file cabinets, etc., were modeled as "full offices." The justification and calculation of the material composition of a "full office" is provided in Appendix C. The office material mixture was based on the dimensions of room 113 in the RPL. This room has dimensions of 350cm by 313.7cm by 442cm. It was assumed that the “typical” full office contained three full bookshelves, one full desk, and one full file cabinet. The measured dimensions of a typical bookshelf are 208.3cm by 91.5cm by 30.5cm. The measured dimensions of a typical file cabinet are 152.4cm by 38.1cm by 66cm. The desk was modeled as three file drawers with dimensions 91.5cm by 38.1cm by 66cm. It was assumed that all the bookshelves and file drawers (cabinets included) were full of paper. According to (Reppond, 1977), wood has a material composition of 44.44 weight percent carbon, 6.22% hydrogen, and 49.34% oxygen with an overall density of 1.0 g/cm^3. The density assumed for the wood is intentionally high to ensure that even water-logged wood is accounted for. Appendix C provides the calculations for the “full-office” homogeneous material. The “half-filled office” was assumed to have one half the material in the room.

Full Laboratory

Laboratories were judged, upon personal inspection, to be “empty,” “full,” or “sparse.” The justification and calculation of the material composition of a “full laboratory” is provided in Appendix C. The laboratory material mixture was based on the dimensions of the room 312 in the RPL. This room has dimensions of 802.64 cm by 601.98 cm by 441.96 cm. There is also a wall section that cuts into the total volume of the room with dimensions 220.98 cm by 60.96 cm by 441.96 cm. It was assumed that the “typical” full laboratory contained four full bookshelves, four full file cabinets, and one glove box with six lead bricks. To represent the various instruments in the room, a 2-cm thick sheet of stainless steel and a 2-cm thick sheet of glass was placed in the room. To represent all the tables, cabinets, and desktops, an 16-cm thick sheet of wood was placed in the room. The same dimensions for the desk, bookshelf, and file cabinet that were used in the office calculation were used in this calculation. The glove box has 6 panels of stainless steel and 4 panels of glass. The homogeneous material composition for the "full laboratory" is calculated in Appendix C.

Sparse Laboratory

The justification and calculation of the material composition of a "sparse laboratory" is provided in Appendix C. The same dimensions were used that are described in "full laboratory." For the sparse laboratory, it is assumed that there is one-half the total amount of material in full laboratory. The homogenous material composition for the "sparse laboratory" is calculated in Appendix C.

Additional Materials

The rest of the materials used in the models were all approximated using existing published information on typical densities and compositions. For example the MCNP5 material card for the structural concrete used to model RPL is shown in Figure 10. The densities listed in Figure 10 are atom fractions with the units of atoms per barn centimeter.

```
c     Calculated Density -2.3g/cc Standard Concrete

m3    1001.66c        -0.022100      $ H  Concrete (Ordinary)
      6000.66c        -0.002484      $ C
      8016.66c        -0.574930      $ O
      11023.66c       -0.015208      $ Na
      12000.66c       -0.001266      $ Mg
      13027.66c       -0.019953      $ Al
      14000.60c       -0.304627      $ Si
      19000.66c       -0.010045      $ K
      20000.66c       -0.042951      $ Ca
      26000.55c       -0.006435      $ Fe
```

Figure 10. Standard concrete material definition of 2.3g/cc density.

d. Detectors

The detectors used in RPL are BF_3 gas proportional detectors, which have active dimensions of 21.6cm by 1.27cm. The Boron is 95% enriched ^{10}B and the pressure of the gas is approximately 0.70atm. Each BF_3 is surrounded by 5.75cm by 21.6cm Right cylinder of Polyethylene. The calculated efficiency of the detectors was on average 7 percent. These detectors are designed such that when a failure of the tube occurs, it causes an “alarm” signal. This failed alarm mode is important when the accident scenarios are maximized to determine the 12 rad boundary; another regulatory concern out of the scope of this document.

e. Source

To model the MAC discussed above for RPL, a variety of MCNP5 features were used. The SDEF card was used with the coefficients corresponding to a Watt fission spectrum for thermal fission of ^{239}Pu. To get the appropriate geometric distribution, the source was smeared isotropically throughout a sphere that contained the correct volume of water. Depending upon the location of the accident in the building, the number of particles that were needed to get acceptable statistics varied considerably. The smallest number was only 10^5 but the largest number was 10^{10}.

f. Tallies

The only technically useful information that is warranted here is to show how the F2 surface flux approximation tally differed from the F4 cell weighted flux tally. Otherwise the tallies are thoroughly discussed in the MCNP5 manual (X-5 Monte Carlo Team, 2005).

It was found that the F2 tally generally over reported the surface flux for cylindrical and spherical tally surfaces more than it did for planar surfaces. How much the F2 tally over reported the flux varied from almost none to as much as 10 percent. Whether the F2 tally is over reporting fluences or the F4 tally is under reporting is not known. To maintain conservatism, the decision was made to use only the F4 cell tallies because there is no large angle approximation used in its computation, and it reported the lowest fluences of the two tallies.

g. Accident Locations

All that must be done is to prove that the alarm system can see an accident anywhere in the facility, plausible or not. So enough accident locations must be selected to show the total facility coverage. Generally all the corners, all of the heavily shielded areas, and all of the hot cells should have accidents modeled there. To show complete coverage for RPL, a total of 24 accident locations were chosen. The number of accident locations chosen to prove coverage is dependent on the size of the facility and the available computational capability. The 24 accident locations chosen for RPL represent all of the most difficult to detect areas for the CAS. Intuition should be used in the determination of these locations. Areas with large amounts of intervening shielding and places that are the furthest from the detectors will commonly be the hardest to see. Figures 7, 8, and 9 show the modeled accident locations for RPL.

Subtask 4 - Find count rates for the criticality detectors for known conditions

The ratio of particles that result in a count is the actual efficiency of the detector. It makes little difference whether the efficiency is good or bad; what matters is that the efficiency is known, and known with confidence. PNNL operates a calibration lab where all of the NCD are routinely recalibrated and checked for problems. Their procedure for NCD calibration utilizes a neutron counting well with a ^{252}Cf neutron source placed in a motorized elevator. More importantly their procedure uses a set of three BF_3 tubes that were sent to the National Institute of Standards and Technology (NIST), where count rates for each tube were found at known dose rates with a high degree of certainty.

The NIST calibrated BF_3 tubes are used to find an elevation for the source in the well that yields a count rate that corresponds to the known dose rate. The NCD to be calibrated is then placed in the well, and its count rate obtained. If this count rate is not within 10 percent of the golden count rate, the gain or the dwell time is changed until it is. The count rate data for each NCD is recorded and plotted over time to show any underlying trends and how the tubes are progressing over time. It was found that the average count rate for all three golden BF_3 tubes was 563 counts per second at a distance of 1.61 meters from the source at 9:15am of March 3rd 2009. This information is used to recreate the calibration setup in MCNP5 in subtask 5 so that the DCTE can be found.

Subtask 5 - Modeling the Calibration/Counting Setup to find the Detector Cell Tally Efficiencies

The data found in subtask 4 was used to create an accurate model of the calibration setup so that the DCTE could be found. Table 4 shows decay corrected activity data for the ^{252}Cf NCD calibration source that was used in the model.

The neutron source was modeled using the spontaneous fission spectrum of ^{252}Cf provided by MCNP5 and the decay corrected activity for the simulated source weight. In MCNP5, the source weight is used to scale the tallied results to a real world yield. The same geometric model and F4 cell flux tally of the NCD used in the facility model was placed in the calibration mock-up.

Table 4. ^{252}Cf calibration source information

Date	Seconds Elapsed	Activity (Ci)	Activity (Bq)	Neutrons per second
9/27/1995	0.0000E+00	0.6880	2.5456E+10	2.9340E+09
3/4/2008	3.9243E+08	0.0264	9.7840E+08	1.1277E+08
1/19/2009	4.2016E+08	0.0210	7.7713E+08	8.9569E+07
3/9/2009	424396800	0.0203	7.5028E+08	8.6475E+07

The F4 tally indicated that 1440 particles strike the high density polyurethane (HDPE) collar per second for the identical calibration scenario described in task 4. Dividing the golden count rate by this tallied fluence gives a DCTE of 0.39 percent of the simulated particles entering the HDPE collar result in a real world count.

Subtask 6 - Adjust the value for the detector minimum trip setting

The count rate found by NIST for the set of three BF_3 tubes corresponds to a dose rate in free air of 80mrem/hr. This was the dose rate and ultimately the count rate used for the trip setting of the NCD in RPL. To the best of the knowledge of the engineers at PNNL, there has never been a false alarm in the facility. This fact was important to note because the facility has been in operation for over 50 years. This established track record was a great help for basing the trip setting high enough to avoid false alarms. It is unlikely to ever see a natural or cosmic background source that would approach even ten percent of the required 563 counts per second alarm setting. What may be plausible is that man-made sources could potentially reach this trip setting. To avoid potential man-made triggered false alarms, every effort was made to not decrease the trip setting.

Each facility will present its own challenges but it is this balance between detection and false alarms that is the most likely to cause problems for the engineer. RPL has a large amount of concrete, both regular and Barytic. RPL also has dozens of heavily shielded hot cells spread throughout the building. All of this material adds to the challenge of detecting an accident in any location. With diligence, effective coverage can be obtained with trip settings that are high enough to avoid almost all false alarms.

Subtask 7 - Verify that adequate coverage has been obtained at the new minimum trip setting

Once the initial accident modeling runs were completed and the trip setting agreed upon, the rest of the building inputs were run. Table 5 shows the final coverage for RPL. Table 6 shows the room locations of the accidents. These are the same accidents shown on the facility models in Figure 7, Figure 8, and Figure 9. Dividing the trip setting listed in subtask 5 of 563 counts per second by the DCTE found in subtask 4 of 0.390 yields the computational equivalent of an alarm. Therefore the minimum F4 tally value that represents an alarm is 1440 particles. It can be seen in Table 8 that all the reported values are greater than the 1440 particles needed to trip a detector.

Table 5. Detector counts for each MAC location in RPL

Accident Location	Floor	NCD 1	NCD 2	NCD 3	NCD 4	NCD 5	NCD 6	NCD 7	NCD 8
Rm203	1	1.80E+06			2.37E+05	1.14E+05	4.66E+07		
Lunch Room	1	2.83E+07		8.89E+05		6.69E+06		1.10E+06	
Room 327A	1	1.64E+06	6.43E+06		3.33E+05		1.34E+07		
Room 528	1		6.90E+05		2.69E+07		2.21E+05		3.16E+05
HLRF Truck Lock	1				6.87E+06	3.96E+06		2.80E+08	2.12E+08
Room 119	1			4.14E+06	4.42E+06	3.49E+08		1.41E+08	
Room 410	1		1.18E+09	1.17E+08	1.73E+07	1.25E+07			
Mezzanine Lunch Room	B1	6.30E+05	6.11E+05	9.59E+06		9.49E+06			
Room 34	B1	1.52E+07	1.32E+09	8.27E+08		2.29E+07			
Room 40C	B1			3.66E+06		1.26E+07		3.14E+08	1.49E+07
Southwest of Room 23B	B1	3.09E+07	2.21E+05	2.31E+05		2.40E+04			
West of Room 23	B1	9.78E+07	4.74E+06			4.25E+04	3.25E+05		
East side of Room 32	B1	1.06E+08	6.57E+07	8.91E+06			5.68E+06		
Northwest side of Room 32	B1	3.02E+07	2.37E+07	2.63E+06			2.99E+06		
North of Room 63	B1	1.34E+08		1.80E+07	4.07E+05		2.22E+07		
Southwest of Room 57W	B1		2.78E+09	1.10E+09	1.20E+07		1.46E+07		
West of Room 55	B1	3.53E+08	1.37E+08	2.66E+07			8.12E+07		
Room 90	B1		5.58E+05	2.02E+05	2.29E+05		1.96E+05		
Room 48	B1		1.23E+08		9.86E+06			1.28E+06	2.63E+07
North of Room 52	B		1.32E+06		4.88E+06	1.15E+05			1.11E+06
Over Room 603	2				6.72E+08	7.75E+07		7.08E+08	4.35E+09
Over Room 327	2	8.26E+05		2.32E+05	3.41E+06		1.05E+08		

Note: All accident locations had a minimum of 4-detector coverage. B1=First basement floor 1=First floor, 2=Second floor

Table 6. As modeled MAC locations in RPL

Accident Location	Floor	Position X	Y	Z
(A) Mezzanine Lunch Room	Basement	1334.6	-847.5	202.5
(B) Room 34	Basement	1753.5	680.5	50.0
(C) Room 40C	Basement	2882.0	40.0	50.0
(D) Southwest of Room 23B	Basement	-202.0	171.0	50.0
(E) West of Room 23	Basement	-202.0	474.0	50.0
(F) East side of Room 32	Basement	-92.0	921.0	50.0
(G) Northwest side of Room 32	Basement	-382.0	1141.0	50.0
(H) North of Room 63	Basement	44.5	2577.0	50.0
(I) Southwest of Room 57W	Basement	1144.5	1028.5	50.0
(J) West of Room 55	Basement	44.5	2338.5	50.0
(K) Room 90	Basement	1314.5	2300.5	50.0
(L) Room 48	Basement	2303.5	1228.5	50.0
(M) North of Room 52	Basement	2178.5	2288.5	50.0
(N) Rm203	First Floor	-634.5	1132.5	492.0
(O) Lunch Room	First Floor	541.5	-847.5	492.0
(P) Room 327A	First Floor	40.0	2332.5	492.0
(Q) Room 528	First Floor	2277.5	2340.5	492.0
(R) HLRF Truck Lock	First Floor	3355.5	402.0	492.0
(S) Room 119	First Floor	2261.5	27.5	492.0
(T) Room 410	First Floor	1367.5	960.5	492.0
(U) Over Room 603	Second	44.5	2350.0	884.0
(V) Over Room 327	Second	2875.0	1520.0	1072.0

Subtask 8 - Modify the Calibration Procedure

The energy bins used to characterize the spectrum striking the detectors were first set to the same energy bins as the Hansen-Roach 16 Group Cross-section library (Hansen, 1964). In practice this was far more energy bins than were needed for making adjustments to the calibration procedure. Eventually, it was found that only two energy groups were needed to do the analysis. It may be beneficial in some facilities to include more than two groups, but because there are limited options available for spectrum modification more energy groups may not provide much advantage. The techniques used for modifying the energy spectrum of neutrons and gammas were discussed in subtask 7 of Design Methodology. The two groups used for RPL were set to represent thermal and everything not thermal. The bin limits were zero to 4eV then from 4eV to 20MeV.

There are only two viable options for altering the energy distribution of a neutron spectrum. Either thermalize them by scattering, or use Cadmium to remove thermal neutrons thereby increasing the ratio of fast neutrons. The bin structure was set to make utilizing these two methods easier and more effective. The Cadmium cutoff is around 0.5eV but there is a broader structure than just a single peak. Figure 11 shows the total neutron absorption cross-section for ^{113}Cd. The peak is clearly visible but what is more important is the overall structure of the cross section.

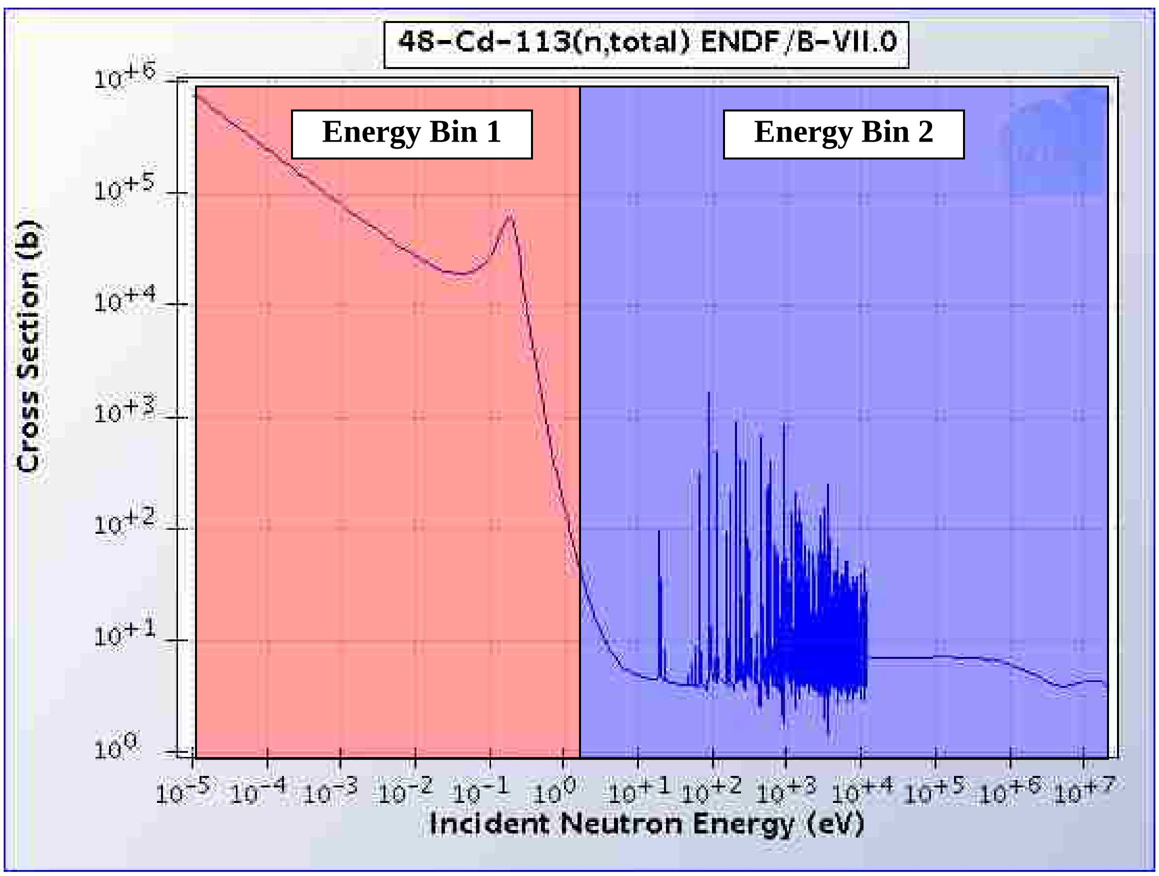


Figure 11. Graph of the total cross-section of ^{113}Cd

The total cross-section is large (1000's of barns) up to the single digit eV range, which is the main driver for the bin structure used for the detector tallies.

It was found from computer simulation of the MAC that approximately two-thirds of the fluence striking the tally surfaces in the facility model was in the 0 to 4eV range with the remaining third above that. The opposite ratio was found for the existing Nuclear Criticality Detector calibration setup. The same tally in the calibration model showed that roughly one-third of the incident spectrum fell below 4eV and two-thirds above it. To prove the NCD were calibrated correctly, the calibration procedure had to be modified to better resemble the average spectrum of the MAC. The next part of the document goes into detail on how the analysis was performed and the results obtained.

Example Nuclear Criticality Detector Calibration Procedure Evaluation

The current calibration procedure for the NCD at PNNL utilizes a ^{252}Cf source that generates the neutron energy spectrum seen in Figure 12.

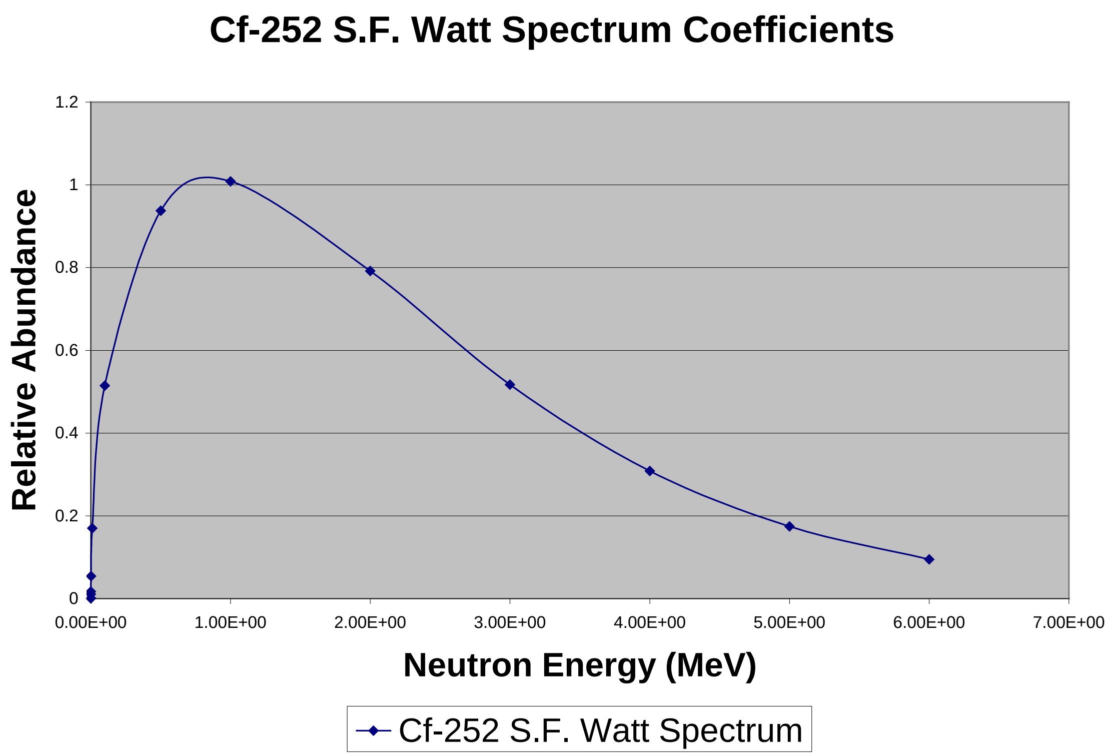


Figure 12. Neutron energy spectrum for the spontaneous fission of ^{252}Cf

Placing the neutron emission spectrum of ^{252}Cf into the same 0 to 4eV and 4eV to 20MeV energy bins from the facility model yields the graph shown in Figure 13 –Note the graph is in Log Scale.

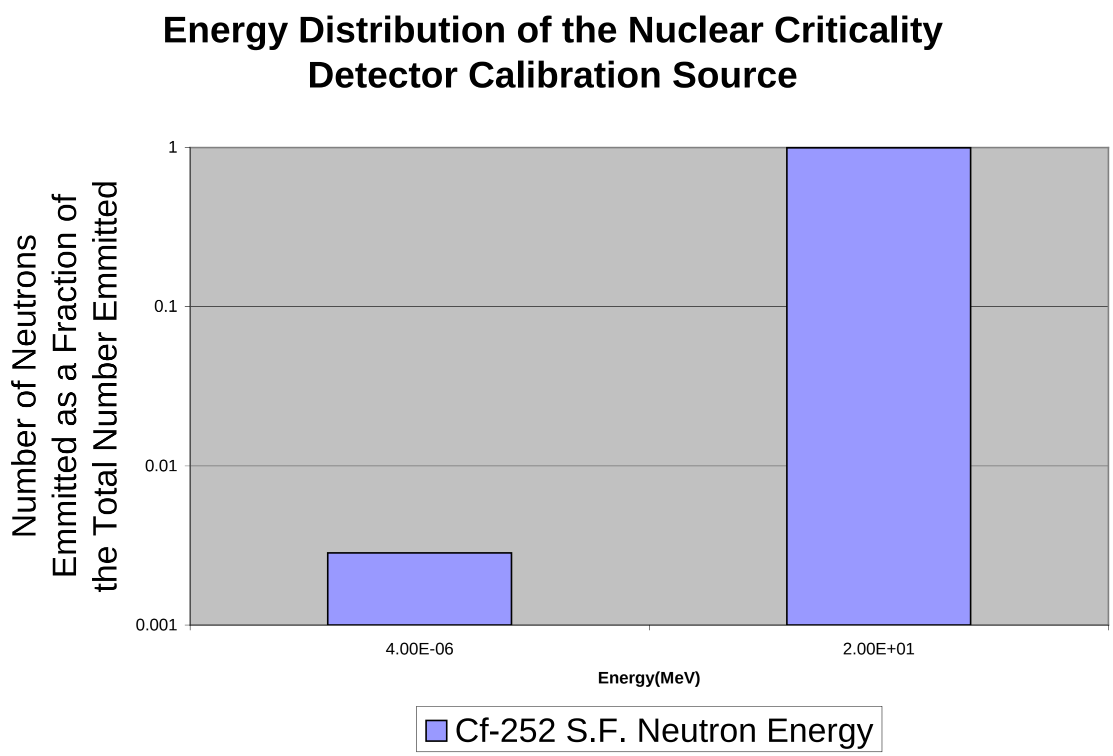


Figure 13. Neutron energy spectrum grouped into 4eV and 20 MeV energy bins for the spontaneous fission of ^{252}Cf plotted on a log scale

It is clear from Figure 13 that the spontaneous fission of Cf-252 has almost no thermal energy neutrons.

The ^{252}Cf source shown in Figure 12 and Figure 13 is placed on a motorized elevator in a 10 meter deep counting well. The NCD are placed on top of the well and the source is raised to the desired height for the corresponding activity level. For the current activity of the ^{252}Cf source, the distance between the elevator and the NCD is approximately 1.60 meters. The fluence that reaches the NCD was found to have the energy distribution shown in Figure 14.

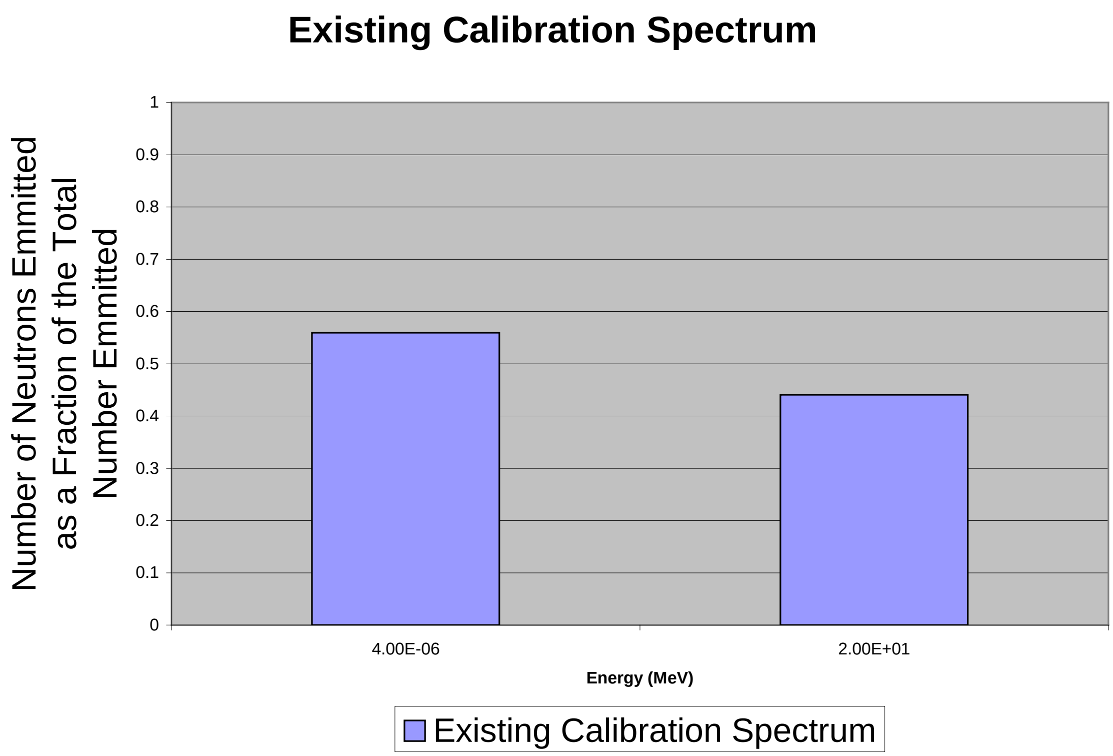


Figure 14. Existing calibration spectrum

Using the same energy bins as Figure 13 and Figure 14 for the MAC in RPL generates the graph in Figure 15. It is clear that spontaneous fission spectrum of ^{252}Cf is considerably thermalized by the materials around the counting wells.

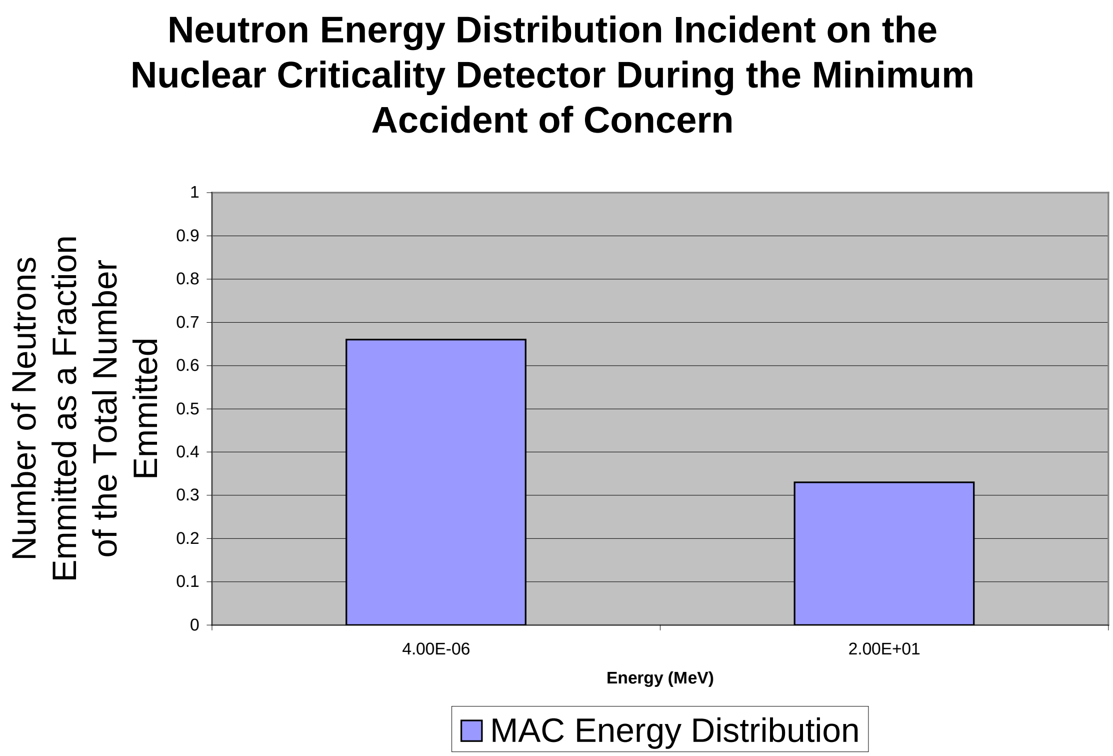


Figure 15. Average neutron energy spectrum during the Minimum Accident of Concern grouped into 4eV and 20 MeV energy bins

From Figure 14 and Figure 15, it can be seen that the spectrum used to calibrate the NCD was not the same spectrum the NCD was likely to be exposed to during the MAC; therefore it was necessary to modify how the NCD were calibrated. The existing calibration spectrum had approximately 56 percent of the spectrum below 4eV whereas the MAC spectrum had 66 percent. This discrepancy had to be resolved because if there was spectral dependence for the counting efficiency then the assumed known count rates used in subtask 4 would be incorrect.

To perform the analysis, an MCNP5 model was constructed. The basics of the calibration setup were included and flux tallies were used to find the energy distribution of neutrons striking the detector. Different materials were placed between the source and the detector until the required energy distribution was obtained. A simple diagram of the calibration setup is shown in Figure 16. The NCD is yellow, the counting well is gray, and the ^{252}Cf source holder is red. The drawing is to scale.

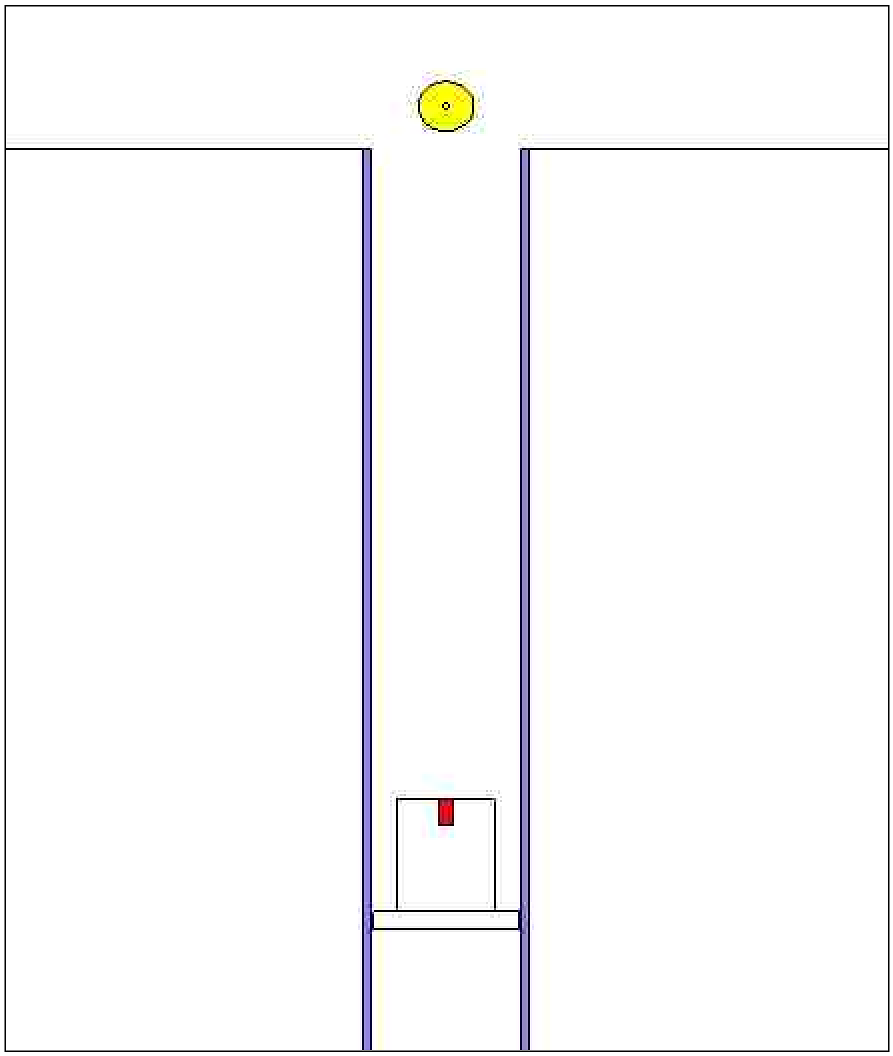


Figure 16. Existing NCD calibration setup

The entire well is surrounded by high density concrete. It was found that the following two steps could be inserted into the existing calibration spectrum to more effectively bound the average energy spectrum present during the MAC:

1. Construction and Placement of a 2cm thick, 13cm radius disc of High Density Polyurethane (HDPE) between the Californium Source and the NCD. The location of the plate should be just below the NCD.
2. Construction and placement of a hollow five sided box of HDPE 40cm x 40cm x 24cm around the NCD on top of the counting well. All sides of the box being roughly 6cm thick.

Figure 17 shows what the revised calibration setup will look like.

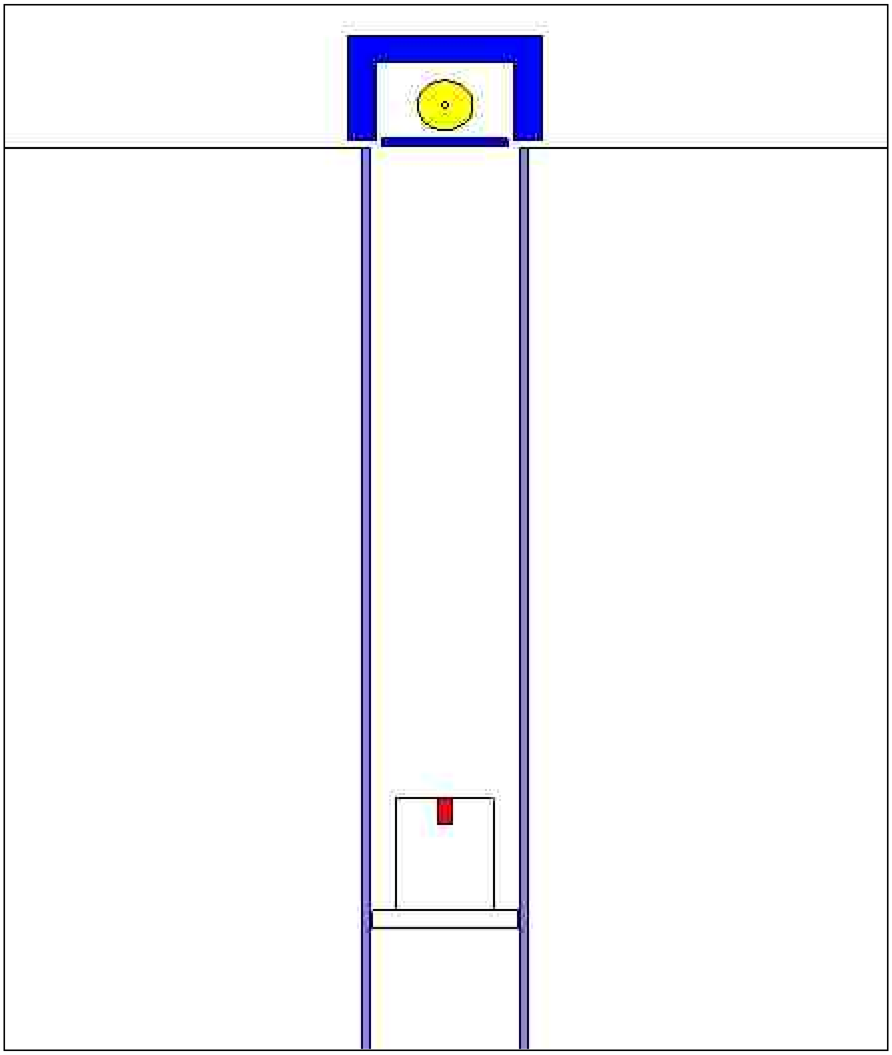


Figure 17. Revised NCD calibration setup with the added HDPE

The blue material is the added HDPE. After the proposed HDPE pieces are implemented, the spectrum hitting the NCD is altered to the distribution shown in Figure 18.

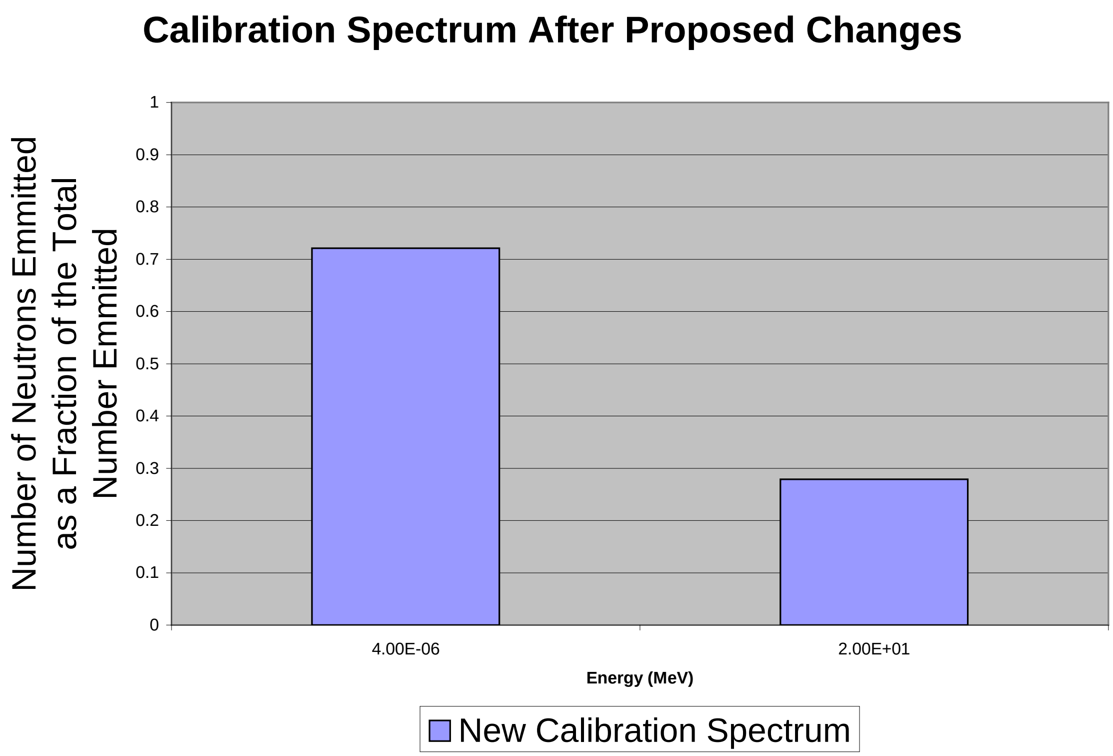


Figure 18. Modified calibration spectrum grouped into 4eV and 20 MeV energy bins

Adding the HDPE to the calibration process creates a spectrum with a slightly larger thermal fraction than both the existing calibration setup and the MAC spectrum. In reality, there is a range of spectrums that are possible in the MAC. Therefore the increase in the thermal fraction to beyond the MAC is done intentionally to more effectively bound the calibration of the NCD. The HDPE slab used to slow down the neutrons also absorbed or reflected away a considerable number of them as well. The box was placed over the well to increase the amount of reflection back toward the NCD. Placing the box in this manner not only made up for what was lost to the HDPE slab but actually increased the fluence striking the detector beyond the existing calibration procedure by an extra 15 percent. Californium neutron sources are very expensive so prolonging their usable life is very helpful. Table 7 gives a summary of all the values shown in the histograms.

Table 7. Corresponding Data Used in the Histograms

Energy Bins (MeV)	Cf-252 Emission Spectrum	MAC Average Spectrum	Old Calibration Spectrum	New Calibration Spectrum
4.00E-06	0.003	0.660	0.559	0.721
2.00E+01	0.997	0.330	0.441	0.279

The suggested changes discussed here only deal with the need to modify the calibration spectrum to better mimic the likely accident conditions. These proposed changes are intended as an addition to the existing calibration procedure, not as a total replacement of existing methods.

Subtask 9 - Apply Variance Reduction as needed

During the modeling portion of the project it was found that the run times needed to obtain usable precision (less than 0.10 error) were very large. For the majority of the MAC locations needed to show complete facility coverage, the run times were upwards of 10 days on dual quad core 3.2GHz workstations. With 24 accident locations selected to prove coverage, it is apparent that if all went correctly it would take a minimum of 240 days to receive results. This amount of time exceeded the schedule of the project. The decision was then made to investigate using variance reduction in MCNP5.

The QA program at PNNL very clearly states that no variance reduction techniques may be used that alter the fundamental physics of the computer simulation. It was attempted to implement reduction strategies that complied with this requirement but no solution was found that reduced run times to an acceptable level. To mitigate this problem, a compromise was made. Well documented variance reduction techniques could be used provided that standard Monte Carlo runs would be completed in the future to validate the results.

After extensive investigation, it was found through trial and error that implementing the deterministic transport option in MCNP5, DXTRAN, reduced the run times to 4 days plus or minus 2 days depending on the accident location. To initially verify the DXTRAN results were correct, 2 standard Monte Carlo runs were carried out. The first standard run represented the hardest accident location to detect, Room 90, a well-shielded location at the northern edge of the basement. The second run was for the easiest location to detect in the facility, (T) Room 410, a laboratory located in the center of the first floor. In both cases there was very little deviation of the DXTRAN results from standard Monte Carlo. Table 8 shows the results for these two sets of runs.

Table 8. Comparison of deterministic transport results to standard Monte Carlo results

Accident Location	Detector 2	Detector 3	Detector 4	Detector 5	Detector 6
(T) Room 410 - Standard	1.18E+09	1.18E+08	1.79E+07	1.34E+07	
(T) Room 410 - DXTRAN	1.18E+09	1.17E+08	1.73E+07	1.25E+07	
100*(Standard - DXTRAN)/ Standard	-0.1	0.7	3.2	6.8	
(K) Room 90 - Standard	5.57E+05	2.03E+05	2.34E+05		1.97E+05
(K) Room 90 - DXTRAN	5.58E+05	2.02E+05	2.29E+05		1.96E+05
100*(Standard - DXTRAN)/ Standard	-0.1	0.2	2.2		0.5

As mentioned earlier, extreme caution must be used when applying these techniques. Even though promising results have been demonstrated for this technique, the final analysis will not accept them. As per QA requirements, the final results will not be established on record until the standard Monte Carlo runs are complete. Techniques that reduce the variance have tremendous use for scoping and preliminary analysis, but are generally not acceptable as final numbers for the project.

Subtask 10 - Perform sensitivity analysis on the final CAS design

The sensitivity analysis conducted for RPL focused primarily on the effects of overloading the spaces in the facility with material that was twice as dense as the Full Office and Full Laboratory material definitions listed in Appendix C. This fill density was chosen because it represents the uppermost limit of the physical capacity of the spaces. Also the distribution of the super dense spaces was configured in the most challenging manner for accident detection. The spaces in the core of the building were filled with the super dense material and the spaces outside of the accident locations were left empty. Arranging the fill material in this manner represented a situation where the maximum amount of matter is placed between accidents and detectors. This represents the most limiting feasible scenario for the sensitivity analysis. Results for (T) Room 410 and for (K) Room 90 are given in Table 9.

Table 9. Detector counts for preliminary sensitivity analysis for maximum loading within the facility

Accident Location	NCD 2	NCD 3	NCD 4	NCD 5	NCD 6	Number Alarming
Room 410	1.18E+09	1.17E+08	1.73E+07	1.25E+07		**4**
Overloaded Tally	5.83E+08	5.20E+07	2.10E+06	1.39E+06		**4**
% Lost from Overloading	50	56	88	89		
Room 90	5.58E+05	2.02E+05	2.29E+05		1.96E+05	**4**
Overloaded Tally	3.71E+05	1.16E+05	1.19E+05		9.67E+04	**4**
% Lost from Overloading	34	43	48		51	

Again these results were obtained using deterministic transport and are not acceptable in the final report, but these preliminary results indicate that four detector coverage is maintained even at this loading. The standard Monte Carlo runs will provide the final data when they are completed sometime in the 2015 timeframe. It should be noted for the overloaded models, both standard and deterministic based MCNP5 run times increased dramatically.

VI. Show the calibration method follows simple and concise methodology for setting the minimum detector trip points;

Simplifying the calibration method for setting the minimum detector trip points was fairly straightforward. The majority of the analysis needed to set the trip setting was completed after both the average MAC spectrum in the facility had been analyzed and the calibration setup modeled for subtask 4. Because of the methodology used to establish building coverage took into account the conversion from simulated count rate to actual count rate, all that remained was to state what that count rate was.

Given the historical absence of false alarms with the established trip setting for RPL, the decision was made to attempt establishing coverage for the entire building at or above that level. It was shown in Chapter 4 subtask 7 that coverage was established for the entire facility above the historical trip setting. The final revision of the calibration procedure simply removed all extraneous dose conversion wording to arrive at the following definition of the trip setting: "All Nuclear Criticality Detectors for the Radioisotope Production facility will be set to alarm at 563 counts per second." This is the definition that will be submitted to the DOE to show compliance with their request for a more transparent and verifiable definition of the minimum detector trip setting.

VII. Assemble the final report;

The final design report for the CAS of RPL was drafted in two parts that roughly followed the outline listed under the corresponding heading in Design Methodology. The initial draft contained four sections which were: the Introduction, Design Description, Requirements Documentation, and Methodology. The second draft contained:

- Evaluation and Results
- Conclusions
- References

Each draft was reviewed by a committee, and their comments were all submitted for evaluation of relevance. Because an outline was already provided, only general comments about the specific RPL report will be addressed here.

There is a reason the heading for this section is titled "Assemble the Final Report," not "Write the Final Report." In reality there is little writing that goes into the final design report. What actually goes into the report is primarily tables, figures, diagrams, and references. It is advised to make all graphs, charts, etc., as plain and uncluttered as possible. Nothing seems to annoy management and tech editors more than a busy graphic.

The most challenging aspect of assembling the final report was finding, organizing, and citing all of the required References. The final design report contained over 60 different references, and hard copies had to be obtained for all of them. PNNL procedure required the references to be in the same order in the appendix that they were presented in the body of the text. PNNL document control system is also very strict, which made obtaining the necessary hard copies time consuming. It can not be overstated how important it is to retain all references that are encountered throughout the design phase, regardless of their perceived importance at that time.

Chapter 5 – Conclusion

Summary

A guide for designing a Criticality Alarm System was established. The focus of the guide was on producing a CAS that would meet applicable regulations and supply dependable coverage for personnel. The first half of the document provided an outline for the methodology behind each task and then thoroughly evaluated each task from a technical perspective. The second half of the document demonstrated how to apply this methodology by reviewing the analysis performed on the CAS of the Radiological Processing Laboratory of Richland, Washington. Results from the RPL system were included for each task and subtask. Potential pitfalls that were encountered during the design process were also included to aid the user in avoiding costly mistakes.

Future Work

As technology and standards evolve, the requirements that will be placed on Criticality Alarm Systems will no doubt change, likely only becoming more stringent. To meet any increased constraints, it is likely that more labor and computational time will be needed to complete the design of a CAS. As computational technology advances, more in-depth and detailed analyses can be conducted that could utilize greater precision. Greater modeling detail will instill greater confidence in the results and reliance on established overly conservative methods could potentially be relaxed.

The development of more efficient detectors, as well as more in-depth analysis, would allow the minimum trip settings to be raised thereby increasing the margin for avoiding false alarms.

Enhancements

Several improvements were made to the existing CAS design for RPL:

- Nearly all of the RPL facility was modeled and evaluated
- The number of modeling assumptions used was decreased
- Complete facility detector coverage was proven
- Detector coverage for the MAC was increased from 2 detectors to 4
- Better calibration methods were developed that more effectively bound the average spectrum likely to strike the NCD during the MAC
- The definition of the minimum trip setting was vastly streamlined to meet regulatory findings and to enhance transparency
- Direct dose calculation for the MAC was done, thereby eliminating the need for fluence to dose conversion factors

Each of these improvements increases the reliability of the CAS and streamlines any potential future analysis that may need to be performed. The increased detector coverage opens more areas in the facility where criticality work can be conducted. The increase in the number of detectors that will see the MAC impacts the operations in the building by allowing criticality work to continue even in the event of two separate detector failures. The modification of the calibration procedure enhances the reliability of the CAS by demonstrating that the NCD will more effectively see the energy spectrum of neutrons emitted during the MAC. Changing the definition of the minimum trip setting from a dose value to a simple count rate makes understanding what the CAS is set to alarm for much easier. Changing the trip setting to a count rate also satisfies regulatory findings. The elimination of the dose conversion factors makes finding the corresponding fluence of the MAC clearer, again enhancing transparency of the overall design methodology.

The combination of all these improvements to the CAS in RPL provides better, more dependable coverage, which will send out prompt warning to personnel in the event of a criticality potentially saving lives of those involved.

Definitions

Criticality Alarm System (CAS): The combination of nuclear criticality detectors, audible alarms, and comparator panel that is responsible for the prompt detection and immediate audible alarm issuance to personnel.

Detector Cell Tally Efficiency (DCTE): The ratio of the number of particles that strike the detector cell equivalent being tallied that will ultimately result in a count, this is a computational quantity.

Detector Efficiency: The ratio of the number of particles entering the active detector volume which result in a count, which is experimentally determined.

Detector Surface Tally Efficiency (DSTE): The ratio of the number of particles that strike the tally surface that will ultimately result in a count, this is a computational quantity.

High Density Polyurethane (HDPE): A polymer with the chemical composition of CH2 with an assumed density of .933(g/cc).

High Level Radiation Facility (HLRF): An annex of building 325 in the 300 area of the Hanford, Washington Department of Energy site that contains large shielded hot cells for work with fissile material.

Monte Carlo N-Particle Transport Code Version 5 (MCNP5): A Monte Carlo based neutronics code developed by Los Alamos National Laboratories and maintained by the Radiation Safety Information Computational Center.

Nuclear Criticality Detector (NCD): The instrument used for the detection of particles resultant from fission.

Radioisotope Production Laboratory (RPL): Designated as building 325 in the 300 area of the Hanford, Washington Department of Energy site used for work conducted on fissile material, a Class 2 hazard facility.

Shielded Analytical Laboratory (SAL): An annex of building 325 in the 300 area of the Hanford, Washington Department of Energy site that contains shielded hot cells for work with fissile material.

Appendix A: RPL Building Schematics with Accident and Detector Locations

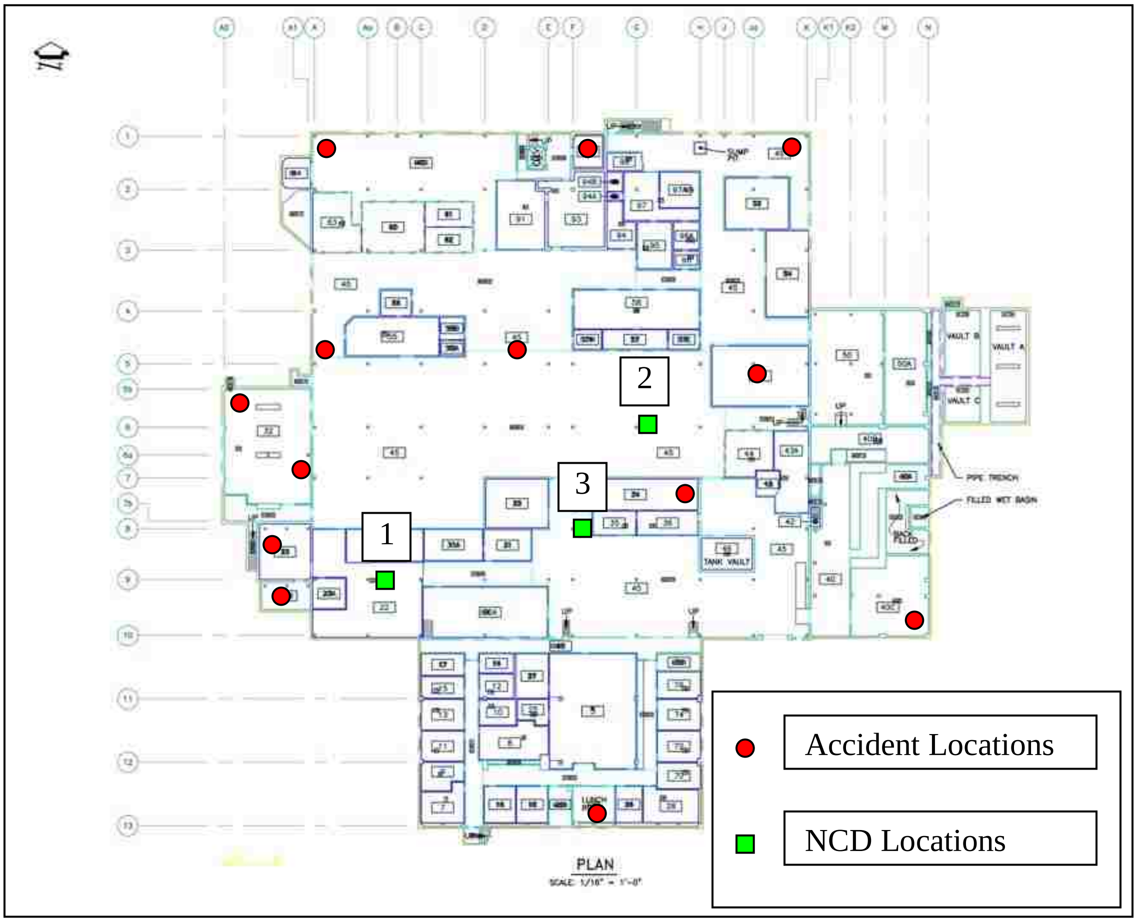


Figure 19. RPL Basement showing accident locations and NCD locations

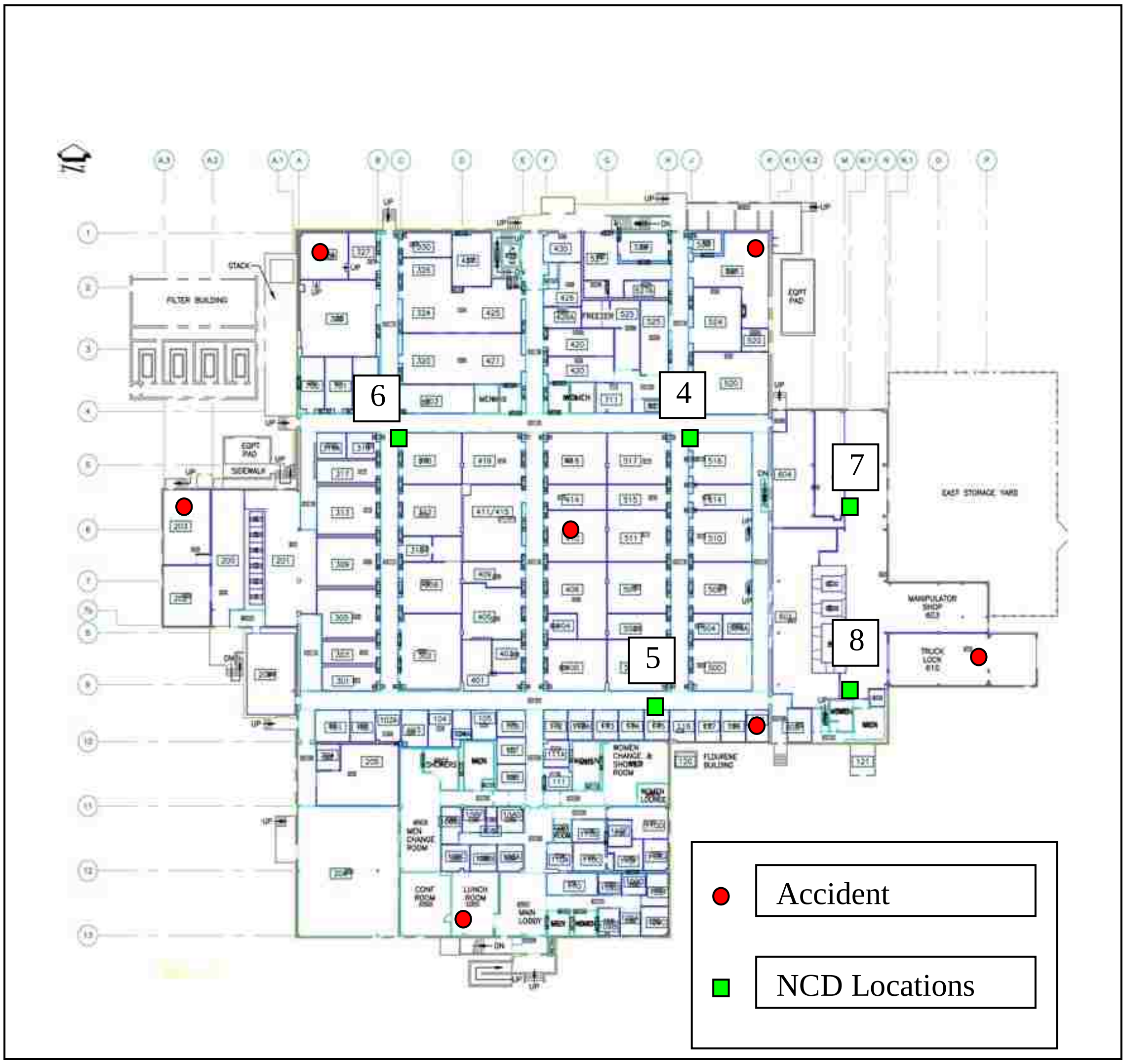


Figure 20. RPL First Floor showing accident locations and NCD locations

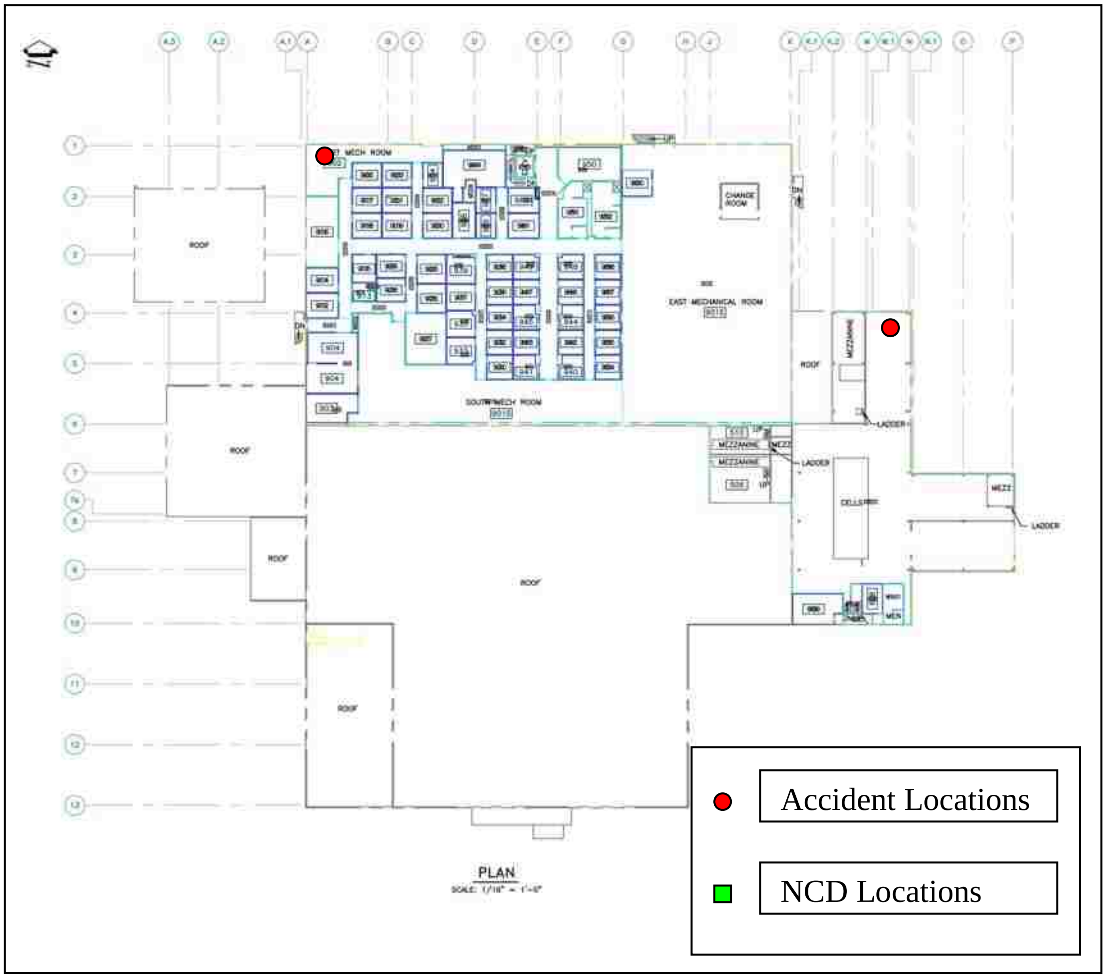


Figure 21. RPL Second Floor showing accident locations, no NCD are located on this floor

Appendix B: CAS Component Descriptions

Technical Description of the Comparator Panel

ANSI/ANS-8.3-1997 dictates that the comparator panel shall not trigger a criticality alarm for any single malfunctioning detector and that great care must be taken in the avoidance of false alarms. The panel constantly generates a signal that is broadcast to all of the detectors in the system. If any detector ceases to return the signal, the board considers the detector failed, and a warning is generated. Note that this warning is not the audible criticality alarm; it is a different alarm that is sent to an area normally occupied by competent personnel. Another note about the panel is that it does not issue a criticality alarm until two or more channels have alarmed. This eliminates the possibility of a single detector failure causing a false alarm. This is an important design criterion that greatly impacts the physical design of the system. It should also be noted the ANSI/ANS-8.3-1997 words the alarm statement as "…requiring concurrent response of two or more detectors to initiate the alarm." So it is allowable to require greater than two concurrent detector responses for a criticality alarm to be generated.

Technical Description of the Radiation Detectors

There are two types of radiation resultant from fission that are practically detectable: neutrons and gamma rays. The range of both neutrons and gammas is large enough that the number of detectors needed for adequate coverage is not prohibitive.

Typical CAS use either neutron or gamma detectors. A review of the literature did not identify any system that uses a combination of the two.

The selection of neutron or gamma ray detectors for the detection system has some important physical implications. Because the goal of the alarm system is to establish adequate coverage for the facility in question, it is desired from an engineering standpoint to set the trip setting of the detectors as low as possible. The lower the trip setting is then the fewer particles the detectors need to see for an alarm signal to be generated. But conversely the lower the trip setting is, the greater the risk of false alarm becomes. So there must be a balance made between lowering the minimum trip setting for detection limits and keeping the trip setting high enough to avoid false alarms. Finding and proving this balance is not trivial so appropriate detector selection is crucial.

Section 5.1 of ANSI/ANS-8.3-1997 addresses the reliability of the system in general, which is of course applicable to the detectors themselves. It says:

> *"The system shall be designed for high reliability and should utilize components that do not require frequent servicing, such as lubrication or cleaning. The system should be designed to minimize the effects of non-use, deterioration, power surges, and other adverse conditions. The design of the system should be as simple as is consistent with the objectives of ensuring reliable actuation of the criticality alarm signal and avoidance of false alarms."*

This description is used to narrow the field of possible detectors that could be used in the system.

To investigate detector specific properties the book, Radiation Detection and Measurement by Glenn Knoll is extraordinarily useful. It goes into great detail for many different detector types. It provides operational data as well as counting efficiencies. It should be clear that the main detector selection criteria are gross count efficiency, dependability, and the detection efficiency over the applicable incident particle energy range i.e., fission. There is no need for a detector that has spectral analysis capability. The list of potential detector candidates for both gamma and neutron detectors is quite large and beyond the focus of this document. What is of concern is the selection of which type of particle will be detected.

Background levels, both terrestrial and cosmic, are considerably different for gammas and neutrons. Background levels for neutrons are typically next to nothing in most areas. Generally it takes human effort to liberate neutrons, so man made sources are really the only area of concern for false alarms in a system utilizing neutron detection. This is not the case for gamma rays.

Natural background for gamma rays varies from location to location, sometimes considerably. Worse still is that the background levels for gamma rays can fluctuate with time. For example cosmic sources, such as solar flares, can cause significant increases in the gamma ray background levels. It is not all bad though because gamma rays are not attenuated in low Z materials as quickly as neutrons are. Most building construction materials are low-Z; concrete, wood, sheet rock, to name a few. Of course there can be large amounts of metal in buildings as well. Metals do a reasonably good job of shielding gammas. But metal will also absorb neutrons, which will then emit gammas as a result. This makes typical activity levels of gammas in facilities higher than that of neutrons during accident scenarios and therefore easier to detect.

Because the 300 area of Hanford, Washington is undergoing widespread demolition, the radiation detectors from other buildings have been salvaged and stockpiled. The majority of these detectors are BF_3 filled neutron proportional detectors.

These are very reliable, simple devices that don't require any significant maintenance other than calibration. So it was "recommended" that the design utilize this excess resource, which it does.

Equation B-1 shows the detection efficiency of BF_3 Tube. $\sum_a(E)$ is the Macroscopic Absorption Cross-Section of B^{10} at an energy level E, and L is the active length of the tube. Be sure to note any end effects when making an active length determination.

$$E(E) = 1 - \exp[-\textstyle\sum_a(E) * L] \qquad \textbf{B-1}$$

This equation was provided to illustrate a point. The absorption cross-section of B^{10} is very large so the corresponding detection efficiency is good.

Appendix C: Material Definitions for Codes

32 g/l ^{239}Pu in H_2O (From ARH 600)	
Nuclide	Number Density (atoms/bn-cm)
^{239}Pu	8.0614E-05
^{16}O	3.3374E-02
^{1}H	6.6748E-02

H_2O	
Nuclide	Number Density (atoms/bn-cm)
^{1}H	6.6890E-02
^{16}O	3.3440E-02

Iron	
Nuclide	Mass Density (g/cm^3)
Fe	7.874

Air	
Nuclide	Weight Fraction
^{14}N	79%
^{16}O	21%
Atom Density=1.197E-03 atoms/bn-cm	

Dirt	
Nuclide	Atom Fraction
Si (nat.)	33%
^{16}O	67%
Mass Density = 2.32 g/cm^3. With a 66% packing factor mass density = 1.53 g/cm^3.	

Concrete (2.3g/cc)	
Nuclide	Atom Fraction
^{27}Al	0.00175
Ca (nat.)	0.00152
Fe (nat.)	0.00035
^{1}H	0.01375
^{16}O	0.04608
^{23}Na	0.00175
Si (nat.)	0.01663

Stainless Steel	
Nuclide	Weight Fraction
Fe (nat.)	74%
Cr (nat.)	18%
Ni (nat.)	8%

Stainless Steel Walls	
Nuclide	Atom Density (atoms/bn-cm)
Fe (nat.)	2.63792E-03
Cr (nat.)	6.89167E-04
Ni (nat.)	2.71250E-04
Total	3.59833E-03

Wall density changes from the 8” to the 4” because of construction method

8” Wood Walls	
Nuclide	Mass Density (g/cm^3)
C (nat.)	2.6664E-02
^{1}H	3.7320E-03
^{16}O	2.9604E-02

4” Wood Walls	
Nuclide	Mass Density (g/cm^3)
C (nat.)	5.3328E-02
^{1}H	7.4640E-03
^{16}O	5.9208E-02

Basement Ceiling/First Floor-Deck	
Nuclide	Mass Fraction
^{27}Al	0.03177
Ca (nat.)	0.04112
Fe (nat.)	0.06160
^{1}H	0.00934
^{16}O	0.49712
Si (nat.)	0.31491
^{23}Na	0.02710
Cr (nat.)	0.01180
Ni (nat.)	0.00524
The density of the mixture is 2.4121 g/cm^3.	

First Floor-Ceiling/Second Floor-Deck	
Nuclide	Mass Fraction
^{27}Al	0.00454
^{10}B	0.01680
^{16}O	0.24290
Si (nat.)	0.1712
^{23}Na	0.01861
Fe (nat.)	0.40400
Cr (nat.)	0.09828
Ni (nat.)	0.04368
The density of the mixture is 0.47511 g/cm^3.	

Full-Office Material Composition

The typical full office has one desk, one file cabinet, and three bookshelves. The dimensions are as follows:

Desk = 36” * 15” * 26”	Vd = 14,040 inches3
File Cabinet = 60” * 15” * 26”	Vfc = 23,400 inches3
Bookshelf = 82” * 36” * 12”	Vs = 35,424 inches3

Therefore, the total volume of the wood in the room is Vd + Vfc + 3Vs, which is 143,712 in^3 or 2.35502E+6 cm^3.

The percent volume of wood = Vw/Vroom = 4.85496E-02

Wood is assumed to be cellulose ($C_6H_{10}O_5$) at 1 g/cm^3.

Therefore, the weight fractions are

C = 0.4444

H = 0.0622

O = 0.4934

The material densities are therefore:

C = 2.15754E-02 g/cm^3

H = 3.01979E-03 g/cm^3

O = 2.39544E-02 g/cm^3

Total Room Density = 4.855E-02 g/cm^3

Full-Laboratory Material Composition

Room Volume = (802.64 cm * 601.98 cm * 441.96 cm)
–
(220.98 cm * 60.96 cm * 441.96 cm)

=2.0164E+08 cm^3

Glove Box

SS panels

Number	x	y	z	Volume (in^3)	Volume (cm^3)
2	24	48	0.25	576	9,438.95
2	48	36	0.25	864	14,158.42
2	36	24	0.25	432	7,079.212

Glass panels

Number	x	y	z	Volume (in^3)	Volume (cm^3)
2	48	36	0.25	864	14,158.42
2	24	36	0.25	432	7,079.212

Lead Bricks

Number	x	y	z	Volume (in^3)	Volume (cm^3)
6	2	4	8	384	6,292.633

Stainless Steel Sheet to Represent Instruments

Number	x	y	z	Volume (cm^3)
1	802.64	601.98	1.0	483,173

Glass Sheet to Represent Instruments

Number	x	y	z	Volume (cm^3)
1	802.64	601.98	1.0	483,173

Wood Sheet to Represent Tables and Desks

Number	x	y	z	Volume (cm^3)
1	802.64	601.98	1.0	483,173

Two Bookshelves	1,160,991 cm^3
Two File Cabinets	766,915 cm^3

Material Totals

	Volume (cm^3)	Volume Fraction	Density in Room (g/cm^3)
Glass	504,410	2.5016E-03	5.5785E-03
SS	513,849	2.5484E-03	2.0209E-02
Pb	6,292	3.1208E-05	3.5421E-04
Wood	2,411,078	1.1958E-02	1.1958E-02
Air	1.9820E+08	9.8296E-01	1.1815E-03

Densities (Reppond, 1977)

Glass = 2.32 g/cm^3

SS = 7.93 g/cm^3

Pb = 11.35 g/cm^3

Wood = 1.00 g/cm^3

Air = 0.001202 g/cm^3

Nuclide	Weight Fraction
Al	1.4202E-03
B	5.2546E-03
Na	5.8227E-03
O	2.3249E-01
Si	5.3541E-02
Fe	3.8071E-01
Cr	9.2605E-02
Ni	4.1158E-02
Pb	9.0174E-03
C	1.3528E-01
H	1.8935E-02
N	2.3762E-02
Total Density	0.03928 g/cm3

Sparse-Laboratory Material Composition

Room Volume = (802.64 cm * 601.98 cm * 441.96 cm)

–

(220.98 cm * 60.96 cm * 441.96 cm)

=2.0164E+08 cm^3

It is assumed that there is one-half the total amount of material that is present in the full-laboratory model.

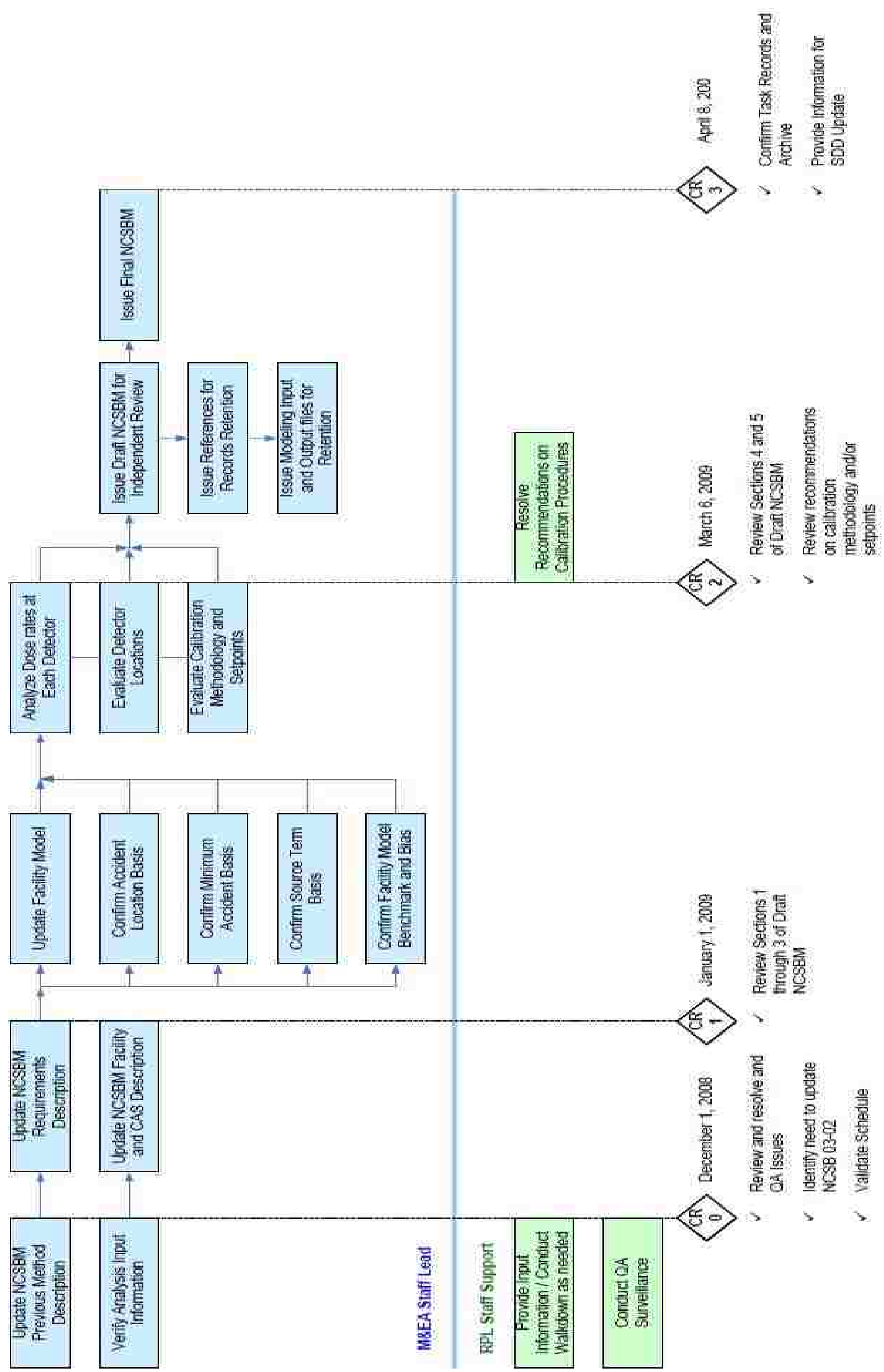
Material Totals	Volume (cm^3)	Volume Fraction	Density in Room
Glass	252,205	1.2508E-03	2.7893E-03
SS	256,924	1.2742E-03	1.0104E-02
Pb	3,146	1.5604E-05	1.7710E-04
Wood	1,205,539	5.9788E-02	5.9788E-02
Air	1.9992E+08	9.9148E-01	1.1918E-03

Densities (Reppond, 1977)

Glass = 2.32 g/cm^3
SS = 7.93 g/cm^3
Pb = 11.35 g/cm^3
Wood = 1.00 g/cm^3
Air = 0.001202 g/cm^3

Nuclide	Weight Fraction
Al	1.3780E-03
B	5.0986E-03
Na	5.6498E-03
O	2.3183E-01
Si	5.1951E-02
Fe	3.6941E-01
Cr	8.9855E-02
Ni	3.9936E-02
Pb	8.7497E-03
C	1.3126E-01
H	1.8372E-02
N	4.6513E-02
Total Density	0.020240 g/cm^3

Appendix D: Schedule of Deliverables



Appendix E: Assumptions Used in the CAS Design of RPL

Modeling Assumptions

1) 1st Floor Deck is a sandwiched 14 gauge steel honeycomb with a maximum of 5" of "standard Concrete" The ceiling composition is based on the elevation blue prints listed below, which show that the ceiling is on average 3.75" thick with 14-gauge steel (0.0766" thick, Reference 23). This works to a volume ratio of 0.98/0.02 concrete to stainless steel and a mass ratio of 0.934/0.066 concrete to stainless steel.

2) 2^{nd} Floor Deck is a sandwiched 16 gauge steel honeycomb with a maximum of 5 inches of "Emmeshic Concrete". Dave Koontz indicated that this concrete was roughly 30% if the density of standard concrete.

3) The Gable of all roofs was modified to be a flat equivalent slab at the average height of the actual roof.

4) The ground surrounding 325 was assumed to be SiO2 with a 66% packing fraction.

5) Room fill was approached as a combination of full, half-full, or empty office/lab.

6) Dave Koontz mentioned Asbestos in the hollow walls on the 300, 400, and 500 hallways. Have not included any Asbestos in the model because I was unable to verify its existence.

7) The offset of roof parapets were omitted. Walls are capped by the roofs.

8) Basement Deck is set as 1ft thick from drawing H-4-50013 –Hard to read

9) All staircases omitted

10) Altitudes/elevations are very difficult to verify. This is especially true for HLRF. The original schematics are in PDF format and are extremely cluttered but all non-roof elevations are referenced from H-4-50013-1 and H-3-12901.

11) The exterior wall of B325 changes from structural concrete to metal siding, insulation, metal support columns, and the occasional window. This change from concrete to metal conglomerate occurs at 404’-6” for the majority of the building. The Northern exterior walls do not change at this height. They change at 416’-4”. For simplicity, I have set the ENTIRE buildings exterior concrete wall to a height of 404’-6”. The material compositions of the exterior wall versus concrete support that making this change is conservative because reflection decreases with the omission of the concrete northern wall.

12) Roof elevations were taken from drawing H-3-305005. The roof in the NW corner of HLRF has been commented out. The roof composition was observed to be a conglomerate of asphalt, tar, gravel, and cement. Because I have found no documents that state the actual contents, I have set all roofs to concrete. All roofs run to the edge of the sections they cover –No overhangs. You will notice a rather large gap above the central section of floor 1 and the corresponding roof. This was done intentionally because there is a large crawl space. The gap is due to setting the roof position to the average height of the gable.

13) The Elevation for the roofs were taken from Drawings H-3-12901 and H-3-305005 to be 429'9" or 13098.8cm. The roof also has a gable that runs a delta of approximately 6" over the span of the roof over HLRF. The highest point is approximately 430' and the lowest is approximately 429'6".

14) The very small roof over the southern entrance to RPL was neglected.

15) The CAD Drawings clearly show the top floor of HLRF E wall at 230.9’ (586.5cm) from the SW corner. The second floor CAD drawings clearly show the second floor E wall at 224.4’ (570cm) from the same origin. I am leaving the dimensions as shown on the CAD drawings until inspection proves otherwise. The point of this statement is there is a noticeable overhang of the second floor HLRF E wall over the same first floor E wall.

16) ALL CHAIN LINK was omitted.

17) There are three vaults E of HLRF that have not been added to the model.

18) Men’s and Women’s restrooms were left empty

19) Tank 46 was modeled as empty.

20) The corresponding materials for SAL and HLRF hot cells were smeared to be the most limiting conservative cases.

21) From personal inspection, a grade was found in the deck of the Basement mezzanine. The altitude change was observed to be 1ft over the length of the deck. This slope was ignored and the deck of the mezzanine was held level at 8.5ft. The offset of the deck of the mezzanine to the deck of the central section of the basement was measured at 5ft.

22) The southern mezzanine section of B1 is set 5ft above the central B1 Deck. This is an observed distance because I have found no blueprint that clearly defines this distance.

23) There is a small gap between Rm23B and the top of Rm32 where there is no sand and just air.

24) There is no sand up to the grade height in the SE corner of the building. This was done to be conservative. There are numerous areas in the SE that do not have a backfill to the same grade as the rest of the building. There is also a loading dock located in the SE corner which is simply free space lined with concrete.

25) The material fill for all interior office/laboratory walls were set to be the same "metal fill" listed in the materials definition because there was no access to the interior of the walls

Translation notes

The basement was translated in reference to the SW section. Floor1 was translated with reference to the NW section. The second floor was translated in reference to the SW section. TR4=basement translation, TR1=Floor1 translation, TR2=Floor2 translation. And TR3=Floor3 translation.

Appendix F: MCNP5 Input Decks

```
Bldg. 325 RPL 10/15/2008
c ==============================================================================
c 3456789012345678911234567892123456789312345678941234567895123456789612345678971234567 8
c  Built by:   Bryce Greenfield
c              Pacific Northwest National Laboratory, USA
c              <Bryce.Greenfield@pnl.gov>, 509-372-4384
c  For:        Crit. Safety Analysis of Bldg 325 -RPL Improved Detector Coverage
c
c  Rev. Date:  2/2/2009
c
c  ==============================================================================
c
c
c
c Each Surface block contains a header with notes about that section.
c Whenever possible and or convenient the origin for each sections coordinate system
c was place in the most Southwestern point in that section. On some junctions between surfaces
c boundary errors arose even though the dimensions were correctly entered. The solution
c used to eliminate these errors was to back out the conflicting boundary by a very small margin~0.01cm.
c Each surface is followed by a brief description of what and where it is. Surfacs were modeled,
c grouped, and numbered according to their respective room numbers.  The format for both the cell
c and surface cards is as follows (###$$). The ### signs are the room numbers with a
c range of 1-999 and the $$ signs are the surface/cell numbers that range from 1-99.
c For example 701 refers to room 7 surface 1. Wheras 7001 refers to room 70 surface 1.
c Cardinal directions relative to each room were used to roughly
c describe where a surface existed. For example: W wall Rm72.
c Hopefully it is easy to interpret as the western wall of Room 72. When multiple surfaces
c existed in the same room/plane they were described with SW, CentralW, or NW. If there were numerous
c bodies in the same room/plane then a numbering system was used that always started with the
c southwestern most body and the moved eastward. After a terminating surface was encountered
c the numbering was continued by moving back to the starting body(the most SW body) and moving North
c to continue the numbering sequence. For an example of this check the descriptions of the columns
c modeled in Room 45 of the Basement.
c
c  ==============================================================================
c
c    Index of Section Identifier Tags <-Use Search to navigate through file
c
c
c   TAG=TAGb1roomfill  - B1 Room fills
c   TAG=TAGf1roomfill  - Floor 1 Room fills
c   TAG=TAGf2roomfill  - Floor 2 Room fills
c
c   TAG=TAGPuPu  - Accident Surfaces/Locations
c   TAG=TAGdetectors  - Detector surfaces/Locations
c   TAG=TAGbasementsurfaces  - B1 surfaces
c   TAG=TAGfloor1surfaces  - 1st floor surfaces
c   TAG=TAGfloor2surfaces  - 2nd floor surfaces
c   TAG=TAGfloor3surfaces  - 3rd floor surfaces
c   TAG=TAGmaterials  - Materials definition
c   TAG=TAGsourcedef  - Accident Locations Specific SDEF
c
c
c  ==============================================================================
c
c   Legend of Abbreviations
c
c   o  = outside
c   i  = inside
c   wl = wall
c   Rm = Room
c   LR = Lunch Room
c   u  = upper
c   l  = lower
c   N  = North
```

```
c   S  = South
c   E  = East
c   W  = West
c
c
c
c  ==================================================================================
c
c   ###########################
c   #  Cell definition cards  #
c   ###########################
c
c  Start of Wing Cells ============================================================
c
c
c
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB     Basement 1
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c
c    Begin North West Section of the Central Section of Basement1
c ****************Notes for this section of Cells***************************
c  Room 64 was
c  left out because I am not sure what it is made of or why it has the dimensions shown.
c
c   Basement1 Decks Listed Below
c   Assumed to be 1 foot thick. This thickness was taken from H-4-50013. Standard Concrete was used.
414     3    -2.3         (-414)          imp:n=1    $Conc Filled Central Section of B1 foundation Deck
415     3    -2.3         (-415)          imp:n=1    $Conc Filled East Section of B1 foundation Deck
416     3    -2.3         (-416)          imp:n=1    $Conc Filled South Section of B1 foundation Deck
417     3    -2.3         (-417)          imp:n=1    $Conc Filled SW Bl foundation Deck
418     3    -2.3         (-418)          imp:n=1    $Conc Filled W B1 foundation Deck
419     2    -1.53        (-419)          imp:n=1    $Sand 10ft thick under building
420     2    -1.53        (-420)          imp:n=1    $Sand filling the gap below South Section of B1
421     2    -1.53        (-421 9005 9008 9306)    imp:n=1    $N of B1 20ft Thick sand up to a building grade of 327.7cm
422     2    -1.53        (-422)          imp:n=1    $NE of B1 20ft Thick sand up to a building grade of 327.7cm
423     2    -1.53        (-423)          imp:n=1    $S of B1 20ft Thick sand up to a building grade of 327.7cm
424     2    -1.53        (-424)          imp:n=1    $S2 20ft Thick sand up to a building grade of 327.7cm
425     2    -1.53        (-425 #4508)    imp:n=1    $SW 20ft Thick sand up to a building grade of 327.7cm
426     2    -1.53        (-426)          imp:n=1    $SW2 20ft Thick sand up to a building grade of 327.7cm
427     2    -1.53        (-427)          imp:n=1    $W B1 20ft Thick sand up to a building grade of 327.7cm
428     2    -1.53        (-428 406)      imp:n=1    $NW 20ft Thick sand up to a building grade of 327.7cm
c
c
c  Basement1 ceiling/First Floor Deck  From the previous methodology of NCS99 the ceiling of B1 was smeared
c  to a slab with a thickness of 3.75". It was found from investigation that 3.75" was the approximate
c  average of the thickness of the ceiling. Drawing H-3-306083-2.DWG shows the structure of the ceiling and is to scale.
430     12   -2.6467      (-430)          imp:n=1    $Central Section of Basement ceiling
431     12   -2.6467      (-431)          imp:n=1    $East Section of B1 ceiling
432     12   -2.6467      (-432)          imp:n=1    $South Section of B1 ceiling
433     12   -2.6467      (-433)          imp:n=1    $SW Bl ceiling
434     12   -2.6467      (-434)          imp:n=1    $W B1 ceiling
c
```

```
c
c
c  Listed Below will be all of the cells related to the criticallity detection portion of this model
c
c   Pu Filled Sphere in Rm 22
440     17   0.100200     (-440)          imp:n=1    $Pu-H20 Sphere
c
c
c   Below are the cells for all of the Detectors in Building 325 .9detectors
c
461     19   -.9300       (-461)         imp:n=1    $Detector 1  B1
462     19   -.9300       (-462)         imp:n=1    $Detector 2  B1
463     19   -.9300       (-463)         imp:n=1    $Detector 3  B1
464     19   -.9300       (-464)         imp:n=1    $Detector 4  F1
465     19   -.9300       (-465)         imp:n=1    $Detector 5  F1
466     19   -.9300       (-466)         imp:n=1    $Detector 6  F1
467     19   -.9300       (-467)         imp:n=1    $Detector 7  F1
468     19   -.9300       (-468)         imp:n=1    $Detector 8  F1
c
c
c    Basement1 Room 45
c   This room contains mainly columns.
4536    13   -7.93       (-4536)        imp:n=1    $SS-304
4537    13   -7.93       (-4537)        imp:n=1    $SS-304
4538    13   -7.93       (-4538)        imp:n=1    $SS-304
4539    13   -7.93       (-4539)        imp:n=1    $SS-304
4540    13   -7.93       (-4540)        imp:n=1    $SS-304
4541    13   -7.93       (-4541)        imp:n=1    $SS-304
4542    13   -7.93       (-4542)        imp:n=1    $SS-304
4543    13   -7.93       (-4543)        imp:n=1    $SS-304
4544    13   -7.93       (-4544)        imp:n=1    $SS-304
4545    13   -7.93       (-4545)        imp:n=1    $SS-304
4546    13   -7.93       (-4546)        imp:n=1    $SS-304
4547    13   -7.93       (-4547)        imp:n=1    $SS-304
4548    13   -7.93       (-4548)        imp:n=1    $SS-304
4549    13   -7.93       (-4549)        imp:n=1    $SS-304
4550    13   -7.93       (-4550)        imp:n=1    $SS-304
4551    13   -7.93       (-4551)        imp:n=1    $SS-304
4552    13   -7.93       (-4552)        imp:n=1    $SS-304
4553    13   -7.93       (-4553)        imp:n=1    $SS-304
4554    13   -7.93       (-4554)        imp:n=1    $SS-304
4555    13   -7.93       (-4555)        imp:n=1    $SS-304
4556    13   -7.93       (-4556)        imp:n=1    $SS-304
4557    13   -7.93       (-4557)        imp:n=1    $SS-304
4558    13   -7.93       (-4558)        imp:n=1    $SS-304
c
c
c    Basement Room 55/55A/55B
5501    14   -0.539      (-5501)        imp:n=1    $Cinder Block
5502    3    -2.3        (-5502 5501 5503)        imp:n=1    $Conc Filled
5503    14   -0.539      (-5503)        imp:n=1    $Cinder Block
5504    14   -0.539      (-5504)        imp:n=1    $Cinder Block
5505    3    -2.3        (-5505)        imp:n=1    $Conc Filled
5506    3    -2.3        (-5506)        imp:n=1    $Conc Filled
5507    14   -0.539      (-5507)        imp:n=1    $Cinder Block
5508    14   -0.539      (-5508)        imp:n=1    $Cinder Block
5509    14   -0.539      (-5509)        imp:n=1    $Cinder Block
5510    14   -0.539      (-5510)        imp:n=1    $Cinder Block
5511    14   -0.539      (-5511)        imp:n=1    $Cinder Block
5512    14   -0.539      (-5512)        imp:n=1    $Cinder Block
5513    3    -2.3        (-5513)        imp:n=1    $Conc Filled
c
c
c    Basement Room 56
5601    14   -0.539      (-5601)        imp:n=1    $Conc Filled
5602    14   -0.539      (-5602)        imp:n=1    $Conc Filled
5603    14   -0.539      (-5603)        imp:n=1    $Conc Filled
5604    14   -0.539      (-5604)        imp:n=1    $Conc Filled
c
c
```

```
c
c
c
c  Begin North-center Section of the Central Section of Basement1
c  ***************Notes for this section of Cells*************************
c
c
c
c   Basement1 Room 91
9101    3    -2.3        (-9101)        imp:n=1    $Conc Filled
9102    3    -2.3        (-9102)        imp:n=1    $Conc Filled
9103    3    -2.3        (-9103)        imp:n=1    $Conc Filled
9104    3    -2.3        (-9104)        imp:n=1    $Conc Filled
9105    3    -2.3        (-9105)        imp:n=1    $Conc Filled
9106    3    -2.3        (-9106)        imp:n=1    $Conc Filled
9107    3    -2.3        (-9107)        imp:n=1    $Conc Filled
9108    3    -2.3        (-9108)        imp:n=1    $Conc Filled
c
c
c   Basement1 Room 93
9301    3    -2.3        (-9301)        imp:n=1    $Conc Filled
9302    3    -2.3        (-9302)        imp:n=1    $Conc Filled
9303    3    -2.3        (-9303)        imp:n=1    $Conc Filled
9304    3    -2.3        (-9304)        imp:n=1    $Conc Filled
9305    3    -2.3        (-9305)        imp:n=1    $Conc Filled
9306    3    -2.3        (-9306)        imp:n=1    $Conc Filled
9307    3    -2.3        (-9307)        imp:n=1    $Conc Filled
9308    3    -2.3        (-9308)        imp:n=1    $Conc Filled
9309    3    -2.3        (-9309)        imp:n=1    $Conc Filled
9310    3    -2.3        (-9310)        imp:n=1    $Conc Filled
9311    3    -2.3        (-9311)        imp:n=1    $Conc Filled
9312    3    -2.3        (-9312)        imp:n=1    $Conc Filled
9313    3    -2.3        (-9313)        imp:n=1    $Conc Filled
9314    3    -2.3        (-9314)        imp:n=1    $Conc Filled
9315    3    -2.3        (-9315)        imp:n=1    $Conc Filled
9316    3    -2.3        (-9316)        imp:n=1    $Conc Filled
9317    3    -2.3        (-9317)        imp:n=1    $Conc Filled
9318    13   -7.93        (-9318)        imp:n=1    $SS-304
c
c
c  Basement1 Room 94/94A/94B
9401    14   -0.539       (-9401)        imp:n=1    $Cinder Block
9402    14   -0.539       (-9402)        imp:n=1    $Cinder Block
9403    14   -0.539       (-9403)        imp:n=1    $Cinder Block
9404    14   -0.539       (-9404)        imp:n=1    $Cinder Block
9405    3    -2.3        (-9405)        imp:n=1    $Conc Filled
9406    14   -0.539       (-9406)        imp:n=1    $Cinder Block
9407    14   -0.539       (-9407)        imp:n=1    $Cinder Block
9408    3    -2.3        (-9408)        imp:n=1    $Conc Filled
9409    3    -2.3        (-9409)        imp:n=1    $Conc Filled
9410    3    -2.3        (-9410)        imp:n=1    $Conc Filled
9411    3    -2.3        (-9411)        imp:n=1    $Conc Filled
9412    14   -0.539       (-9412)        imp:n=1    $Cinder Block
9413    14   -0.539       (-9413)        imp:n=1    $Cinder Block
c
c
c  Basement1 Room 95
9501    14   -0.539       (-9501)        imp:n=1    $Cinder Block
9502    14   -0.539       (-9502)        imp:n=1    $Cinder Block
9503    14   -0.539       (-9503)        imp:n=1    $Cinder Block
9504    14   -0.539       (-9504)        imp:n=1    $Cinder Block
c
c
c  Basement1 Room 96/96A
9601    14   -0.539       (-9601)        imp:n=1    $Cinder Block
9602    14   -0.539       (-9602)        imp:n=1    $Cinder Block
9603    13   -7.93        (-9603)        imp:n=1    $SS-304
9604    14   -0.539       (-9604)        imp:n=1    $Cinder Block
9605    14   -0.539       (-9605)        imp:n=1    $Cinder Block
9606    14   -0.539       (-9606)        imp:n=1    $Cinder Block
```

```
9607    14   -0.539      (-9607)        imp:n=1    $Cinder Block
c
c
c   Basement1 Room 97/97A
9701    14   -0.539      (-9701)        imp:n=1    $Cinder Block
9702    3    -2.3        (-9702)        imp:n=1    $Conc Filled
9703    14   -0.539      (-9703)        imp:n=1    $Cinder Block
9704    13   -7.93       (-9704)        imp:n=1    $SS-304
9705    14   -0.539      (-9705)        imp:n=1    $Cinder Block
9706    14   -0.539      (-9706)        imp:n=1    $Cinder Block
9707    13   -7.93       (-9707)        imp:n=1    $SS-304
c
c
c   Basement Room 98
9801    14   -0.539      (-9801)        imp:n=1    $Cinder Block
c
c
c   Basement Room 45
4560    3    -2.3        (-4560)        imp:n=1    $Conc Filled
4561    3    -2.3        (-4561)        imp:n=1    $Conc Filled
4562    3    -2.3        (-4562)        imp:n=1    $Conc Filled
4563    3    -2.3        (-4563)        imp:n=1    $Conc Filled
4564    13   -7.93       (-4564)        imp:n=1    $SS-304
4565    13   -7.93       (-4565)        imp:n=1    $SS-304
4566    3    -2.3        (-4566)        imp:n=1    $Conc Filled
4567    3    -2.3        (-4567)        imp:n=1    $Conc Filled
4568    3    -2.3        (-4568)        imp:n=1    $Conc Filled
4569    3    -2.3        (-4569)        imp:n=1    $Conc Filled
c 4570    3    -2.3        (-4570)        imp:n=1    $Conc Filled
c 4571    3    -2.3        (-4571)        imp:n=1    $Conc Filled
c
c
c   Basement Room 90/Elev Room
9001    3    -2.3        (-9001)        imp:n=1    $Conc Filled
9002    3    -2.3        (-9002)        imp:n=1    $Conc Filled
9003    3    -2.3        (-9003)        imp:n=1    $Conc Filled
9004    3    -2.3        (-9004)        imp:n=1    $Conc Filled
9005    3    -2.3        (-9005)        imp:n=1    $Conc Filled
9006    3    -2.3        (-9006)        imp:n=1    $Conc Filled
9007    3    -2.3        (-9007)        imp:n=1    $Conc Filled
9008    3    -2.3        (-9008)        imp:n=1    $Conc Filled
9009    3    -2.3        (-9009)        imp:n=1    $Conc Filled
9010    3    -2.3        (-9010)        imp:n=1    $Conc Filled
9011    3    -2.3        (-9011)        imp:n=1    $Conc Filled
9012    3    -2.3        (-9012)        imp:n=1    $Conc Filled
9013    3    -2.3        (-9013)        imp:n=1    $Conc Filled
9014    3    -2.3        (-9014)        imp:n=1    $Conc Filled
9015    3    -2.3        (-9015)        imp:n=1    $Conc Filled
9016    3    -2.3        (-9016)        imp:n=1    $Conc Filled
c
c
c
c
c
c    Begin Northeast Section of the Central Section of Basement1
c  ******************Notes for this section of Cells***********************
c
c
c   Basement Room 45
4575    13   -7.93       (-4575)        imp:n=1    $SS-304
4576    13   -7.93       (-4576)        imp:n=1    $SS-304
4577    13   -7.93       (-4577)        imp:n=1    $SS-304
4578    13   -7.93       (-4578)        imp:n=1    $SS-304
4579    13   -7.93       (-4579)        imp:n=1    $SS-304
4580    13   -7.93       (-4580)        imp:n=1    $SS-304
4581    13   -7.93       (-4581)        imp:n=1    $SS-304
4582    13   -7.93       (-4582)        imp:n=1    $SS-304
4583    13   -7.93       (-4583)        imp:n=1    $SS-304
c
c
```

```
c   Basement1 Room 48
4801    3    -2.3        (-4801)        imp:n=1    $Conc Filled
4802    3    -2.3        (-4802)        imp:n=1    $Conc Filled
4803    3    -2.3        (-4803)        imp:n=1    $Conc Filled
4804    3    -2.3        (-4804)        imp:n=1    $Conc Filled
4805    3    -2.3        (-4805)        imp:n=1    $Conc Filled
4806    13   -7.93       (-4806)        imp:n=1    $SS-304
4807    13   -7.93       (-4807)        imp:n=1    $SS-304
c
c
c   Basement Room 57/57W/57E
5701    14   -0.539      (-5701)        imp:n=1    $Cinder Block
5702    14   -0.539      (-5702)        imp:n=1    $Cinder Block
5703    14   -0.539      (-5703)        imp:n=1    $Cinder Block
5704    14   -0.539      (-5704)        imp:n=1    $Cinder Block
5705    14   -0.539      (-5705)        imp:n=1    $Cinder Block
5706    14   -0.539      (-5706)        imp:n=1    $Cinder Block
5707    14   -0.539      (-5707)        imp:n=1    $Cinder Block
5708    14   -0.539      (-5708)        imp:n=1    $Cinder Block
5709    14   -0.539      (-5709)        imp:n=1    $Cinder Block
5710    14   -0.539      (-5710)        imp:n=1    $Cinder Block
c
c
c    Basement Room 58
5801    14   -0.539      (-5801)        imp:n=1    $Cinder Block
5802    13   -7.93       (-5802)        imp:n=1    $SS-304
5803    14   -0.539      (-5803)        imp:n=1    $Cinder Block
5804    14   -0.539      (-5804)        imp:n=1    $Cinder Block
5805    14   -0.539      (-5805)        imp:n=1    $Cinder Block
5806    14   -0.539      (-5806)        imp:n=1    $Cinder Block
5807    13   -7.93       (-5807)        imp:n=1    $SS-304
5808    13   -7.93       (-5808)        imp:n=1    $SS-304
c
c
c   Basement Room 54
5401    13   -7.93       (-5401)        imp:n=1    $SS-304
5402    13   -7.93       (-5402)        imp:n=1    $SS-304
5403    14   -0.539      (-5403)        imp:n=1    $Cinder Block
5404    14   -0.539      (-5404)        imp:n=1    $Cinder Block
5405    14   -0.539      (-5405)        imp:n=1    $Cinder Block
5406    14   -0.539      (-5406)        imp:n=1    $Cinder Block
5407    3    -2.3        (-5407)        imp:n=1    $Conc Filled
c
c
c   Basement Room 52
5201    14   -0.539      (-5201)        imp:n=1    $Cinder Block
5202    14   -0.539      (-5202)        imp:n=1    $Cinder Block
5203    14   -0.539      (-5203)        imp:n=1    $Cinder Block
5204    14   -0.539      (-5204)        imp:n=1    $Cinder Block
5205    14   -0.539      (-5205)        imp:n=1    $Cinder Block
5206    13   -7.93       (-5206)        imp:n=1    $SS-304
c
c
c
c
c
c
c   Begin West Section of Basement1
c   ***********Notes for this section of Cells*********************
c
c
c  Basement1 Room 23B
2310    3    -2.3        (-2310)        imp:n=1    $Conc Filled
2311    3    -2.3        (-2311)        imp:n=1    $Conc Filled
2312    13   -7.93       (-2312)        imp:n=1    $SS-304
2313    13   -7.93       (-2313)        imp:n=1    $SS-304
2314    13   -7.93       (-2314)        imp:n=1    $SS-304
2315    3    -2.3        (-2315)        imp:n=1    $Conc Filled
2316    3    -2.3        (-2316)        imp:n=1    $Conc Filled
2317    3    -2.3        (-2317)        imp:n=1    $Conc Filled
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2318    13   -7.93       (-2318)        imp:n=1    $SS-304
2319    13   -7.93       (-2319)        imp:n=1    $SS-304
2320    13   -7.93       (-2320)        imp:n=1    $SS-304
c
c
c Basement1 Room 45
4501    3    -2.3       (-4501)       imp:n=1    $Conc Filled
4502    3    -2.3       (-4502)       imp:n=1    $Conc Filled
4503    3    -2.3       (-4503)       imp:n=1    $Conc Filled
4504    3    -2.3       (-4504)       imp:n=1    $Conc Filled
4505    3    -2.3       (-4505)       imp:n=1    $Conc Filled
4506    3    -2.3       (-4506)       imp:n=1    $Conc Filled
4507    3    -2.3       (-4507)       imp:n=1    $Conc Filled
4508    3    -2.3       (-4508)       imp:n=1    $Conc Filled
4509    3    -2.3       (-4509)       imp:n=1    $Conc Filled
c
c
c Basement Room 32
3201    13   -7.93       (-3201)        imp:n=1    $SS-304
3202    13   -7.93       (-3202)        imp:n=1    $SS-304
3203    13   -7.93       (-3203)        imp:n=1    $SS-304
3204    3    -2.3       (-3204)       imp:n=1    $Conc Filled
3205    3    -2.3       (-3205)       imp:n=1    $Conc Filled
3206    3    -2.3       (-3206)       imp:n=1    $Conc Filled
3207    3    -2.3       (-3207)       imp:n=1    $Conc Filled
3208    3    -2.3       (-3208)       imp:n=1    $Conc Filled
3209    3    -2.3       (-3209)       imp:n=1    $Conc Filled
3210    3    -2.3       (-3210)       imp:n=1    $Conc Filled
3211    3    -2.3       (-3211)       imp:n=1    $Conc Filled
3212    3    -2.3       (-3212)       imp:n=1    $Conc Filled
3213    13   -7.93       (-3213)        imp:n=1    $SS-304
3214    3    -2.3       (-3214)       imp:n=1    $Conc Filled
3215    3    -2.3       (-3215)       imp:n=1    $Conc Filled
3216    3    -2.3       (-3216)       imp:n=1    $Conc Filled
3217    3    -2.3       (-3217)       imp:n=1    $Conc Filled
c
c
c
c
c
c    Begin South West Section of the Central Section of Basement1
c    *****************Notes for this section of Cells***************
c
c
c    Basement Room 22
2201    13   -7.93       (-2201)        imp:n=1    $SS-304
2202    13   -7.93       (-2202)        imp:n=1    $SS-304
2203    13   -7.93       (-2203)        imp:n=1    $SS-304
2204    3    -2.3       (-2204)       imp:n=1    $Conc Filled
2205    13   -7.93       (-2205)        imp:n=1    $SS-304
2206    13   -7.93       (-2206)        imp:n=1    $SS-304
2207    3    -2.3       (-2207)       imp:n=1    $Conc Filled
2208    13   -7.93       (-2208)        imp:n=1    $SS-304
2209    3    -2.3       (-2209)       imp:n=1    $Conc Filled
2210    3    -2.3       (-2210)       imp:n=1    $Conc Filled
2211    3    -2.3       (-2211)       imp:n=1    $Conc Filled
2212    13   -7.93       (-2212)        imp:n=1    $SS-304
2213    3    -2.3       (-2213)       imp:n=1    $Conc Filled
2214    13   -7.93       (-2214)        imp:n=1    $SS-304
2215    3    -2.3       (-2215)       imp:n=1    $Conc Filled
2216    3    -2.3       (-2216)       imp:n=1    $Conc Filled
2217    3    -2.3       (-2217)       imp:n=1    $Conc Filled
c 2218    3    -2.3       (-2218)       imp:n=1    $Conc Filled
2219    3    -2.3       (-2219)       imp:n=1    $Conc Filled
2220    3    -2.3       (-2220)       imp:n=1    $Conc Filled
2221    3    -2.3       (-2221)       imp:n=1    $Conc Filled
c
c
c   New Hot Cells
2230    13   -7.93       (-2230)        imp:n=1    $SW Mod Cell-1 Rm22
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2231    13   -7.93       (-2231)        imp:n=1    $W  Mod Cell-1 Rm22A
2232    13   -7.93       (-2232)        imp:n=1    $S  Big Cell-3 Rm30A
2233    13   -7.93       (-2233)        imp:n=1    $N  Metalographycell-2 Rm31A
2234    13   -7.93       (-2234)        imp:n=1    $SE Mod Cell-1 Rm31
2235    13   -7.93       (-2235)        imp:n=1    $NE Mod Cell-1 Rm33
c
c
c
c   Basement1 Room 23a
2301    3    -2.3        (-2301)        imp:n=1    $Conc Filled
2302    3    -2.3        (-2302)        imp:n=1    $Conc Filled
2303    3    -2.3        (-2303)        imp:n=1    $Conc Filled
2304    3    -2.3        (-2304)        imp:n=1    $Conc Filled
2305    13   -7.93       (-2305)        imp:n=1    $SS-304
c
c
c  Basement1 Room 30a
3001    3    -2.3        (-3001)        imp:n=1    $Conc Filled
3002    3    -2.3        (-3002)        imp:n=1    $Conc Filled
3003    3    -2.3        (-3003)        imp:n=1    $Conc Filled
3004    3    -2.3        (-3004)        imp:n=1    $Conc Filled
3005    13   -7.93       (-3005)        imp:n=1    $SS-304
3006    13   -7.93       (-3006)        imp:n=1    $SS-304
c
c
c  Basement1 Room 31 and Room 31A
c 3101    3    -2.3        (-3101)        imp:n=1    $Conc Filled
3102    3    -2.3        (-3102)        imp:n=1    $Conc Filled
3103    3    -2.3        (-3103)        imp:n=1    $Conc Filled
3104    3    -2.3        (-3104)        imp:n=1    $Conc Filled
c 3105    3    -2.3        (-3105)        imp:n=1    $Conc Filled
3106    3    -2.3        (-3106)        imp:n=1    $Conc Filled
3107    3    -2.3        (-3107)        imp:n=1    $Conc Filled
3108    13   -7.93       (-3108)        imp:n=1    $SS-304
c
c
c  Basement1 Room 33
3301    3    -2.3        (-3301)        imp:n=1    $Conc Filled
3302    13   -7.93       (-3302)        imp:n=1    $SS-304
3303    3    -2.3        (-3303)        imp:n=1    $Conc Filled
3304    3    -2.3        (-3304)        imp:n=1    $Conc Filled
3305    3    -2.3        (-3305)        imp:n=1    $Conc Filled
c
c
c  Basement1 Room 45
4584    13   -7.93       (-4584)        imp:n=1    $SS-304
4585    13   -7.93       (-4585)        imp:n=1    $SS-304
4586    13   -7.93       (-4586)        imp:n=1    $SS-304
4587    13   -7.93       (-4587)        imp:n=1    $SS-304
4588    13   -7.93       (-4588)        imp:n=1    $SS-304
4589    13   -7.93       (-4589)        imp:n=1    $SS-304
4590    13   -7.93       (-4590)        imp:n=1    $SS-304
4591    13   -7.93       (-4591)        imp:n=1    $SS-304
4592    13   -7.93       (-4592)        imp:n=1    $SS-304
4593    13   -7.93       (-4593)        imp:n=1    $SS-304
c
c
c
c
c
c  Begin South East Section of the Central Section of Basement1
c   ************Notes for this section of Cells*****************************
c
c
c   Basement1 Room 45
c   This room contains mainly columns. The SE corner has a wall that does
c  not appear in the other sections so I will include it in this section to be safe.
c  Surface numbers are continued from the SW section which also contains Room 45.
4511    13   -7.93       (-4511)        imp:n=1    $SS-304
4512    13   -7.93       (-4512)        imp:n=1    $SS-304
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4513    13   -7.93       (-4513)        imp:n=1    $SS-304
4514    13   -7.93       (-4514)        imp:n=1    $SS-304
4515    13   -7.93       (-4515)        imp:n=1    $SS-304
4516    13   -7.93       (-4516)        imp:n=1    $SS-304
4517    13   -7.93       (-4517)        imp:n=1    $SS-304
4518    13   -7.93       (-4518)        imp:n=1    $SS-304
4519    13   -7.93       (-4519)        imp:n=1    $SS-304
4520    13   -7.93       (-4520)        imp:n=1    $SS-304
4521    13   -7.93       (-4521)        imp:n=1    $SS-304
4522    13   -7.93       (-4522)        imp:n=1    $SS-304
4523    13   -7.93       (-4523)        imp:n=1    $SS-304
4524    13   -7.93       (-4524)        imp:n=1    $SS-304
4525    13   -7.93       (-4525)        imp:n=1    $SS-304
4526    13   -7.93       (-4526)        imp:n=1    $SS-304
4527    13   -7.93       (-4527)        imp:n=1    $SS-304
4528    13   -7.93       (-4528)        imp:n=1    $SS-304
4529    3    -2.3        (-4529)        imp:n=1    $Conc Filled
4530    3    -2.3        (-4530)        imp:n=1    $Conc Filled
4531    3    -2.3        (-4531)        imp:n=1    $Conc Filled
4532    3    -2.3        (-4532)        imp:n=1    $Conc Filled
4533    3    -2.3        (-4533)        imp:n=1    $Conc Filled
4534    3    -2.3        (-4534)        imp:n=1    $Conc Filled
c 4535    3    -2.3        (-4535)        imp:n=1    $Conc Filled
c
c
c    Basement Room 34
3401    3    -2.3        (-3401)        imp:n=1    $Conc Filled
3402    13   -7.93       (-3402)        imp:n=1    $SS-304
3403    3    -2.3        (-3403)        imp:n=1    $Conc Filled
3404    3    -2.3        (-3404)        imp:n=1    $Conc Filled
3405    3    -2.3        (-3405)        imp:n=1    $Conc Filled
3406    3    -2.3        (-3406)        imp:n=1    $Conc Filled
3407    3    -2.3        (-3407)        imp:n=1    $Conc Filled
c
c
c
c  Basement Room 35
3501     3    -2.3        (-3501)        imp:n=1    $Conc Filled
3502     3    -2.3        (-3502)        imp:n=1    $Conc Filled
3503     3    -2.3        (-3503)        imp:n=1    $Conc Filled
3504     3    -2.3        (-3504)        imp:n=1    $Conc Filled
3505     13   -7.93       (-3505)        imp:n=1    $SS-304
3506     3    -2.3        (-3506)        imp:n=1    $Conc Filled
3507     3    -2.3        (-3507)        imp:n=1    $Conc Filled
c
c
c   Basement Room 36
3601     3    -2.3        (-3601)        imp:n=1    $Conc Filled
3602     13   -7.93       (-3602)        imp:n=1    $SS-304
c
c
c   Basement Room 46
4601     3    -2.3        (-4601)        imp:n=1    $Conc Filled
4602     3    -2.3        (-4602)        imp:n=1    $Conc Filled
4603     3    -2.3        (-4603)        imp:n=1    $Conc Filled
4604     3    -2.3        (-4604)        imp:n=1    $Conc Filled
c
c
c
c  Modular Shielded Storage Container E of Tank Vault
4610     13   -7.93       (-4610 4611)    imp:n=1    $SS-304
4611     1   -0.001202    (-4611)         imp:n=1    $Air
c
c
c  Modular Shielded Storage Container W of Tank Vault
4612     13   -7.93       (-4612 4613)    imp:n=1    $SS-304
4613     1   -0.001202    (-4613)         imp:n=1    $Air
c
c
c   Basement Room 43a 43 44
```

```
4301   3   -2.3     (-4301)     imp:n=1   $Conc Filled
4302   3   -2.3     (-4302)     imp:n=1   $Conc Filled
4303   3   -2.3     (-4303)     imp:n=1   $Conc Filled
4304   3   -2.3     (-4304)     imp:n=1   $Conc Filled
4305   3   -2.3     (-4305)     imp:n=1   $Conc Filled
4306   3   -2.3     (-4306)     imp:n=1   $Conc Filled
4307   3   -2.3     (-4307)     imp:n=1   $Conc Filled
4308   13  -7.93     (-4308)     imp:n=1   $SS-304
4309   3   -2.3     (-4309)     imp:n=1   $Conc Filled
4310   3   -2.3     (-4310)     imp:n=1   $Conc Filled
4311   3   -2.3     (-4311)     imp:n=1   $Conc Filled
4312   3   -2.3     (-4312)     imp:n=1   $Conc Filled
c
c
c
c
c
c  Begin East Section of Basement1
c   ************Notes for this section of Cells*****************
c West Main structural wall was left out from this section to be
c included in a later model of the central basement area
4001   3   -2.3     (-4001)     imp:n=1   $Conc Filled
4002   3   -2.3     (-4002)     imp:n=1   $Conc Filled
4003   3   -2.3     (-4003)     imp:n=1   $Conc Filled
4004   3   -2.3     (-4004)     imp:n=1   $Conc Filled
4005   3   -2.3     (-4005)     imp:n=1   $Conc Filled
4006   3   -2.3     (-4006)     imp:n=1   $Conc Filled
4007   3   -2.3     (-4007)     imp:n=1   $Conc Filled
4008   13  -7.93     (-4008)     imp:n=1   $SS-304
4009   13  -7.93     (-4009)     imp:n=1   $SS-304
4010   3   -2.3     (-4010)     imp:n=1   $Conc Filled
4011   3   -2.3     (-4011)     imp:n=1   $Conc Filled
4012   3   -2.3     (-4012)     imp:n=1   $Conc Filled
4013   3   -2.3     (-4013)     imp:n=1   $Conc Filled
4014   3   -2.3     (-4014)     imp:n=1   $Conc Filled
4015   13  -7.93     (-4015)     imp:n=1   $SS-304
4016   13  -7.93     (-4016)     imp:n=1   $SS-304
4017   3   -2.3     (-4017)     imp:n=1   $Conc Filled
4018   3   -2.3     (-4018)     imp:n=1   $Conc Filled
4019   3   -2.3     (-4019)     imp:n=1   $Conc Filled
4020   3   -2.3     (-4020)     imp:n=1   $Conc Filled
4021   13  -7.93     (-4021)     imp:n=1   $SS-304
4022   3   -2.3     (-4022)     imp:n=1   $Conc Filled
4023   3   -2.3     (-4023)     imp:n=1   $Conc Filled
4024   3   -2.3     (-4024)     imp:n=1   $Conc Filled
4025   3   -2.3     (-4025)     imp:n=1   $Conc Filled
4026   3   -2.3     (-4026)     imp:n=1   $Conc Filled
4027   3   -2.3     (-4027)     imp:n=1   $Conc Filled
4028   3   -2.3     (-4028)     imp:n=1   $Conc Filled
4029   3   -2.3     (-4029)     imp:n=1   $Conc Filled
4030   3   -2.3     (-4030)     imp:n=1   $Conc Filled
4031   3   -2.3     (-4031)     imp:n=1   $Conc Filled
4032   3   -2.3     (-4032)     imp:n=1   $Conc Filled
4033   3   -2.3     (-4033)     imp:n=1   $Conc Filled
4034   3   -2.3     (-4034)     imp:n=1   $Conc Filled
4035   3   -2.3     (-4035)     imp:n=1   $Conc Filled
4036   3   -2.3     (-4036)     imp:n=1   $Conc Filled
4037   3   -2.3     (-4037)     imp:n=1   $Conc Filled
c
c
c  Basement1 Room 40/40A
4038   3   -2.3     (-4038)     imp:n=1   $Conc Filled
4039   3   -2.3     (-4039)     imp:n=1   $Conc Filled
4040   3   -2.3     (-4040)     imp:n=1   $Conc Filled
4041   3   -2.3     (-4041)     imp:n=1   $Conc Filled
4042   3   -2.3     (-4042)     imp:n=1   $Conc Filled
4043   3   -2.3     (-4043)     imp:n=1   $Conc Filled
c
c
c  Basement Room  50/50A
```

```
5001    3    -2.3         (-5001)         imp:n=1    $Conc Filled
5002    3    -2.3         (-5002)         imp:n=1    $Conc Filled
5003    3    -2.3         (-5003)         imp:n=1    $Conc Filled
5004    13   -7.93        (-5004)         imp:n=1    $SS-304
5005    13   -7.93        (-5005)         imp:n=1    $SS-304
5006    13   -7.93        (-5006)         imp:n=1    $SS-304
5007    3    -2.3         (-5007)         imp:n=1    $Conc Filled
5008    13   -7.93        (-5008)         imp:n=1    $SS-304
5009    13   -7.93        (-5009)         imp:n=1    $SS-304
5010    13   -7.93        (-5010)         imp:n=1    $SS-304
5011    13   -7.93        (-5011)         imp:n=1    $SS-304
5012    13   -7.93        (-5012)         imp:n=1    $SS-304
5013    13   -7.93        (-5013)         imp:n=1    $SS-304
5014    3    -2.3         (-5014)         imp:n=1    $Conc Filled
5015    3    -2.3         (-5015)         imp:n=1    $Conc Filled
5016    3    -2.3         (-5016)         imp:n=1    $Conc Filled
5017    3    -2.3         (-5017)         imp:n=1    $Conc Filled
5018    3    -2.3         (-5018)         imp:n=1    $Conc Filled
c
c
c
c
c
c   Begin South Section of Basement1
c   ***********Notes for this section of Cells**********************
c
c
c  Base1 Rm 7
701    5    0.00359833    (-701)       imp:n=1    $Metal wl
702    5    0.00359833    (-702)       imp:n=1    $Metal wl
703    5    0.00359833    (-703)       imp:n=1    $Metal wl
704    5    0.00359833    (-704)       imp:n=1    $Metal wl
705    5    0.00359833    (-705)       imp:n=1    $Metal wl
706    5    0.00359833    (-706)       imp:n=1    $Metal wl
707    5    0.00359833    (-707)       imp:n=1    $Metal wl
708    3   -2.3           (-708)       imp:n=1    $Conc Filled
709    3   -2.3           (-709)       imp:n=1    $Conc Filled
710    3   -2.3           (-710)       imp:n=1    $Conc Filled
711    3   -2.3           (-711)       imp:n=1    $Conc Filled
712    3   -2.3           (-712)       imp:n=1    $Conc Filled
713    3   -2.3           (-713)       imp:n=1    $Conc Filled
714    3   -2.3           (-714)       imp:n=1    $Conc Filled
715    3   -2.3           (-715)       imp:n=1    $Conc Filled
716    3   -2.3           (-716)       imp:n=1    $Conc Filled
717    3   -2.3           (-717)       imp:n=1    $Conc Filled
718    3   -2.3           (-718)       imp:n=1    $Conc Filled
719    3   -2.3           (-719)       imp:n=1    $Conc Filled
720    3   -2.3           (-720)       imp:n=1    $Conc Filled
721    3   -2.3           (-721)       imp:n=1    $Conc Filled
722    3   -2.3           (-722)       imp:n=1    $Conc Filled
723    3   -2.3           (-723)       imp:n=1    $Conc Filled
724    3   -2.3           (-724)       imp:n=1    $Conc Filled
c
c
c   Base1 Rm 9
901   13   -7.93          (-901)       imp:n=1    $SS-304
902   5    0.00359833     (-902)       imp:n=1    $Metal wl
903   5    0.00359833     (-903)       imp:n=1    $Metal wl
c
c
c   Base1 Rm 11
1101   5    0.00359833    (-1101)      imp:n=1    $Metal wl
1102   5    0.00359833    (-1102)      imp:n=1    $Metal wl
c
c
c   Base1 Room 13
1301   5    0.00359833    (-1301)      imp:n=1    $Metal wl
1302   13 -7.93           (-1302)      imp:n=1    $SS-304
1303   5    0.00359833    (-1303)      imp:n=1    $Metal wl
c
```

```
c
c   Base1 Room 15
1501   5    0.00359833    (-1501)       imp:n=1    $Metal wl
1502   5    0.00359833    (-1502)       imp:n=1    $Metal wl
c
c
c   Base1 Room 17
1701   5    0.00359833    (-1701)       imp:n=1    $Metal wl
1702   5    0.00359833    (-1702)       imp:n=1    $Metal wl
1703   5    0.00359833    (-1703)       imp:n=1    $Metal wl
c
c
c   Base1 Room 16
1601   5    0.00359833    (-1601)       imp:n=1    $Metal wl
1602   5    0.00359833    (-1602)       imp:n=1    $Metal wl
1603   5    0.00359833    (-1603)       imp:n=1    $Metal wl
1604   5    0.00359833    (-1604)       imp:n=1    $Metal wl
1605   5    0.00359833    (-1605)       imp:n=1    $Metal wl
c
c
c   Base1 Room 18
1801   5    0.00359833    (-1801)       imp:n=1    $Metal wl
1802   5    0.00359833    (-1802)       imp:n=1    $Metal wl
c
c
c   Base1 Room 20
2001   5    0.00359833    (-2001)       imp:n=1    $Metal wl
2002   5    0.00359833    (-2002)       imp:n=1    $Metal wl
2003   5    0.00359833    (-2003)       imp:n=1    $Metal wl
c
c
c   Base1 Room
2004   5    0.00359833    (-2004)       imp:n=1    $Metal wl
2005   5    0.00359833    (-2005)       imp:n=1    $Metal wl
2006   5    0.00359833    (-2006)       imp:n=1    $Metal wl
2007   5    0.00359833    (-2007)       imp:n=1    $Metal wl
2008   5    0.00359833    (-2008)       imp:n=1    $Metal wl
2009   5    0.00359833    (-2009)       imp:n=1    $Metal wl
c
c
c   Base1 Room 26
2601   5    0.00359833    (-2601)       imp:n=1    $Metal wl
2602   5    0.00359833    (-2602)       imp:n=1    $Metal wl
c
c
c   Base1 Room 28
2801   5    0.00359833    (-2801)       imp:n=1    $Metal wl
2802   5    0.00359833    (-2802)       imp:n=1    $Metal wl
2803   5    0.00359833    (-2803)       imp:n=1    $Metal wl
c
c
c   Base1 Room 70
7001   5    0.00359833    (-7001)       imp:n=1    $Metal wl
7002   5    0.00359833    (-7002)       imp:n=1    $Metal wl
7003   13   -7.93         (-7003)       imp:n=1    $SS-304
7004   5    0.00359833    (-7004)       imp:n=1    $Metal wl
c
c
c   Base1 Room 72
7201   5    0.00359833    (-7201)       imp:n=1    $Metal wl
7202   5    0.00359833    (-7202)       imp:n=1    $Metal wl
c
c
c  Base1 Room
7401   5    0.00359833    (-7401)       imp:n=1    $Metal wl
7402   5    0.00359833    (-7402)       imp:n=1    $Metal wl
7403   13   -7.93         (-7403)       imp:n=1    $SS-304
c
c
c   Base1 Room
```

```
7601   5    0.00359833    (-7601)       imp:n=1    $Metal wl
7602   5    0.00359833    (-7602)       imp:n=1    $Metal wl
c
c
c   Base1 Room
7801   5    0.00359833    (-7801)       imp:n=1    $Metal wl
7802   5    0.00359833    (-7802)       imp:n=1    $Metal wl
7803   5    0.00359833    (-7803)       imp:n=1    $Metal wl
c
c
c  Base1 Room 14
1401   5    0.00359833    (-1401)       imp:n=1    $Metal wl
1402   5    0.00359833    (-1402)       imp:n=1    $Metal wl
1403   5    0.00359833    (-1403)       imp:n=1    $Metal wl
1404   5    0.00359833    (-1404)       imp:n=1    $Metal wl
1405   5    0.00359833    (-1405)       imp:n=1    $Metal wl
1406   5    0.00359833    (-1406)       imp:n=1    $Metal wl
c
c
c   Base1 Room 12
1201   5    0.00359833    (-1201)       imp:n=1    $Metal wl
1202   5    0.00359833    (-1202)       imp:n=1    $Metal wl
1203   13   -7.93         (-1203)       imp:n=1    $SS-304
1204   5    0.00359833    (-1204)       imp:n=1    $Metal wl
c
c
c   Base1 Room 10
1001    5    0.00359833   (-1001)       imp:n=1    $Metal wl
1002    5    0.00359833   (-1002)       imp:n=1    $Metal wl
1003    5    0.00359833   (-1003)       imp:n=1    $Metal wl
1004    5    0.00359833   (-1004)       imp:n=1    $Metal wl
c
c
c   Base1 Room 27
2701    5    0.00359833   (-2701)       imp:n=1    $Metal wl
2702    5    0.00359833   (-2702)       imp:n=1    $Metal wl
c
c
c  Base1 Room 25
2501    5    0.00359833   (-2501)       imp:n=1    $Metal wl
2502    5    0.00359833   (-2502)       imp:n=1    $Metal wl
2503    5    0.00359833   (-2503)       imp:n=1    $Metal wl
2504    5    0.00359833   (-2504)       imp:n=1    $Metal wl
c
c
c    Base1 Room 8
801    5    0.00359833    (-801)        imp:n=1    $Metal wl
802    5    0.00359833    (-802)        imp:n=1    $Metal wl
803    5    0.00359833    (-803)        imp:n=1    $Metal wl
804    5    0.00359833    (-804)        imp:n=1    $Metal wl
805    5    0.00359833    (-805)        imp:n=1    $Metal wl
806    5    0.00359833    (-806)        imp:n=1    $Metal wl
c
c
c    Base1 Room 5
501    5    0.00359833    (-501)        imp:n=1    $Metal wl
502    5    0.00359833    (-502)        imp:n=1    $Metal wl
503    5    0.00359833    (-503)        imp:n=1    $Metal wl
504    13   -7.93         (-504)        imp:n=1    $SS-304
505    5    0.00359833    (-505)        imp:n=1    $Metal wl
506    13   -7.93         (-506)        imp:n=1    $SS-304
507    5    0.00359833    (-507)        imp:n=1    $Metal wl
508    5    0.00359833    (-508)        imp:n=1    $Metal wl
509    5    0.00359833    (-509)        imp:n=1    $Metal wl
510    5    0.00359833    (-510)        imp:n=1    $Metal wl
511    5    0.00359833    (-511)        imp:n=1    $Metal wl
512    5    0.00359833    (-512)        imp:n=1    $Metal wl
513    5    0.00359833    (-513)        imp:n=1    $Metal wl
514    5    0.00359833    (-514)        imp:n=1    $Metal wl
515    5    0.00359833    (-515)        imp:n=1    $Metal wl
```

```
516    13   -7.93        (-516)        imp:n=1    $SS-304
517    13   -7.93        (-517)        imp:n=1    $SS-304
c
c
c
c
c
c
c ///////////////Begin Roomspace Fill Section of Basement1\\\\\\\\\\\\\\\\\\\\\\\\
c This section contains all of the cells that define the interior of each Numbered Room
c These cells were all grouped together following the same regional layout in the floor -starting
c from the northwest section moving accross the floor to the east and then returning to the west.
c
c
c   TAG=TAGb1roomfill
c
c
c  Northwest, North-center, and Northeast Room Fill Sections
5514    8    -0.10907      (-5514)                  imp:n=1    $Roomspace  55 Partially Filled
5515    8    -0.10907      (-5515)                  imp:n=1    $Roomspace  55A
5516    8    -0.10907      (-5516)                  imp:n=1    $Roomspace  55B
5605    1    -0.001202     (-5605)                  imp:n=1    $Roomspace  56
9109    8    -0.10907      (-9109)                  imp:n=1    $Roomspace  91 Partially Filled
9319    8    -0.10907      (-9319)                  imp:n=1    $Roomspace  93 Partially Filled
9414    8    -0.10907      (-9414)                  imp:n=1    $Roomspace  94 Partially Filled
9415    1    -0.001202     (-9415)                  imp:n=1    $Roomspace  94B
9505    8    -0.10907      (-9505 9404)             imp:n=1    $Roomspace  95
9608    8    -0.10907      (-9608 9603)             imp:n=1    $Roomspace  96
9609    8    -0.10907      (-9609 9603)             imp:n=1    $Roomspace  96A
9708    8    -0.10907      (-9708 9707)             imp:n=1    $Roomspace  97
9709    8    -0.10907      (-9709)                  imp:n=1    $Roomspace  97A
9802    1    -0.001202     (-9802)                  imp:n=1    $Roomspace  98
9017    6    -0.04855      (-9017)              imp:n=1    $Roomspace  90
4808    8    -0.10907      (-4808 4807 4806)        imp:n=1    $Roomspace  48
5711    8    -0.10907      (-5711)                  imp:n=1    $Roomspace  57W
5712    8    -0.10907      (-5712)                  imp:n=1    $Roomspace  57
5713    8    -0.10907      (-5713)                  imp:n=1    $Roomspace  57E
5809    8    -0.10907      (-5809 5808)             imp:n=1    $Roomspace  58
5408    8    -0.10907      (-5408 5401 5402)        imp:n=1    $Roomspace  54
5207    8    -0.10907      (-5207 5206)             imp:n=1    $Roomspace  52
c
c
c West, Southwest, Southeast, and East Room Fill Sections
c  2230 2231 2232 2233 2234 2235 Add these
c
2321    8    -0.10907      (-2321 2312 2313 2314)    imp:n=1    $Roomspace  23B
2322    8    -0.10907      (-2322 2318 2319 2320)    imp:n=1    $Roomspace  23
2222    1    -0.001202     (-2222 2214 2212 2231)        imp:n=1    $Roomspace  22A Partially Filled
2306    8    -0.10907      (-2306 2305)             imp:n=1    $Roomspace  23A
3007    8    -0.10907      (-3007 3006 2232)             imp:n=1    $Roomspace  30A
3109    7    -0.05514      (-3109 2233)                  imp:n=1    $Roomspace  31A
3110    7    -0.05514      (-3110 3108 2234)             imp:n=1    $Roomspace  31 Partially Filled
3306    7    -0.05514      (-3306 3108 3302 2235)        imp:n=1    $Roomspace  33
3408    1    -0.001202     (-3408 3402)             imp:n=1    $Roomspace  34
3508    7    -0.05514      (-3508 3505)             imp:n=1    $Roomspace  35
3603    1    -0.001202     (-3603 3505)             imp:n=1    $Roomspace  36
4605    3    -2.3          (-4605)                  imp:n=1    $Roomspace  46
4313    8    -0.10907      (-4313)                  imp:n=1    $Roomspace  43
4314    8    -0.10907      (-4314)                  imp:n=1    $Roomspace  43A
4315    1    -0.001202     (-4315)                  imp:n=1    $Roomspace  44
4045    1    -0.001202     (-4045 4009 4008)        imp:n=1    $Roomspace TBF 40C
4046    1    -0.001202     (-4046 4032)             imp:n=1    $Roomspace TBF 40A
4044    1    -0.001202     (-4044 4041 4040)        imp:n=1    $Roomspace TBF 40B
5019    1    -0.001202     (-5019 5006 5008 5009
                           5010 5011 5012 5013 )   imp:n=1    $Roomspace TBF 50
5020    1    -0.001202     (-5020 5018 5016 5014
                           5007)                   imp:n=1    $Roomspace TBF 50A
c
c
c Southernmost Fill Sections
```

```
725    6   -0.04855     (-725 )              imp:n=1    $Roomspace  7
904    6   -0.04855     (-904 901)           imp:n=1    $Roomspace  9
1103   6   -0.04855     (-1103 901)          imp:n=1    $Roomspace  11
1304   6   -0.04855     (-1304 1302)         imp:n=1    $Roomspace  13
1503   6   -0.04855     (-1503 1302)         imp:n=1    $Roomspace  15
1704   6   -0.04855     (-1704)              imp:n=1    $Roomspace  17
1606   6   -0.04855     (-1606)              imp:n=1    $Roomspace  16
1803   6   -0.04855     (-1803)              imp:n=1    $Roomspace  18
2010   6   -0.04855     (-2010 2002)         imp:n=1    $Roomspace  20
2011   6   -0.04855     (-2011)              imp:n=1    $Roomspace  Lunch Room
2603   6   -0.04855     (-2603)              imp:n=1    $Roomspace  26
2804   1   -0.001202    (-2804)              imp:n=1    $Roomspace  28 Partially Filled
7005   6   -0.04855     (-7005 7003)         imp:n=1    $Roomspace  70
7203   6   -0.04855     (-7203 7003)         imp:n=1    $Roomspace  72
7404   6   -0.04855     (-7404 7403)         imp:n=1    $Roomspace  74
7603   6   -0.04855     (-7603 7403)         imp:n=1    $Roomspace  76
7804   6   -0.04855     (-7804)              imp:n=1    $Roomspace  78
1407   6   -0.04855     (-1407)              imp:n=1    $Roomspace  14
1205   6   -0.04855     (-1205 1203)         imp:n=1    $Roomspace  12
1005   6   -0.04855     (-1005 1203)         imp:n=1    $Roomspace  10
2703   6   -0.04855     (-2703)              imp:n=1    $Roomspace  27
2505   6   -0.04855     (-2505)              imp:n=1    $Roomspace  25 Partially Filled
807    1   -0.001202    (-807 )              imp:n=1    $Roomspace  8 Partially Filled
518    6   -0.04855     (-518 506 504 516 517)   imp:n=1    $Roomspace  5
c
c
c
c
c  Cell that contains the entire basement and first floors
999 0      999                 imp:n=0
c
c
c
c  Void surrounding basement and first floors
990 0    (-999 990 991 992)        imp:n=1    $Void
c
c
c    Cell that combines all of Basement1 subsections
400 0          (-990 401 402 9009 9005 #9306 #9008 403  404 405
                4569 406 407 408 409 #5407 410 411 412 413 414
               415 416 417 418 419 420 421 422 423 424 425 426
               427 428 #713 #3216 #3217 430 431 432 433 434
               )  imp:n=1
c
c
c    Begin the NW Central section of Basement1
401 1   -0.001202 (-401 4536 4537 4538 4539 4541 4542 4543 4544 4545
               4546 4547 4548 4549 4550 4551 4552 4553 4554 4555
               4556 4557 4558 5501 5502 5503 5504 5505 5506 5507
               5508 5509 5510 5511 5512 5513 5601 5602 5603 5604
               5514 5515 5516 5605  ) imp:n=1 $Air Filled  $Section Box
c
c
c    Begin North-Center Section of the Central Section of Basement1
402 1   -0.001202 (-402 9001 9002 9003 9004 9006 9007 9008 9010 9011 9012
               9013 9014 9015 9016 9101 9102 9103 9104 9105 9106 9107
               9108 9109 9301 9302 9303 9304 9305 9306 9307 9308 9309
               9310 9311 9312 9313 9314 9315 9316 9317 9318 9319 9017
               ) imp:n=1 $Air Filled  $W Section Box
c
c
403 1   -0.001202 (-403 4560 4561 4562 4563 4564 4565 4566 4567 4568 #4569
               9701 9702 9703 9704 9705 9706 9707 9801 9401 9402 9403
               9404 9405 9406 9407 9408 9409 9410 9411 9412 9413 9501
               9502 9503 9504 9601 9602 9603 9604 9605 9606 9607 9414
               9415 9505 9608 9609 9708 9709 9802 #421
               ) imp:n=1 $Air Filled  $NW Section Box
c
c
c    Begin Northeast Section of the Central Section of Basement1
```

```
404 1   -0.001202 (-404 4575 4576 4577 5701 5702 5703 5704 5705 5706 5707
               5708 5709 5710 5711 5712 5713 5801 5802 5803 5804 5805
               5806 5807 5808 5809 5711 5712 5713 5809 4540 4545
               #3216 #462) imp:n=1 $Air Filled  $SW Section Box
c
c
405 1   -0.001202 (-405 4578 4579 4580 4581 4582 4583 4801 4802 4803 4804
               4805 4806 4807 4808 5401 5402 5403 5404 5405 5406 5408
               5201 5202 5203 5204 5205 5206 5207 5408 5207
               ) imp:n=1 $Air Filled  $E Section Box
c
c
c  Begin West Section of Basement1
406 1   -0.001202 (-406 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319
               2320 4501 4502 4503 4504 4505 4506 4507 4508 4509 3201
               3202 3203 3204 3205 3206 3207 3208 3209 3210 3211 3212
               3213 3214 3215 3217 2321 2322 #425
               ) imp:n=1 $Air Filled  $ Section Box
c
c
c  Begin Southwest Section of the Central Section of Basement1
407 1   -0.001202 (-407 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210
               2211 2212 2213 2214 2215 2216 2217  2219 2220 2221
               2301 2302 2303 2304 2305 3001 3002 3003 3004 3005 3006
                3102 3103 3104  3106 3107 3108 3301 3302 3303
               3304 3305 4584 4585 4586 4587 4588 4589 4590 4591 4592
               4593 2222 2306 3007 3109 3110 3306 #3216  461  2230
               2231 2232 2233 2234 2235  ) imp:n=1  $Air Filled  $ Section Box
c
c 3101 3105 2218
c  Begin Southeast Section of the Central Section of Basement1
408 1   -0.001202 (-408 4511 4512 4513 4514 4515 4516 4517 4518 4519 4520
               4521 4522 4523 4524 4525 4526 4527 4528 4529 4530 4531
               4532 4533 4534 3401 3402 3403 3404 3405 3406 3407
               3501 3502 3503 3504 3505 3506 3507 3601 3602 4601 4602
               4603 4604 4301 4302 4303 4304 4305 4306 4307 4308 4309
               4310 4311 4312 3408 3508 3603 4605 4313 4314 4315 462
               463  4610 4612 ) imp:n=1  $Air Filled $ Section Box
c
c
c  Begin East Section of Basement1
409 1   -0.001202 (-409 4001 4002 4003 4004 4005 4006 4007 4008 4009 4010
               4011 4012 4013 4014 4015 4016 4017 4018 4019 4020 4021
               4022 4023 4024 4025 4026 4027 4028 4029 4030 4031 4032
               4033 4034 4035 4036 4037 4038 4039 4040 4041 4042 4043
               5001 5002 5003 5004 5005 5006 5007 5008 5009 5010 5011
               5012 5013 5014 5015 5016 5017 5018 4045 4046 4044 5019
               5020 #5407 #422) imp:n=1  $Air Filled  $  Section Box
c
c
410 1   -0.001202 (-410 701 702 703 704 705 706 707 708 709 710 711 712
                901 902 903 1101 1102 1301 1302 1303 1501 1502 1701
                1702 1703 725 904 1103 1304 1503 1704 #423
                ) imp:n=1   $W Section Box
c
c
411 1   -0.001202 (-411 1601 1602 1603 1604 1605 1801 1802 2001 2002 2003
               2004 2005 2006 2007 2008 2009 2601 2602 1606 1803 2010
               2011 2603 714 715 716 717 718 719 720 #713 #2804  #423
               ) imp:n=1   $S Section Box
c
c
412 1   -0.001202 (-412 2801 2802 2803 7001 7002 7003 7004 7201 7202
               7401 7402 7403 7601 7602 7801 7802 7803 2804 7005
               7203 7404 7603 7804 #713 721 722 723 724 #423
               ) imp:n=1   $E Section Box
c
413 1   -0.001202 (-413 1001 1002 1003 1004 2701 2702 2501 2502 2503 2504
                801 802 803 804 805 806 501 502 503 504 505 506 507
                508 509 510 511 512 513 514 515 516 517 1401 1402 1403
```

```
          1404 1405 1406 1201 1202 1203 1204 1407 1205 1005 2703
          2505 807 518 ) imp:n=1   $Central Section Box
c
c
c
c
c
c
c
c
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 11111111111111111111111111111111     First Floor     1111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c
c
c
c   Begin Northwest Section of Floor1
c  ***************Notes for this section of Cells*************************
c
c    Floor1 Room 700
70001   5   0.00359833      (-70001)      imp:n=1    $Metal wl
70002   5   0.00359833      (-70002)      imp:n=1    $Metal wl
70003   5   0.00359833      (-70003)      imp:n=1    $Metal wl
70004   5   0.00359833      (-70004)      imp:n=1    $Metal wl
70005   5   0.00359833      (-70005)      imp:n=1    $Metal wl
70006   5   0.00359833      (-70006)      imp:n=1    $Metal wl
70007   5   0.00359833      (-70007)      imp:n=1    $Metal wl
70008   5   0.00359833      (-70008)      imp:n=1    $Metal wl
70009   5   0.00359833      (-70009)      imp:n=1    $Metal wl
70010   5   0.00359833      (-70010)      imp:n=1    $Metal wl
70012   5   0.00359833      (-70012)      imp:n=1    $Metal wl
70013   5   0.00359833      (-70013)      imp:n=1    $Metal wl
70014   5   0.00359833      (-70014)      imp:n=1    $Metal wl
70015   5   0.00359833      (-70015)      imp:n=1    $Metal wl
70016   5   0.00359833      (-70016)      imp:n=1    $Metal wl
70018   15   -0.4751        (-70018)      imp:n=1    $Ext wl Filled
c
c
c    Floor1 Room 701
70101   5   0.00359833      (-70101)      imp:n=1    $Metal wl
70102   5   0.00359833      (-70102)      imp:n=1    $Metal wl
70103   5   0.00359833      (-70103)      imp:n=1    $Metal wl
70104   5   0.00359833      (-70104)      imp:n=1    $Metal wl
70105   5   0.00359833      (-70105)      imp:n=1    $Metal wl
70106   5   0.00359833      (-70106)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 702
70201   5   0.00359833      (-70201)      imp:n=1    $Metal wl
70202   5   0.00359833      (-70202)      imp:n=1    $Metal wl
70203   5   0.00359833      (-70203)      imp:n=1    $Metal wl
70204   5   0.00359833      (-70204)      imp:n=1    $Metal wl
70205   5   0.00359833      (-70205)      imp:n=1    $Metal wl
70206   5   0.00359833      (-70206)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 703/Mens Bathroom/Unlabled Room Next to it
70301   1   -0.001202       (-70301)      imp:n=1    $Air Filled
70302   5   0.00359833      (70301 -70302) imp:n=1    $Metal wl
70303   5   0.00359833      (-70303)      imp:n=1    $Metal wl
70304   5   0.00359833      (-70304)      imp:n=1    $Metal wl
70305   5   0.00359833      (-70305)      imp:n=1    $Metal wl
70306   5   0.00359833      (-70306)      imp:n=1    $Metal wl
70307   5   0.00359833      (-70307)      imp:n=1    $Metal wl
70308   5   0.00359833      (-70308)      imp:n=1    $Metal wl
70309   5   0.00359833      (-70309)      imp:n=1    $Metal wl
```

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70310  5   0.00359833    (-70310)     imp:n=1   $Metal wl
70311  5   0.00359833    (-70311)     imp:n=1   $Metal wl
70312  5   0.00359833    (-70312)     imp:n=1   $Metal wl
70313  5   0.00359833    (-70313)     imp:n=1   $Metal wl
70314  5   0.00359833    (-70314)     imp:n=1   $Metal wl
70315  5   0.00359833    (-70315)     imp:n=1   $Metal wl
c
c
c    Floor1 Room 320/421
32001  5   0.00359833    (-32001)     imp:n=1   $Air Filled
32002  5   0.00359833    (-32002)     imp:n=1   $Metal wl
32003  5   0.00359833    (-32003)     imp:n=1   $Metal wl
32004  5   0.00359833    (-32004)     imp:n=1   $Metal wl
32005  5   0.00359833    (-32005)     imp:n=1   $Metal wl
32006  5   0.00359833    (-32006)     imp:n=1   $Metal wl
32007  5   0.00359833    (-32007)     imp:n=1   $Metal wl
32008  5   0.00359833    (-32008)     imp:n=1   $Metal wl
32009  5   0.00359833    (-32009)     imp:n=1   $Metal wl
32010  5   0.00359833    (-32010)     imp:n=1   $Metal wl
32011  5   0.00359833    (-32011)     imp:n=1   $Metal wl
32012  5   0.00359833    (-32012)     imp:n=1   $Metal wl
32013  5   0.00359833    (-32013)     imp:n=1   $Metal wl
32014  5   0.00359833    (-32014)     imp:n=1   $Metal wl
32015  5   0.00359833    (-32015)     imp:n=1   $Metal wl
32016  5   0.00359833    (-32016)     imp:n=1   $Metal wl
c
c
c    Floor1 Room 324/425
32401  1   -0.001202    (-32401)     imp:n=1   $Air Filled
32402  5   0.00359833    (-32402 32401) imp:n=1   $Metal wl
32403  1   -0.001202    (-32403)     imp:n=1   $Air Filled
32404  5   0.00359833    (-32404 32403) imp:n=1   $Metal wl
32405  5   0.00359833    (-32405)     imp:n=1   $Metal wl
32406  5   0.00359833    (-32406)     imp:n=1   $Metal wl
32407  1   -0.001202    (-32407)     imp:n=1   $Air Filled
32408  5   0.00359833    (-32408 32407) imp:n=1   $Metal wl
32409  5   0.00359833    (-32409)     imp:n=1   $Metal wl
32410  5   0.00359833    (-32410)     imp:n=1   $Metal wl
32411  5   0.00359833    (-32411)     imp:n=1   $Metal wl
32412  5   0.00359833    (-32412)     imp:n=1   $Metal wl
32413  5   0.00359833    (-32413)     imp:n=1   $Metal wl
32414  1   -0.001202    (-32414)     imp:n=1   $Air Filled
32415  5   0.00359833    (-32415 32414) imp:n=1   $Metal wl
32416  5   0.00359833    (-32416)     imp:n=1   $Metal wl
32417  5   0.00359833    (-32417)     imp:n=1   $Metal wl
c
c
c    Floor1 Room 325/Filter Building
32501  5   0.00359833    (-32501)     imp:n=1   $Metal wl
32502  5   0.00359833    (-32502)     imp:n=1   $Metal wl
32503  5   0.00359833    (-32503)     imp:n=1   $Metal wl
32504  5   0.00359833    (-32504)     imp:n=1   $Metal wl
32505  5   0.00359833    (-32505)     imp:n=1   $Metal wl
32506  5   0.00359833    (-32506)     imp:n=1   $Metal wl
32507  5   0.00359833    (-32507)     imp:n=1   $Metal wl
32508  5   0.00359833    (-32508)     imp:n=1   $Metal wl
32509  5   0.00359833    (-32509)     imp:n=1   $Metal wl
32510  5   0.00359833    (-32510)     imp:n=1   $Metal wl
32511  5   0.00359833    (-32511)     imp:n=1   $Metal wl
32512  5   0.00359833    (-32512)     imp:n=1   $Metal wl
32513  5   0.00359833    (-32513)     imp:n=1   $Metal wl
32514  5   0.00359833    (-32514)     imp:n=1   $Metal wl
32515  5   0.00359833    (-32515)     imp:n=1   $Metal wl
32516  5   0.00359833    (-32516)     imp:n=1   $Metal wl
32517  5   0.00359833    (-32517)     imp:n=1   $Metal wl
32518  5   0.00359833    (-32518)     imp:n=1   $Metal wl
32519  5   0.00359833    (-32519)     imp:n=1   $Metal wl
32520  5   0.00359833    (-32520)     imp:n=1   $Metal wl
32521  5   0.00359833    (-32521)     imp:n=1   $Metal wl
32522  5   0.00359833    (-32522)     imp:n=1   $Metal wl
```

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32524   15   -0.4751         (-32524)       imp:n=1    $Ext wl Filled
c
c
c     Floor1 Room 330/427/Elevator
33001   5    0.00359833       (-33001)       imp:n=1    $Metal wl
33002   5    0.00359833       (-33002)       imp:n=1    $Metal wl
33003   5    0.00359833       (-33003)       imp:n=1    $Metal wl
33004   5    0.00359833       (-33004)       imp:n=1    $Metal wl
33005   5    0.00359833       (-33005)       imp:n=1    $Metal wl
33006   5    0.00359833       (-33006)       imp:n=1    $Metal wl
33007   5    0.00359833       (-33007)       imp:n=1    $Metal wl
33008   5    0.00359833       (-33008)       imp:n=1    $Metal wl
33009   5    0.00359833       (-33009)       imp:n=1    $Metal wl
33010   5    0.00359833       (-33010)       imp:n=1    $Metal wl
33011   5    0.00359833       (-33011)       imp:n=1    $Metal wl
33012   5    0.00359833       (-33012)       imp:n=1    $Metal wl
33013   5    0.00359833       (-33013)       imp:n=1    $Metal wl
33014   5    0.00359833       (-33014)       imp:n=1    $Metal wl
33015   5    0.00359833       (-33015)       imp:n=1    $Metal wl
33016   5    0.00359833       (-33016)       imp:n=1    $Metal wl
33017   5    0.00359833       (-33017)       imp:n=1    $Metal wl
33018   5    0.00359833       (-33018)       imp:n=1    $Metal wl
33019   5    0.00359833       (-33019)       imp:n=1    $Metal wl
33020   5    0.00359833       (-33020)       imp:n=1    $Metal wl
33021   5    0.00359833       (-33021)       imp:n=1    $Metal wl
33022   5    0.00359833       (-33022)       imp:n=1    $Metal wl
33023   5    0.00359833       (-33023)       imp:n=1    $Metal wl
33024   5    0.00359833       (-33024)       imp:n=1    $Metal wl
33025   5    0.00359833       (-33025)       imp:n=1    $Metal wl
33026   5    0.00359833       (-33026)       imp:n=1    $Metal wl
33027   5    0.00359833       (-33027)       imp:n=1    $Metal wl
33028   5    0.00359833       (-33028)       imp:n=1    $Metal wl
33031   15   -0.4751         (-33031)       imp:n=1    $Ext wl Filled
33032   15   -0.4751         (-33032)       imp:n=1    $Ext wl Filled
c
c
c     Floor1 Room 327/327A
32701   5    0.00359833       (-32701)       imp:n=1    $Metal wl
32702   5    0.00359833       (-32702)       imp:n=1    $Metal wl
32703   5    0.00359833       (-32703)       imp:n=1    $Metal wl
32704   5    0.00359833       (-32704)       imp:n=1    $Metal wl
32705   5    0.00359833       (-32705)       imp:n=1    $Metal wl
32706   5    0.00359833       (-32706)       imp:n=1    $Metal wl
32707   5    0.00359833       (-32707)       imp:n=1    $Metal wl
32708   5    0.00359833       (-32708)       imp:n=1    $Metal wl
32709   5    0.00359833       (-32709)       imp:n=1    $Metal wl
32710   5    0.00359833       (-32710)       imp:n=1    $Metal wl
32711   5    0.00359833       (-32711)       imp:n=1    $Metal wl
32712   5    0.00359833       (-32712)       imp:n=1    $Metal wl
32713   5    0.00359833       (-32713)       imp:n=1    $Metal wl
32714   5    0.00359833       (-32714)       imp:n=1    $Metal wl
32715   5    0.00359833       (-32715)       imp:n=1    $Metal wl
32718   15   -0.4751         (-32718)       imp:n=1    $Ext wl Filled
c
c
c ///////////////Begin Northeast Section of the central Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
c ******************Notes for this section of Cells*****************************************
c The origin was set as the SW corner of the inside wall of Room 711.
c
c
c     Floor1 Room 711/Womens Rm
c  *********Wall on W of womens rm ignored
71101   5    0.00359833       (-71101)       imp:n=1    $Metal wl
71102   5    0.00359833       (-71102)       imp:n=1    $Metal wl
71103   5    0.00359833       (-71103)       imp:n=1    $Metal wl
71104   5    0.00359833       (-71104)       imp:n=1    $Metal wl
71105   5    0.00359833       (-71105)       imp:n=1    $Metal wl
71106   5    0.00359833       (-71106)       imp:n=1    $Metal wl
71107   5    0.00359833       (-71107)       imp:n=1    $Metal wl
71108   5    0.00359833       (-71108)       imp:n=1    $Metal wl
```

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71109   5    0.00359833      (-71109)      imp:n=1    $Metal wl
71110   5    0.00359833      (-71110)      imp:n=1    $Metal wl
71111   5    0.00359833      (-71111)      imp:n=1    $Metal wl
71112   5    0.00359833      (-71112)      imp:n=1    $Metal wl
71113   5    0.00359833      (-71113)      imp:n=1    $Metal wl
71114   5    0.00359833      (-71114)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 420
42001   5    0.00359833      (-42001)      imp:n=1    $Metal wl
42002   5    0.00359833      (-42002)      imp:n=1    $Metal wl
42003   5    0.00359833      (-42003)      imp:n=1    $Metal wl
42004   5    0.00359833      (-42004)      imp:n=1    $Metal wl
42005   5    0.00359833      (-42005)      imp:n=1    $Metal wl
42006   5    0.00359833      (-42006)      imp:n=1    $Metal wl
42007   5    0.00359833      (-42007)      imp:n=1    $Metal wl
42008   5    0.00359833      (-42008)      imp:n=1    $Metal wl
42009   5    0.00359833      (-42009)      imp:n=1    $Metal wl
42010   5    0.00359833      (-42010)      imp:n=1    $Metal wl
42011   5    0.00359833      (-42011)      imp:n=1    $Metal wl
42012   5    0.00359833      (-42012)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 525/Freezer
52501   5    0.00359833      (-52501)      imp:n=1    $Metal wl
52502   5    0.00359833      (-52502)      imp:n=1    $Metal wl
52503   5    0.00359833      (-52503)      imp:n=1    $Metal wl
52504   5    0.00359833      (-52504)      imp:n=1    $Metal wl
52505   5    0.00359833      (-52505)      imp:n=1    $Metal wl
52506   5    0.00359833      (-52506)      imp:n=1    $Metal wl
52507   5    0.00359833      (-52507)      imp:n=1    $Metal wl
52508   5    0.00359833      (-52508)      imp:n=1    $Metal wl
52509   5    0.00359833      (-52509)      imp:n=1    $Metal wl
52510   5    0.00359833      (-52510)      imp:n=1    $Metal wl
52511   5    0.00359833      (-52511)      imp:n=1    $Metal wl
52512   5    0.00359833      (-52512)      imp:n=1    $Metal wl
52513   5    0.00359833      (-52513)      imp:n=1    $Metal wl
52514   5    0.00359833      (-52514)      imp:n=1    $Metal wl
52515   5    0.00359833      (-52515)      imp:n=1    $Metal wl
52516   5    0.00359833      (-52516)      imp:n=1    $Metal wl
52517   5    0.00359833      (-52517)      imp:n=1    $Metal wl
52518   5    0.00359833      (-52518)      imp:n=1    $Metal wl
52519   5    0.00359833      (-52519)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 426/426A
42601  5   0.00359833      (-42601)      imp:n=1    $Metal wl
42602  5   0.00359833      (-42602)      imp:n=1    $Metal wl
42603  5   0.00359833      (-42603)      imp:n=1    $Metal wl
42604  5   0.00359833      (-42604)      imp:n=1    $Metal wl
42605  5   0.00359833      (-42605)      imp:n=1    $Metal wl
42606  5   0.00359833      (-42606)      imp:n=1    $Metal wl
42607  5   0.00359833      (-42607)      imp:n=1    $Metal wl
42608  5   0.00359833      (-42608)      imp:n=1    $Metal wl
42609  5   0.00359833      (-42609)      imp:n=1    $Metal wl
42610  5   0.00359833      (-42610)      imp:n=1    $Metal wl
42611  5   0.00359833      (-42611)      imp:n=1    $Metal wl
42612  5   0.00359833      (-42612)      imp:n=1    $Metal wl
42613  5   0.00359833      (-42613)      imp:n=1    $Metal wl
42614  5   0.00359833      (-42614)      imp:n=1    $Metal wl
42615  5   0.00359833      (-42615)      imp:n=1    $Metal wl
42616  5   0.00359833      (-42616)      imp:n=1    $Metal wl
42617  5   0.00359833      (-42617)      imp:n=1    $Metal wl
42618  5   0.00359833      (-42618)      imp:n=1    $Metal wl
42619  5   0.00359833      (-42619)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 430/Receiving Room
43001  5   0.00359833      (-43001)      imp:n=1    $Metal wl
43002  5   0.00359833      (-43002)      imp:n=1    $Metal wl
```

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43003  5    0.00359833       (-43003)       imp:n=1    $Metal wl
43004  5    0.00359833       (-43004)       imp:n=1    $Metal wl
43005  5    0.00359833       (-43005)       imp:n=1    $Metal wl
43006  5    0.00359833       (-43006)       imp:n=1    $Metal wl
43007  5    0.00359833       (-43007)       imp:n=1    $Metal wl
43008  5    0.00359833       (-43008)       imp:n=1    $Metal wl
43009  5    0.00359833       (-43009)       imp:n=1    $Metal wl
43010  5    0.00359833       (-43010)       imp:n=1    $Metal wl
43011  5    0.00359833       (-43011)       imp:n=1    $Metal wl
43012  5    0.00359833       (-43012)       imp:n=1    $Metal wl
43013  5    0.00359833       (-43013)       imp:n=1    $Metal wl
43015  15   -0.4751          (-43015)       imp:n=1    $Ext wl Filled
c
c
c     Floor1 Room 527/527A
52701  5    0.00359833       (-52701)       imp:n=1    $Metal wl
52702  5    0.00359833       (-52702)       imp:n=1    $Metal wl
52703  5    0.00359833       (-52703)       imp:n=1    $Metal wl
52704  5    0.00359833       (-52704)       imp:n=1    $Metal wl
52705  5    0.00359833       (-52705)       imp:n=1    $Metal wl
52706  5    0.00359833       (-52706)       imp:n=1    $Metal wl
52707  5    0.00359833       (-52707)       imp:n=1    $Metal wl
52708  5    0.00359833       (-52708)       imp:n=1    $Metal wl
52709  5    0.00359833       (-52709)       imp:n=1    $Metal wl
52710  5    0.00359833       (-52710)       imp:n=1    $Metal wl
52711  5    0.00359833       (-52711)       imp:n=1    $Metal wl
52712  5    0.00359833       (-52712)       imp:n=1    $Metal wl
52713  5    0.00359833       (-52713)       imp:n=1    $Metal wl
52714  5    0.00359833       (-52714)       imp:n=1    $Metal wl
52715  5    0.00359833       (-52715)       imp:n=1    $Metal wl
52716  5    0.00359833       (-52716)       imp:n=1    $Metal wl
52717  5    0.00359833       (-52717)       imp:n=1    $Metal wl
52718  5    0.00359833       (-52718)       imp:n=1    $Metal wl
52719  5    0.00359833       (-52719)       imp:n=1    $Metal wl
52720  5    0.00359833       (-52720)       imp:n=1    $Metal wl
52721  5    0.00359833       (-52721)       imp:n=1    $Metal wl
52722  5    0.00359833       (-52722)       imp:n=1    $Metal wl
52723  5    0.00359833       (-52723)       imp:n=1    $Metal wl
52726  15   -0.4751          (-52726)       imp:n=1    $Ext wl Filled
c
c
c     Floor1 Room 529
52901  5    0.00359833       (-52901)       imp:n=1    $Metal wl
52902  5    0.00359833       (-52902)       imp:n=1    $Metal wl
52903  5    0.00359833       (-52903)       imp:n=1    $Metal wl
52904  5    0.00359833       (-52904)       imp:n=1    $Metal wl
52905  5    0.00359833       (-52905)       imp:n=1    $Metal wl
52906  5    0.00359833       (-52906)       imp:n=1    $Metal wl
52907  5    0.00359833       (-52907)       imp:n=1    $Metal wl
52908  5    0.00359833       (-52908)       imp:n=1    $Metal wl
52909  5    0.00359833       (-52909)       imp:n=1    $Metal wl
52910  5    0.00359833       (-52910)       imp:n=1    $Metal wl
52911  5    0.00359833       (-52911)       imp:n=1    $Metal wl
52912  5    0.00359833       (-52912)       imp:n=1    $Metal wl
52913  5    0.00359833       (-52913)       imp:n=1    $Metal wl
52914  3    -2.3             (-52914)       imp:n=1    $Conc. Filled
52915  3    -2.3             (-52915)       imp:n=1    $Conc. Filled
c
c
c     Floor1 Room 520
52001  5    0.00359833       (-52001)       imp:n=1    $Metal wl
52002  5    0.00359833       (-52002)       imp:n=1    $Metal wl
52003  5    0.00359833       (-52003)       imp:n=1    $Metal wl
52004  5    0.00359833       (-52004)       imp:n=1    $Metal wl
52005  5    0.00359833       (-52005)       imp:n=1    $Metal wl
52006  5    0.00359833       (-52006)       imp:n=1    $Metal wl
52007  5    0.00359833       (-52007)       imp:n=1    $Metal wl
52008  5    0.00359833       (-52008)       imp:n=1    $Metal wl
52009  5    0.00359833       (-52009)       imp:n=1    $Metal wl
52010  5    0.00359833       (-52010)       imp:n=1    $Metal wl
```

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52011  5    0.00359833       (-52011)       imp:n=1    $Metal wl
52012  5    0.00359833       (-52012)       imp:n=1    $Metal wl
52013  5    0.00359833       (-52013)       imp:n=1    $Metal wl
52014  5    0.00359833       (-52014)       imp:n=1    $Metal wl
52015  5    0.00359833       (-52015)       imp:n=1    $Metal wl
c
c     Floor1 Room 524
52401  5    0.00359833       (-52401)       imp:n=1    $Metal wl
52402  5    0.00359833       (-52402)       imp:n=1    $Metal wl
52403  5    0.00359833       (-52403)       imp:n=1    $Metal wl
52404  5    0.00359833       (-52404)       imp:n=1    $Metal wl
52405  5    0.00359833       (-52405)       imp:n=1    $Metal wl
52406  5    0.00359833       (-52406)       imp:n=1    $Metal wl
52407  5    0.00359833       (-52407)       imp:n=1    $Metal wl
52408  5    0.00359833       (-52408)       imp:n=1    $Metal wl
52409  5    0.00359833       (-52409)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 528
52801  5    0.00359833       (-52801)       imp:n=1    $Metal wl
52802  5    0.00359833       (-52802)       imp:n=1    $Metal wl
52803  5    0.00359833       (-52803)       imp:n=1    $Metal wl
52804  5    0.00359833       (-52804)       imp:n=1    $Metal wl
52805  5    0.00359833       (-52805)       imp:n=1    $Metal wl
52806  5    0.00359833       (-52806)       imp:n=1    $Metal wl
52807  5    0.00359833       (-52807)       imp:n=1    $Metal wl
52808  5    0.00359833       (-52808)       imp:n=1    $Metal wl
52809  15   -0.4751          (-52809)       imp:n=1    $Ext wl Filled
52810  5    0.00359833       (-52810)       imp:n=1    $Metal wl
52812  15   -0.4751          (-52812)       imp:n=1    $Ext wl Filled
c
c
c     Floor1 Room 530/North Cylinder Dock
53001  5    0.00359833       (-53001)       imp:n=1    $Metal wl
53002  5    0.00359833       (-53002)       imp:n=1    $Metal wl
53003  5    0.00359833       (-53003)       imp:n=1    $Metal wl
53004  5    0.00359833       (-53004)       imp:n=1    $Metal wl
53005  5    0.00359833       (-53005)       imp:n=1    $Metal wl
53006  5    0.00359833       (-53006)       imp:n=1    $Metal wl
53007  5    0.00359833       (-53007)       imp:n=1    $Metal wl
53008  5    0.00359833       (-53008)       imp:n=1    $Metal wl
53009  3    -2.3             (-53009)       imp:n=1    $Conc. Filled
53010  3    -2.3             (-53010)       imp:n=1    $Conc. Filled
53011  3    -2.3             (-53011)       imp:n=1    $Conc. Filled
53012  3    -2.3             (-53012)       imp:n=1    $Conc. Filled
53013  3    -2.3             (-53013)       imp:n=1    $Conc. Filled
53014  3    -2.3             (-53014)       imp:n=1    $Conc. Filled
53015  3    -2.3             (-53015)       imp:n=1    $Conc. Filled
53016  5    0.00359833       (-53016)       imp:n=1    $Metal wl
53018  15   -0.4751          (-53018)       imp:n=1    $Ext wl Filled
c
c
c
c  ///////////////Begin West Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Cells****************************************
c  The origin was set as the SW corner of the inside wall of Room 209.
c
c
c
c     Floor1 Room 209
20901  5    0.00359833       (-20901)       imp:n=1    $Metal wl
20902  5    0.00359833       (-20902)       imp:n=1    $Metal wl
20903  5    0.00359833       (-20903)       imp:n=1    $Metal wl
20904  5    0.00359833       (-20904)       imp:n=1    $Metal wl
20905  5    0.00359833       (-20905)       imp:n=1    $Metal wl
20906  5    0.00359833       (-20906)       imp:n=1    $Metal wl
20907  5    0.00359833       (-20907)       imp:n=1    $Metal wl
20908  5    0.00359833       (-20908)       imp:n=1    $Metal wl
20909  13   -7.92            (-20909)       imp:n=1    $SS
20910  5    0.00359833       (-20910)       imp:n=1    $Metal wl
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20911  5    0.00359833       (-20911)       imp:n=1    $Metal wl
20912  5    0.00359833       (-20912)       imp:n=1    $Metal wl
20913  5    0.00359833       (-20913)       imp:n=1    $Metal wl
20914  5    0.00359833       (-20914)       imp:n=1    $Metal wl
20915  5    0.00359833       (-20915)       imp:n=1    $Metal wl
20916  5    0.00359833       (-20916)       imp:n=1    $Metal wl
20917  5    0.00359833       (-20917)       imp:n=1    $Metal wl
20918  5    0.00359833       (-20918)       imp:n=1    $Metal wl
20920  5    0.00359833       (-20920)       imp:n=1    $Metal wl
20921  15   -0.4751          (-20921)       imp:n=1    $Ext wl Filled
20922  15   -0.4751          (-20922)       imp:n=1    $Ext wl Filled
c
c
c    Floor1 Room 202/203
20201  5    0.00359833       (-20201)       imp:n=1    $Metal wl
20202  5    0.00359833       (-20202)       imp:n=1    $Metal wl
20203  15   -0.4751          (-20203)       imp:n=1    $Ext wl Filled
20204  5    0.00359833       (-20204)       imp:n=1    $Metal wl
20205  15   -0.4751          (-20205)       imp:n=1    $Ext wl Filled
20206  5    0.00359833       (-20206)       imp:n=1    $Metal wl
20207  5    0.00359833       (-20207)       imp:n=1    $Metal wl
20208  5    0.00359833       (-20208)       imp:n=1    $Metal wl
20209  5    0.00359833       (-20209)       imp:n=1    $Metal wl
20210  5    0.00359833       (-20210)       imp:n=1    $Metal wl
20211  5    0.00359833       (-20211)       imp:n=1    $Metal wl
20212  5    0.00359833       (-20212)       imp:n=1    $Metal wl
20213  5    0.00359833       (-20213)       imp:n=1    $Metal wl
20214  5    0.00359833       (-20214)       imp:n=1    $Metal wl
20215  5    0.00359833       (-20215)       imp:n=1    $Metal wl
20216  5    0.00359833       (-20216)       imp:n=1    $Metal wl
20217  5    0.00359833       (-20217)       imp:n=1    $Metal wl
20218  5    0.00359833       (-20218)       imp:n=1    $Metal wl
20219  5    0.00359833       (-20219)       imp:n=1    $Metal wl
20220  15   -0.4751          (-20220)       imp:n=1    $Ext wl Filled
c
c
c     Floor1 Room 200
20001  5    0.00359833       (-20001)       imp:n=1    $Metal wl
20002  5    0.00359833       (-20002)       imp:n=1    $Metal wl
20003  5    0.00359833       (-20003)       imp:n=1    $Metal wl
20004  5    0.00359833       (-20004)       imp:n=1    $Metal wl
20005  5    0.00359833       (-20005)       imp:n=1    $Metal wl
20006  5    0.00359833       (-20006)       imp:n=1    $Metal wl
20007  5    0.00359833       (-20007)       imp:n=1    $Metal wl
20008  5    0.00359833       (-20008)       imp:n=1    $Metal wl
20009  5    0.00359833       (-20009)       imp:n=1    $Metal wl
20010  5    0.00359833       (-20010)       imp:n=1    $Metal wl
20011  5    0.00359833       (-20011)       imp:n=1    $Metal wl
20012  5    0.00359833       (-20012)       imp:n=1    $Metal wl
20013  5    0.00359833       (-20013)       imp:n=1    $Metal wl
20014  5    0.00359833       (-20014)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 201
c  ****************This room contains the SAL hot cellsL**************
c  Neglected thin wall strip in NE border region
20101  13   -7.92           (-20101)       imp:n=1    $SS
20102  5    0.00359833       (-20102)       imp:n=1    $Metal wl
20103  13   -7.92           (-20103)       imp:n=1    $SS
20104  13   -7.92           (-20104)       imp:n=1    $SS
20105  5    0.00359833       (-20105)       imp:n=1    $Metal wl
20106  5    0.00359833       (-20106)       imp:n=1    $Metal wl
20107  5    0.00359833       (-20107)       imp:n=1    $Metal wl
20108  5    0.00359833       (-20108)       imp:n=1    $Metal wl
20109  5    0.00359833       (-20109)       imp:n=1    $Metal wl
20110  5    0.00359833       (-20110)       imp:n=1    $Metal wl
20111  5    0.00359833       (-20111)       imp:n=1    $Metal wl
20112  15   -0.4751          (-20112)       imp:n=1    $Ext wl Filled
20113  5    0.00359833       (-20113)       imp:n=1    $Metal wl
20114  5    0.00359833       (-20114)       imp:n=1    $Metal wl
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20115  3   -2.3          (-20115)     imp:n=1   $S wl SAL Cell -Heavey Agg. Conc
20116  13  -7.92          (-20116)     imp:n=1   $E SAL wl Cell -Metal Walls and Windows, Windows ignored
20117  13  -7.92          (-20117)     imp:n=1   $E SAL wl Cell -Metal Walls
20118  15  -0.4751        (-20118)     imp:n=1   $Ext wl Filled
c
c
c  ///////////////Begin SouthWest Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
c ******************Notes for this section of Cells***************************************
c The origin was set as the SOUTH EAST CORNER of the inside wall of Room 301. The origin
c was placed here for simplicities sake. I am the walrus
c
c
c   Floor1 Room 301
30101  5   0.00359833   (-30101)    imp:n=1   $Metal wl
30102  5   0.00359833   (-30102)    imp:n=1   $Metal wl
30103  5   0.00359833   (-30103)    imp:n=1   $Metal wl
30104  5   0.00359833   (-30104)    imp:n=1   $Metal wl
30105  5   0.00359833   (-30105)    imp:n=1   $Metal wl
30106  5   0.00359833   (-30106)    imp:n=1   $Metal wl
30107  5   0.00359833   (-30107)    imp:n=1   $Metal wl
30108  5   0.00359833   (-30108)    imp:n=1   $Metal wl
30109  5   0.00359833   (-30109)    imp:n=1   $Metal wl
30110  5   0.00359833   (-30110)    imp:n=1   $Metal wl
30111  5   0.00359833   (-30111)    imp:n=1   $Metal wl
30112  5   0.00359833   (-30112)    imp:n=1   $Metal wl
c
c
c   Floor1 Room 303
30301  5   0.00359833   (-30301)    imp:n=1   $Metal wl
30302  5   0.00359833   (-30302)    imp:n=1   $Metal wl
30303  5   0.00359833   (-30303)    imp:n=1   $Metal wl
30304  5   0.00359833   (-30304)    imp:n=1   $Metal wl
30305  5   0.00359833   (-30305)    imp:n=1   $Metal wl
30306  5   0.00359833   (-30306)    imp:n=1   $Metal wl
30307  5   0.00359833   (-30307)    imp:n=1   $Metal wl
30308  5   0.00359833   (-30308)    imp:n=1   $Metal wl
c
c
c   Floor1 Room 305
30501  5   0.00359833   (-30501)    imp:n=1   $Metal wl
30502  5   0.00359833   (-30502)    imp:n=1   $Metal wl
30503  5   0.00359833   (-30503)    imp:n=1   $Metal wl
30504  5   0.00359833   (-30504)    imp:n=1   $Metal wl
30505  5   0.00359833   (-30505)    imp:n=1   $Metal wl
30506  5   0.00359833   (-30506)    imp:n=1   $Metal wl
30507  5   0.00359833   (-30507)    imp:n=1   $Metal wl
30508  5   0.00359833   (-30508)    imp:n=1   $Metal wl
30509  5   0.00359833   (-30509)    imp:n=1   $Metal wl
30510  5   0.00359833   (-30510)    imp:n=1   $Metal wl
30511  5   0.00359833   (-30511)    imp:n=1   $Metal wl
c
c
c   Floor1 Room 309
30901  5   0.00359833   (-30901)    imp:n=1   $Metal wl
30902  5   0.00359833   (-30902)    imp:n=1   $Metal wl
30903  5   0.00359833   (-30903)    imp:n=1   $Metal wl
30904  5   0.00359833   (-30904)    imp:n=1   $Metal wl
30905  5   0.00359833   (-30905)    imp:n=1   $Metal wl
30906  5   0.00359833   (-30906)    imp:n=1   $Metal wl
30907  5   0.00359833   (-30907)    imp:n=1   $Metal wl
30908  5   0.00359833   (-30908)    imp:n=1   $Metal wl
30909  5   0.00359833   (-30909)    imp:n=1   $Metal wl
30910  5   0.00359833   (-30910)    imp:n=1   $Metal wl
30911  5   0.00359833   (-30911)    imp:n=1   $Metal wl
30912  5   0.00359833   (-30912)    imp:n=1   $Metal wl
c
c
c   Floor1 Room 313
31301  5   0.00359833   (-31301)    imp:n=1   $Metal wl
31302  5   0.00359833   (-31302)    imp:n=1   $Metal wl
```

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31303  5    0.00359833      (-31303)       imp:n=1    $Metal wl
31304  5    0.00359833      (-31304)       imp:n=1    $Metal wl
31305  5    0.00359833      (-31305)       imp:n=1    $Metal wl
31306  5    0.00359833      (-31306)       imp:n=1    $Metal wl
31307  5    0.00359833      (-31307)       imp:n=1    $Metal wl
31308  5    0.00359833      (-31308)       imp:n=1    $Metal wl
31309  5    0.00359833      (-31309)       imp:n=1    $Metal wl
31310  5    0.00359833      (-31310)       imp:n=1    $Metal wl
31311  5    0.00359833      (-31311)       imp:n=1    $Metal wl
31312  5    0.00359833      (-31312)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 317
31701  5    0.00359833      (-31701)       imp:n=1    $Metal wl
31702  5    0.00359833      (-31702)       imp:n=1    $Metal wl
31703  5    0.00359833      (-31703)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 319/319A
31901  5    0.00359833      (-31901)       imp:n=1    $Metal wl
31902  5    0.00359833      (-31902)       imp:n=1    $Metal wl
31903  5    0.00359833      (-31903)       imp:n=1    $Metal wl
31904  5    0.00359833      (-31904)       imp:n=1    $Metal wl
31905  5    0.00359833      (-31905)       imp:n=1    $Metal wl
31906  5    0.00359833      (-31906)       imp:n=1    $Metal wl
31907  5    0.00359833      (-31907)       imp:n=1    $Metal wl
31908  5    0.00359833      (-31908)       imp:n=1    $Metal wl
31909  5    0.00359833      (-31909)       imp:n=1    $Metal wl
31910  5    0.00359833      (-31910)       imp:n=1    $Metal wl
31911  5    0.00359833      (-31911)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 300
30001  5    0.00359833      (-30001)       imp:n=1    $Metal wl
30002  5    0.00359833      (-30002)       imp:n=1    $Metal wl
30003  5    0.00359833      (-30003)       imp:n=1    $Metal wl
30004  5    0.00359833      (-30004)       imp:n=1    $Metal wl
30005  5    0.00359833      (-30005)       imp:n=1    $Metal wl
30006  5    0.00359833      (-30006)       imp:n=1    $Metal wl
30007  5    0.00359833      (-30007)       imp:n=1    $Metal wl
30008  5    0.00359833      (-30008)       imp:n=1    $Metal wl
30009  5    0.00359833      (-30009)       imp:n=1    $Metal wl
30010  5    0.00359833      (-30010)       imp:n=1    $Metal wl
30011  5    0.00359833      (-30011)       imp:n=1    $Metal wl
30012  5    0.00359833      (-30012)       imp:n=1    $Metal wl
30013  5    0.00359833      (-30013)       imp:n=1    $Metal wl
30014  5    0.00359833      (-30014)       imp:n=1    $Metal wl
30015  5    0.00359833      (-30015)       imp:n=1    $Metal wl
30016  5    0.00359833      (-30016)       imp:n=1    $Metal wl
30017  5    0.00359833      (-30017)       imp:n=1    $Metal wl
30018  5    0.00359833      (-30018)       imp:n=1    $Metal wl
30019  5    0.00359833      (-30019)       imp:n=1    $Metal wl
30020  5    0.00359833      (-30020)       imp:n=1    $Metal wl
30021  5    0.00359833      (-30021)       imp:n=1    $Metal wl
30022  5    0.00359833      (-30022)       imp:n=1    $Metal wl
30023  5    0.00359833      (-30023)       imp:n=1    $Metal wl
c
c
c
c     Floor1 Room 306
30601  5    0.00359833      (-30601)       imp:n=1    $Metal wl
30602  5    0.00359833      (-30602)       imp:n=1    $Metal wl
30603  5    0.00359833      (-30603)       imp:n=1    $Metal wl
30604  5    0.00359833      (-30604)       imp:n=1    $Metal wl
30605  5    0.00359833      (-30605)       imp:n=1    $Metal wl
30606  5    0.00359833      (-30606)       imp:n=1    $Metal wl
30607  5    0.00359833      (-30607)       imp:n=1    $Metal wl
30608  5    0.00359833      (-30608)       imp:n=1    $Metal wl
30609  5    0.00359833      (-30609)       imp:n=1    $Metal wl
30610  5    0.00359833      (-30610)       imp:n=1    $Metal wl
```

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30611  5    0.00359833      (-30611)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 310
31001  5    0.00359833      (-31001)      imp:n=1    $Metal wl
31002  5    0.00359833      (-31002)      imp:n=1    $Metal wl
31003  5    0.00359833      (-31003)      imp:n=1    $Metal wl
31004  5    0.00359833      (-31004)      imp:n=1    $Metal wl
31005  5    0.00359833      (-31005)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 312
31201  5    0.00359833      (-31201)      imp:n=1    $Metal wl
31202  5    0.00359833      (-31202)      imp:n=1    $Metal wl
31203  5    0.00359833      (-31203)      imp:n=1    $Metal wl
31204  5    0.00359833      (-31204)      imp:n=1    $Metal wl
31205  5    0.00359833      (-31205)      imp:n=1    $Metal wl
31206  5    0.00359833      (-31206)      imp:n=1    $Metal wl
31207  5    0.00359833      (-31207)      imp:n=1    $Metal wl
31208  5    0.00359833      (-31208)      imp:n=1    $Metal wl
31209  5    0.00359833      (-31209)      imp:n=1    $Metal wl
31210  5    0.00359833      (-31210)      imp:n=1    $Metal wl
31211  5    0.00359833      (-31211)      imp:n=1    $Metal wl
31212  5    0.00359833      (-31212)      imp:n=1    $Metal wl
31213  5    0.00359833      (-31213)      imp:n=1    $Metal wl
31214  5    0.00359833      (-31214)      imp:n=1    $Metal wl
31215  5    0.00359833      (-31215)      imp:n=1    $Metal wl
31216  5    0.00359833      (-31216)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 316
31601  5    0.00359833      (-31601)      imp:n=1    $Metal wl
31602  13   -7.92         (-31602)      imp:n=1    $SS
31603  5    0.00359833      (-31603)      imp:n=1    $Metal wl
31604  5    0.00359833      (-31604)      imp:n=1    $Metal wl
31605  5    0.00359833      (-31605)      imp:n=1    $Metal wl
31606  5    0.00359833      (-31606)      imp:n=1    $Metal wl
31607  5    0.00359833      (-31607)      imp:n=1    $Metal wl
31608  5    0.00359833      (-31608)      imp:n=1    $Metal wl
31609  5    0.00359833      (-31609)      imp:n=1    $Metal wl
31610  5    0.00359833      (-31610)      imp:n=1    $Metal wl
31611  5    0.00359833      (-31611)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 401/403
40101  5    0.00359833      (-40101)      imp:n=1    $Metal wl
40102  5    0.00359833      (-40102)      imp:n=1    $Metal wl
40103  5    0.00359833      (-40103)      imp:n=1    $Metal wl
40104  5    0.00359833      (-40104)      imp:n=1    $Metal wl
40105  5    0.00359833      (-40105)      imp:n=1    $Metal wl
40106  5    0.00359833      (-40106)      imp:n=1    $Metal wl
40107  5    0.00359833      (-40107)      imp:n=1    $Metal wl
40108  5    0.00359833      (-40108)      imp:n=1    $Metal wl
40109  5    0.00359833      (-40109)      imp:n=1    $Metal wl
40110  5    0.00359833      (-40110)      imp:n=1    $Metal wl
40111  5    0.00359833      (-40111)      imp:n=1    $Metal wl
40112  5    0.00359833      (-40112)      imp:n=1    $Metal wl
40113  5    0.00359833      (-40113)      imp:n=1    $Metal wl
40114  5    0.00359833      (-40114)      imp:n=1    $Metal wl
40115  5    0.00359833      (-40115)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 405
40501  5    0.00359833      (-40501)      imp:n=1    $Metal wl
40502  5    0.00359833      (-40502)      imp:n=1    $Metal wl
40503  5    0.00359833      (-40503)      imp:n=1    $Metal wl
40504  5    0.00359833      (-40504)      imp:n=1    $Metal wl
40505  5    0.00359833      (-40505)      imp:n=1    $Metal wl
40506  5    0.00359833      (-40506)      imp:n=1    $Metal wl
40507  5    0.00359833      (-40507)      imp:n=1    $Metal wl
```

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40508  5    0.00359833       (-40508)       imp:n=1    $Metal wl
40509  5    0.00359833       (-40509)       imp:n=1    $Metal wl
40510  5    0.00359833       (-40510)       imp:n=1    $Metal wl
40511  5    0.00359833       (-40511)       imp:n=1    $Metal wl
40512  5    0.00359833       (-40512)       imp:n=1    $Metal wl
40513  5    0.00359833       (-40513)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 409
40901  5    0.00359833       (-40901)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 411
41101  5    0.00359833       (-41101)       imp:n=1    $Metal wl
41102  5    0.00359833       (-41102)       imp:n=1    $Metal wl
41103  5    0.00359833       (-41103)       imp:n=1    $Metal wl
41104  5    0.00359833       (-41104)       imp:n=1    $Metal wl
41105  5    0.00359833       (-41105)       imp:n=1    $Metal wl
41106  5    0.00359833       (-41106)       imp:n=1    $Metal wl
41107  5    0.00359833       (-41107)       imp:n=1    $Metal wl
41108  5    0.00359833       (-41108)       imp:n=1    $Metal wl
41109  5    0.00359833       (-41109)       imp:n=1    $Metal wl
41110  5    0.00359833       (-41110)       imp:n=1    $Metal wl
41111  5    0.00359833       (-41111)       imp:n=1    $Metal wl
41112  5    0.00359833       (-41112)       imp:n=1    $Metal wl
41113  5    0.00359833       (-41113)       imp:n=1    $Metal wl
41114  5    0.00359833       (-41114)       imp:n=1    $Metal wl
41115  5    0.00359833       (-41115)       imp:n=1    $Metal wl
41116  5    0.00359833       (-41116)       imp:n=1    $Metal wl
41117  5    0.00359833       (-41117)       imp:n=1    $Metal wl
41118  5    0.00359833       (-41118)       imp:n=1    $Metal wl
c
c
c  Floor1 Room 419
41901  5    0.00359833       (-41901)       imp:n=1    $Metal wl
41902  5    0.00359833       (-41902)       imp:n=1    $Metal wl
41903  5    0.00359833       (-41903)       imp:n=1    $Metal wl
41904  5    0.00359833       (-41904)       imp:n=1    $Metal wl
41905  5    0.00359833       (-41905)       imp:n=1    $Metal wl
41906  5    0.00359833       (-41906)       imp:n=1    $Metal wl
41907  5    0.00359833       (-41907)       imp:n=1    $Metal wl
c
c
c  ///////////////Begin SouthEast Section of Floor1\\\\\\\\\\\\\\\\\\\\\\
c  *******************Notes for this section of Cells****************************************
c  The origin was set as the outside corner of the Southwesternmost wall of Room 400
c
c     Floor1 Room 400
40001  5    0.00359833       (-40001)       imp:n=1    $Metal wl
40002  5    0.00359833       (-40002)       imp:n=1    $Metal wl
40003  5    0.00359833       (-40003)       imp:n=1    $Metal wl
40004  5    0.00359833       (-40004)       imp:n=1    $Metal wl
40005  5    0.00359833       (-40005)       imp:n=1    $Metal wl
40006  5    0.00359833       (-40006)       imp:n=1    $Metal wl
40007  5    0.00359833       (-40007)       imp:n=1    $Metal wl
40008  5    0.00359833       (-40008)       imp:n=1    $Metal wl
40009  5    0.00359833       (-40009)       imp:n=1    $Metal wl
40010  5    0.00359833       (-40010)       imp:n=1    $Metal wl
40011  5    0.00359833       (-40011)       imp:n=1    $Metal wl
40012  5    0.00359833       (-40012)       imp:n=1    $Metal wl
40013  5    0.00359833       (-40013)       imp:n=1    $Metal wl
40014  5    0.00359833       (-40014)       imp:n=1    $Metal wl
40015  5    0.00359833       (-40015)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 501
50101  5    0.00359833       (-50101)       imp:n=1    $Metal wl
50102  5    0.00359833       (-50102)       imp:n=1    $Metal wl
50103  5    0.00359833       (-50103)       imp:n=1    $Metal wl
50104  5    0.00359833       (-50104)       imp:n=1    $Metal wl
```

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50105  5    0.00359833       (-50105)       imp:n=1    $Metal wl
50106  5    0.00359833       (-50106)       imp:n=1    $Metal wl
50107  5    0.00359833       (-50107)       imp:n=1    $Metal wl
50108  5    0.00359833       (-50108)       imp:n=1    $Metal wl
50109  5    0.00359833       (-50109)       imp:n=1    $Metal wl
50110  5    0.00359833       (-50110)       imp:n=1    $Metal wl
50111  5    0.00359833       (-50111)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 500
50001  5    0.00359833       (-50001)       imp:n=1    $Metal wl
50002  5    0.00359833       (-50002)       imp:n=1    $Metal wl
50003  5    0.00359833       (-50003)       imp:n=1    $Metal wl
50004  5    0.00359833       (-50004)       imp:n=1    $Metal wl
50005  5    0.00359833       (-50005)       imp:n=1    $Metal wl
50006  5    0.00359833       (-50006)       imp:n=1    $Metal wl
50007  5    0.00359833       (-50007)       imp:n=1    $Metal wl
50008  5    0.00359833       (-50008)       imp:n=1    $Metal wl
50009  5    0.00359833       (-50009)       imp:n=1    $Metal wl
50010  5    0.00359833       (-50010)       imp:n=1    $Metal wl
50011  5    0.00359833       (-50011)       imp:n=1    $Metal wl
50012  5    0.00359833       (-50012)       imp:n=1    $Metal wl
50013  5    0.00359833       (-50013)       imp:n=1    $Metal wl
50014  5    0.00359833       (-50014)       imp:n=1    $Metal wl
50015  5    0.00359833       (-50015)       imp:n=1    $Metal wl
50016  5    0.00359833       (-50016)       imp:n=1    $Metal wl
c
c
c
c     Floor1 Room 404
40401  5    0.00359833       (-40401)       imp:n=1    $Metal wl
40402  5    0.00359833       (-40402)       imp:n=1    $Metal wl
40403  5    0.00359833       (-40403)       imp:n=1    $Metal wl
40404  5    0.00359833       (-40404)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 505
50501  13   -7.92          (-50501)       imp:n=1    $SS
50502  5    0.00359833       (-50502)       imp:n=1    $Metal wl
50503  5    0.00359833       (-50503)       imp:n=1    $Metal wl
50504  5    0.00359833       (-50504)       imp:n=1    $Metal wl
50505  5    0.00359833       (-50505)       imp:n=1    $Metal wl
50506  5    0.00359833       (-50506)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 504/504A
50401  5    0.00359833       (-50401)       imp:n=1    $Metal wl
50402  5    0.00359833       (-50402)       imp:n=1    $Metal wl
50403  5    0.00359833       (-50403)       imp:n=1    $Metal wl
50404  5    0.00359833       (-50404)       imp:n=1    $Metal wl
50405  5    0.00359833       (-50405)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 406
40601  13   -7.92          (-40601)       imp:n=1    $SS
40602  5    0.00359833       (-40602)       imp:n=1    $Metal wl
40603  5    0.00359833       (-40603)       imp:n=1    $Metal wl
40604  5    0.00359833       (-40604)       imp:n=1    $Metal wl
40605  5    0.00359833       (-40605)       imp:n=1    $Metal wl
40606  5    0.00359833       (-40606)       imp:n=1    $Metal wl
40607  5    0.00359833       (-40607)       imp:n=1    $Metal wl
40608  5    0.00359833       (-40608)       imp:n=1    $Metal wl
40609  5    0.00359833       (-40609)       imp:n=1    $Metal wl
40610  5    0.00359833       (-40610)       imp:n=1    $Metal wl
40611  5    0.00359833       (-40611)       imp:n=1    $Metal wl
40612  5    0.00359833       (-40612)       imp:n=1    $Metal wl
40613  5    0.00359833       (-40613)       imp:n=1    $Metal wl
40614  5    0.00359833       (-40614)       imp:n=1    $Metal wl
c
c
```

```
c     Floor1 Room 507
50701  5    0.00359833       (-50701)       imp:n=1    $Metal wl
50702  5    0.00359833       (-50702)       imp:n=1    $Metal wl
50703  5    0.00359833       (-50703)       imp:n=1    $Metal wl
50704  5    0.00359833       (-50704)       imp:n=1    $Metal wl
50705  5    0.00359833       (-50705)       imp:n=1    $Metal wl
50706  5    0.00359833       (-50706)       imp:n=1    $Metal wl
50707  5    0.00359833       (-50707)       imp:n=1    $Metal wl
50708  5    0.00359833       (-50708)       imp:n=1    $Metal wl
50709  5    0.00359833       (-50709)       imp:n=1    $Metal wl
50710  5    0.00359833       (-50710)       imp:n=1    $Metal wl
50711  5    0.00359833       (-50711)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 506
50601  5    0.00359833       (-50601)       imp:n=1    $Metal wl
50602  5    0.00359833       (-50602)       imp:n=1    $Metal wl
50603  5    0.00359833       (-50603)       imp:n=1    $Metal wl
50604  5    0.00359833       (-50604)       imp:n=1    $Metal wl
50605  5    0.00359833       (-50605)       imp:n=1    $Metal wl
50606  5    0.00359833       (-50606)       imp:n=1    $Metal wl
50607  5    0.00359833       (-50607)       imp:n=1    $Metal wl
50608  5    0.00359833       (-50608)       imp:n=1    $Metal wl
50609  5    0.00359833       (-50609)       imp:n=1    $Metal wl
50610  5    0.00359833       (-50610)       imp:n=1    $Metal wl
50611  5    0.00359833       (-50611)       imp:n=1    $Metal wl
50612  5    0.00359833       (-50612)       imp:n=1    $Metal wl
50613  5    0.00359833       (-50613)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 410
41001  5    0.00359833       (-41001)       imp:n=1    $Metal wl
41002  5    0.00359833       (-41002)       imp:n=1    $Metal wl
41003  5    0.00359833       (-41003)       imp:n=1    $Metal wl
41004  5    0.00359833       (-41004)       imp:n=1    $Metal wl
41005  5    0.00359833       (-41005)       imp:n=1    $Metal wl
41006  13   -7.92          (-41006)       imp:n=1    $SS
41007  5    0.00359833       (-41007)       imp:n=1    $Metal wl
41008  5    0.00359833       (-41008)       imp:n=1    $Metal wl
41009  5    0.00359833       (-41009)       imp:n=1    $Metal wl
41010  5    0.00359833       (-41010)       imp:n=1    $Metal wl
41011  5    0.00359833       (-41011)       imp:n=1    $Metal wl
41012  5    0.00359833       (-41012)       imp:n=1    $Metal wl
41013  5    0.00359833       (-41013)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 511
51101  5    0.00359833       (-51101)       imp:n=1    $Metal wl
51102  5    0.00359833       (-51102)       imp:n=1    $Metal wl
51103  5    0.00359833       (-51103)       imp:n=1    $Metal wl
51104  5    0.00359833       (-51104)       imp:n=1    $Metal wl
51105  5    0.00359833       (-51105)       imp:n=1    $Metal wl
51106  5    0.00359833       (-51106)       imp:n=1    $Metal wl
51107  5    0.00359833       (-51107)       imp:n=1    $Metal wl
51108  5    0.00359833       (-51108)       imp:n=1    $Metal wl
51109  5    0.00359833       (-51109)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 510
51001  5    0.00359833       (-51001)       imp:n=1    $Metal wl
51002  5    0.00359833       (-51002)       imp:n=1    $Metal wl
51003  5    0.00359833       (-51003)       imp:n=1    $Metal wl
51004  5    0.00359833       (-51004)       imp:n=1    $Metal wl
51005  5    0.00359833       (-51005)       imp:n=1    $Metal wl
51006  5    0.00359833       (-51006)       imp:n=1    $Metal wl
51007  5    0.00359833       (-51007)       imp:n=1    $Metal wl
51008  5    0.00359833       (-51008)       imp:n=1    $Metal wl
51009  5    0.00359833       (-51009)       imp:n=1    $Metal wl
c
c
```

```
c     Floor1 Room 514
51401  5    0.00359833       (-51401)      imp:n=1    $Metal wl
51402  5    0.00359833       (-51402)      imp:n=1    $Metal wl
51403  5    0.00359833       (-51403)      imp:n=1    $Metal wl
c
c
c     Floor1 Room 414
41401  5    0.00359833       (-41401)      imp:n=1    $Metal wl
41402  5    0.00359833       (-41402)      imp:n=1    $Metal wl
41403  5    0.00359833       (-41403)      imp:n=1    $Metal wl
c
c
c     Floor1 Room 416
41601  5    0.00359833       (-41601)      imp:n=1    $Metal wl
41602  5    0.00359833       (-41602)      imp:n=1    $Metal wl
41603  5    0.00359833       (-41603)      imp:n=1    $Metal wl
41604  5    0.00359833       (-41604)      imp:n=1    $Metal wl
41605  13   -7.92           (-41605)      imp:n=1    $SS
41606  5    0.00359833       (-41606)      imp:n=1    $Metal wl
41607  5    0.00359833       (-41607)      imp:n=1    $Metal wl
41608  5    0.00359833       (-41608)      imp:n=1    $Metal wl
41609  5    0.00359833       (-41609)      imp:n=1    $Metal wl
41610  5    0.00359833       (-41610)      imp:n=1    $Metal wl
41611  5    0.00359833       (-41611)      imp:n=1    $Metal wl
41612  5    0.00359833       (-41612)      imp:n=1    $Metal wl
41613  5    0.00359833       (-41613)      imp:n=1    $Metal wl
41614  5    0.00359833       (-41614)      imp:n=1    $Metal wl
c
c
c     Floor1 Room 515
51501  5    0.00359833       (-51501)      imp:n=1    $Metal wl
c
c
c     Floor1 Room 517
51701  5    0.00359833       (-51701)      imp:n=1    $Metal wl
51702  5    0.00359833       (-51702)      imp:n=1    $Metal wl
51703  5    0.00359833       (-51703)      imp:n=1    $Metal wl
51704  5    0.00359833       (-51704)      imp:n=1    $Metal wl
51705  5    0.00359833       (-51705)      imp:n=1    $Metal wl
51706  5    0.00359833       (-51706)      imp:n=1    $Metal wl
51707  5    0.00359833       (-51707)      imp:n=1    $Metal wl
51708  5    0.00359833       (-51708)      imp:n=1    $Metal wl
51709  5    0.00359833       (-51709)      imp:n=1    $Metal wl
51710  5    0.00359833       (-51710)      imp:n=1    $Metal wl
c
c
c     Floor1 Room 516
51601  5    0.00359833       (-51601)      imp:n=1    $Metal wl
51602  5    0.00359833       (-51602)      imp:n=1    $Metal wl
51603  5    0.00359833       (-51603)      imp:n=1    $Metal wl
51604  5    0.00359833       (-51604)      imp:n=1    $Metal wl
51605  5    0.00359833       (-51605)      imp:n=1    $Metal wl
51606  5    0.00359833       (-51606)      imp:n=1    $Metal wl
51607  5    0.00359833       (-51607)      imp:n=1    $Metal wl
51608  5    0.00359833       (-51608)      imp:n=1    $Metal wl
51609  5    0.00359833       (-51609)      imp:n=1    $Metal wl
51610  5    0.00359833       (-51610)      imp:n=1    $Metal wl
51611  5    0.00359833       (-51611)      imp:n=1    $Metal wl
51612  5    0.00359833       (-51612)      imp:n=1    $Metal wl
51613  5    0.00359833       (-51613)      imp:n=1    $Metal wl
c
c
c  ///////////////Begin East Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Cells****************************************
c  The origin was set as the inside corner of the Southwesternmost wall of the east Section.
c  There is no specific number for this area but the origin is directly west of Room 600.
c
c
c     Floor1 Room 600
60001  5    0.00359833       (-60001)      imp:n=1    $Metal wl
```

```
60002  3    -2.3             (-60002)       imp:n=1    $Conc Filled
60003  5    0.00359833       (-60003)       imp:n=1    $Metal wl
60004  5    0.00359833       (-60004)       imp:n=1    $Metal wl
60005  3    -2.3             (-60005)       imp:n=1    $Conc Filled
60006  5    0.00359833       (-60006)       imp:n=1    $Metal wl
60007  5    0.00359833       (-60007)       imp:n=1    $Metal wl
60008  5    0.00359833       (-60008)       imp:n=1    $Metal wl
60009  5    0.00359833       (-60009)       imp:n=1    $Metal wl
60010  5    0.00359833       (-60010)       imp:n=1    $Metal wl
60011  5    0.00359833       (-60011)       imp:n=1    $Metal wl
60012  5    0.00359833       (-60012)       imp:n=1    $Metal wl
60013  5    0.00359833       (-60013)       imp:n=1    $Metal wl
60014  5    0.00359833       (-60014)       imp:n=1    $Metal wl
60015  5    0.00359833       (-60015)       imp:n=1    $Metal wl
60017  15   -0.4751          (-60017)       imp:n=1    $Ext wl Filled
c
c
c     Floor1 Room 602/605/606
c  ****These rooms were all combined because it is*******
c  difficult to distinguish between them.
60201  5    0.00359833       (-60201)       imp:n=1    $Metal wl
60202  5    0.00359833       (-60202)       imp:n=1    $Metal wl
60203  5    0.00359833       (-60203)       imp:n=1    $Metal wl
60204  5    0.00359833       (-60204)       imp:n=1    $Metal wl
60205  5    0.00359833       (-60205)       imp:n=1    $Metal wl
60206  5    0.00359833       (-60206)       imp:n=1    $Metal wl
60207  5    0.00359833       (-60207)       imp:n=1    $Metal wl
60208  5    0.00359833       (-60208)       imp:n=1    $Metal wl
60209  5    0.00359833       (-60209)       imp:n=1    $Metal wl
60210  5    0.00359833       (-60210)       imp:n=1    $Metal wl
60211  5    0.00359833       (-60211)       imp:n=1    $Metal wl
60212  5    0.00359833       (-60212)       imp:n=1    $Metal wl
60213  5    0.00359833       (-60213)       imp:n=1    $Metal wl
60214  5    0.00359833       (-60214)       imp:n=1    $Metal wl
60215  5    0.00359833       (-60215)       imp:n=1    $Metal wl
60216  5    0.00359833       (-60216)       imp:n=1    $Metal wl
60217  5    0.00359833       (-60217)       imp:n=1    $Metal wl
60218  5    0.00359833       (-60218)       imp:n=1    $Metal wl
60219  5    0.00359833       (-60219)       imp:n=1    $Metal wl
60220  5    0.00359833       (-60220)       imp:n=1    $Metal wl
60221  5    0.00359833       (-60221)       imp:n=1    $Metal wl
60222  5    0.00359833       (-60222)       imp:n=1    $Metal wl
60223  5    0.00359833       (-60223)       imp:n=1    $Metal wl
60224  5    0.00359833       (-60224)       imp:n=1    $Metal wl
60225  5    0.00359833       (-60225)       imp:n=1    $Metal wl
60226  5    0.00359833       (-60226)       imp:n=1    $Metal wl
60227  5    0.00359833       (-60227)       imp:n=1    $Metal wl
60228  5    0.00359833       (-60228)       imp:n=1    $Metal wl
60232  15   -0.4751          (-60232)       imp:n=1    $Ext wl Filled
c
c
c     Floor1 Room 610 Truck Lock
c   *******Note: a .5cm thick material t
61001  15   -0.4751          (-61001)       imp:n=1    $Ext wl Filled
61002  5    0.00359833       (-61002)       imp:n=1    $Metal wl
61003  5    0.00359833       (-61003)       imp:n=1    $Metal wl
61004  13    -7.92           (-61004)       imp:n=1    $SS
61005  13    -7.92           (-61005)       imp:n=1    $SS
61006  13    -7.92           (-61006)       imp:n=1    $SS
61007  5    0.00359833       (-61007)       imp:n=1    $Metal wl
61008  5    0.00359833       (-61008)       imp:n=1    $Metal wl
61009  5    0.00359833       (-61009)       imp:n=1    $Metal wl
61010  5    0.00359833       (-61010)       imp:n=1    $Metal wl
61011  5    0.00359833       (-61011)       imp:n=1    $Metal wl
61012  5    0.00359833       (-61012)       imp:n=1    $Metal wl
61013  5    0.00359833       (-61013)       imp:n=1    $Metal wl
61014  5    0.00359833       (-61014)       imp:n=1    $Metal wl
61015  13    -7.92           (-61015)       imp:n=1    $SS
61016  5    0.00359833       (-61016)       imp:n=1    $Metal wl
61017  5    0.00359833       (-61017)       imp:n=1    $Metal wl
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61018  5    0.00359833       (-61018)      imp:n=1    $Metal wl
61019  13    -7.92           (-61019)      imp:n=1    $SS
61020  5    0.00359833       (-61020)      imp:n=1    $Metal wl
61021  5    0.00359833       (-61021)      imp:n=1    $Metal wl
61022  15   -0.4751          (-61022)      imp:n=1    $Ext wl Filled
61023  5    0.00359833       (-61023)      imp:n=1    $Metal wl
61024  15   -0.4751          (-61024)      imp:n=1    $Ext wl Filled
61025  5    0.00359833       (-61025)      imp:n=1    $Metal wl
61026  15   -0.4751          (-61026)      imp:n=1    $Ext wl Filled
61027  5    0.00359833       (-61027)      imp:n=1    $Metal wl
61028  15   -0.4751          (-61028)      imp:n=1    $Ext wl Filled
61029  5    0.00359833       (-61029)      imp:n=1    $Metal wl
61030  15   -0.4751          (-61030)      imp:n=1    $Ext wl Filled
61031  13    -7.92           (-61031)      imp:n=1    $SS
61032  13    -7.92           (-61032)      imp:n=1    $SS
61033  13    -7.92           (-61033)      imp:n=1    $SS
61034  13    -7.92           (-61034)      imp:n=1    $SS
61035  5    0.00359833       (-61035)      imp:n=1    $Metal wl
61036  5    0.00359833       (-61036)      imp:n=1    $Metal wl
61037  5    0.00359833       (-61037)      imp:n=1    $Metal wl
61038  5    0.00359833       (-61038)      imp:n=1    $Metal wl
c
c
c     Floor1 Room 603
60301  5    0.00359833       (-60301)      imp:n=1    $Metal wl
60302  15   -0.4751          (-60302)      imp:n=1    $Ext wl Filled
60303  13    -7.92           (-60303)      imp:n=1    $SS
60304  13    -7.92           (-60304)      imp:n=1    $SS
60305  13    -7.92           (-60305)      imp:n=1    $SS
60306  13    -7.92           (-60306)      imp:n=1    $SS
60307  5    0.00359833       (-60307)      imp:n=1    $Metal wl
60308  15   -0.4751          (-60308)      imp:n=1    $Ext wl Filled
60309  13    -7.92           (-60309)      imp:n=1    $SS
60310  13    -7.92           (-60310)      imp:n=1    $SS
60311  5    0.00359833       (-60311)      imp:n=1    $Metal wl
60312  5    0.00359833       (-60312)      imp:n=1    $Metal wl
60313  5    0.00359833       (-60313)      imp:n=1    $Metal wl
60314  5    0.00359833       (-60314)      imp:n=1    $Metal wl
60315  5    0.00359833       (-60315)      imp:n=1    $Metal wl
60316  5    0.00359833       (-60316)      imp:n=1    $Metal wl
60317  5    0.00359833       (-60317)      imp:n=1    $Metal wl
60318  5    0.00359833       (-60318)      imp:n=1    $Metal wl
60319  15   -0.4751          (-60319)      imp:n=1    $Ext wl Filled
60320  5    0.00359833       (-60320)      imp:n=1    $Metal wl
60321  5    0.00359833       (-60321)      imp:n=1    $Metal wl
60322  5    0.00359833       (-60322)      imp:n=1    $Metal wl
60323  5    0.00359833       (-60323)      imp:n=1    $Metal wl
60324  5    0.00359833       (-60324)      imp:n=1    $Metal wl
60325  5    0.00359833       (-60325)      imp:n=1    $Metal wl
60326  13    -7.92           (-60326)      imp:n=1    $SS
60327  5    0.00359833       (-60327)      imp:n=1    $Metal wl
60328  5    0.00359833       (-60328)      imp:n=1    $Metal wl
60329  5    0.00359833       (-60329)      imp:n=1    $Metal wl
60330  5    0.00359833       (-60330)      imp:n=1    $Metal wl
60331  3    -2.3             (-60331)      imp:n=1    $Conc Filled Blank Concrete Box
60336  15   -0.4751          (-60336)      imp:n=1    $Ext wl Filled
c
c
c     Floor1 Room 601
60101  13    -7.92           (-60101)      imp:n=1    $SS
60102  13    -7.92           (-60102)      imp:n=1    $SS
60103  13    -7.92           (-60103)      imp:n=1    $SS
60104  5    0.00359833       (-60104)      imp:n=1    $Metal wl
60105  5    0.00359833       (-60105)      imp:n=1    $Metal wl
c
c
c     Floor1 Room 604
60401  5    0.00359833       (-60401)      imp:n=1    $Metal wl
60403  5    0.00359833       (-60403)      imp:n=1    $Metal wl
60404  15   -0.4751          (-60404)      imp:n=1    $Ext wl Filled
```

```
60405  5    0.00359833      (-60405)      imp:n=1    $Metal wl
60406  5    0.00359833      (-60406)      imp:n=1    $Metal wl
60407  5    0.00359833      (-60407)      imp:n=1    $Metal wl
60408  5    0.00359833      (-60408)      imp:n=1    $Metal wl
60409  13    -7.92          (-60409)      imp:n=1    $SS
60410  13    -7.92          (-60410)      imp:n=1    $SS
60411  13    -7.92          (-60411)      imp:n=1    $SS
60412  5    0.00359833      (-60412)      imp:n=1    $Metal wl
60413  5    0.00359833      (-60413)      imp:n=1    $Metal wl
60414  5    0.00359833      (-60414)      imp:n=1    $Metal wl
60415  5    0.00359833      (-60415)      imp:n=1    $Metal wl
60416  5    0.00359833      (-60416)      imp:n=1    $Metal wl
c
c
c  ////////////////Begin Southernmost Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Cells****************************************
c  The origin was set as the outside corner of the Southwesternmost wall of the south west section
c  This is the Southwesternmost point of the entire section as well as that for Room 206
c
c     Floor1 Room 206
20601  5    0.00359833      (-20601)      imp:n=1    $Metal wl
20602  5    0.00359833      (-20602)      imp:n=1    $Metal wl
20603  5    0.00359833      (-20603)      imp:n=1    $Metal wl
20604  5    0.00359833      (-20604)      imp:n=1    $Metal wl
20605  5    0.00359833      (-20605)      imp:n=1    $Metal wl
20606  5    0.00359833      (-20606)      imp:n=1    $Metal wl
20607  5    0.00359833      (-20607)      imp:n=1    $Metal wl
20608  5    0.00359833      (-20608)      imp:n=1    $Metal wl
20609  5    0.00359833      (-20609)      imp:n=1    $Metal wl
20610  5    0.00359833      (-20610)      imp:n=1    $Metal wl
20611  5    0.00359833      (-20611)      imp:n=1    $Metal wl
20612  13   -7.92           (-20612)      imp:n=1    $SS
20613  5    0.00359833      (-20613)      imp:n=1    $Metal wl
20614  5    0.00359833      (-20614)      imp:n=1    $Metal wl
20615  5    0.00359833      (-20615)      imp:n=1    $Metal wl
20616  5    0.00359833      (-20616)      imp:n=1    $Metal wl
20617  13   -7.92           (-20617)      imp:n=1    $SS
20618  13   -7.92           (-20618)      imp:n=1    $SS
20619  13   -7.92           (-20619)      imp:n=1    $SS
20620  13   -7.92           (-20620)      imp:n=1    $SS
20621  13   -7.92           (-20621)      imp:n=1    $SS
20622  15   -0.4751         (-20622)      imp:n=1    $Ext wl Filled
20623  15   -0.4751         (-20623)      imp:n=1    $Ext wl Filled
20624  15   -0.4751         (-20624)      imp:n=1    $Ext wl Filled
c
c
c     Floor1 Room 204/205
20401  5    0.00359833      (-20401)      imp:n=1    $Metal wl
20402  5    0.00359833      (-20402)      imp:n=1    $Metal wl
20403  5    0.00359833      (-20403)      imp:n=1    $Metal wl
20404  5    0.00359833      (-20404)      imp:n=1    $Metal wl
c
c
c     Floor1 Room 101/102/102A
10101  5    0.00359833      (-10101)      imp:n=1    $Metal wl
10102  5    0.00359833      (-10102)      imp:n=1    $Metal wl
10103  5    0.00359833      (-10103)      imp:n=1    $Metal wl
10104  5    0.00359833      (-10104)      imp:n=1    $Metal wl
10105  5    0.00359833      (-10105)      imp:n=1    $Metal wl
10106  5    0.00359833      (-10106)      imp:n=1    $Metal wl
10107  5    0.00359833      (-10107)      imp:n=1    $Metal wl
10108  5    0.00359833      (-10108)      imp:n=1    $Metal wl
10109  5    0.00359833      (-10109)      imp:n=1    $Metal wl
10110  5    0.00359833      (-10110)      imp:n=1    $Metal wl
10111  5    0.00359833      (-10111)      imp:n=1    $Metal wl
10112  5    0.00359833      (-10112)      imp:n=1    $Metal wl
10113  5    0.00359833      (-10113)      imp:n=1    $Metal wl
10114  5    0.00359833      (-10114)      imp:n=1    $Metal wl
c
c
```

```
c  ///////////////Begin Southernmost East Section of Floor1\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Cells****************************************
c  The origin was set as the outside corner of the Southwesternmost wall of the south east section
c  The origin lies directly on the border of this section and that to the west. The southern half
c  of this section has several rooms labeled with words rather than numbers. I.E. Lunch Room, Men Change Room, etc..
c  Because of the labling system I am using the majority of the SW corner will be designated with the room ID
c  of 109. Concordingly the SE corner of this section will be designated  the room ID of 110.
c
c
c     Floor1 Room 109
10901  5    0.00359833      (-10901)      imp:n=1    $Metal wl
10902  5    0.00359833      (-10902)      imp:n=1    $Metal wl
10903  5    0.00359833      (-10903)      imp:n=1    $Metal wl
10904  5    0.00359833      (-10904)      imp:n=1    $Metal wl
10905  5    0.00359833      (-10905)      imp:n=1    $Metal wl
10906  5    0.00359833      (-10906)      imp:n=1    $Metal wl
10907  5    0.00359833      (-10907)      imp:n=1    $Metal wl
10908  5    0.00359833      (-10908)      imp:n=1    $Metal wl
10909  5    0.00359833      (-10909)      imp:n=1    $Metal wl
10910  5    0.00359833      (-10910)      imp:n=1    $Metal wl
10911  13   -7.92           (-10911)      imp:n=1    $SS
10912  13   -7.92           (-10912)      imp:n=1    $SS
c  Mens Change Room Below here - MCR
10913  13   -7.92           (-10913)      imp:n=1    $SS
10914  13   -7.92           (-10914)      imp:n=1    $SS
10915  13   -7.92           (-10915)      imp:n=1    $SS
10916  5    0.00359833      (-10916)      imp:n=1    $Metal wl
10917  5    0.00359833      (-10917)      imp:n=1    $Metal wl
10918  5    0.00359833      (-10918)      imp:n=1    $Metal wl
10919  13   -7.92           (-10919)      imp:n=1    $SS
10920  5    0.00359833      (-10920)      imp:n=1    $Metal wl
10921  5    0.00359833      (-10921)      imp:n=1    $Metal wl
10922  5    0.00359833      (-10922)      imp:n=1    $Metal wl
c  Room 109/109A Below here
10923  5    0.00359833      (-10923)      imp:n=1    $Metal wl
10924  5    0.00359833      (-10924)      imp:n=1    $Metal wl
10925  5    0.00359833      (-10925)      imp:n=1    $Metal wl
c  Main lobby area - MLA
10926  13   -7.92           (-10926)      imp:n=1    $SS
10927  5    0.00359833      (-10927)      imp:n=1    $Metal wl
10928  5    0.00359833      (-10928)      imp:n=1    $Metal wl
c  Second half of Mens Change Room - MCR/Showers - SH/Pipe Chase - PC/Mens Bathroom - MB
10929  13   -7.92           (-10929)      imp:n=1    $SS
10930  5    0.00359833      (-10930)      imp:n=1    $Metal wl
10931  5    0.00359833      (-10931)      imp:n=1    $Metal wl
10932  5    0.00359833      (-10932)      imp:n=1    $Metal wl
10933  5    0.00359833      (-10933)      imp:n=1    $Metal wl
10934  5    0.00359833      (-10934)      imp:n=1    $Metal wl
10935  5    0.00359833      (-10935)      imp:n=1    $Metal wl
10936  5    0.00359833      (-10936)      imp:n=1    $Metal wl
10937  5    0.00359833      (-10937)      imp:n=1    $Metal wl
10938  5    0.00359833      (-10938)      imp:n=1    $Metal wl
10939  5    0.00359833      (-10939)      imp:n=1    $Metal wl
10940  5    0.00359833      (-10940)      imp:n=1    $Metal wl
10941  5    0.00359833      (-10941)      imp:n=1    $Metal wl
10942  5    0.00359833      (-10942)      imp:n=1    $Metal wl
10943  5    0.00359833      (-10943)      imp:n=1    $Metal wl
10944  5    0.00359833      (-10944)      imp:n=1    $Metal wl
10945  5    0.00359833      (-10945)      imp:n=1    $Metal wl
10946  5    0.00359833      (-10946)      imp:n=1    $Metal wl
10947  5    0.00359833      (-10947)      imp:n=1    $Metal wl
10948  5    0.00359833      (-10948)      imp:n=1    $Metal wl
10949  5    0.00359833      (-10949)      imp:n=1    $Metal wl
10950  5    0.00359833      (-10950)      imp:n=1    $Metal wl
10951  5    0.00359833      (-10951)      imp:n=1    $Metal wl
10952  5    0.00359833      (-10952)      imp:n=1    $Metal wl
10953  5    0.00359833      (-10953)      imp:n=1    $Metal wl
10954  5    0.00359833      (-10954)      imp:n=1    $Metal wl
10955  5    0.00359833      (-10955)      imp:n=1    $Metal wl
10956  5    0.00359833      (-10956)      imp:n=1    $Metal wl
```

10957 5 0.00359833 (-10957) imp:n=1 $Metal wl
c Hallway above Room 109 and below Room 108
10958 5 0.00359833 (-10958) imp:n=1 $Metal wl
10959 5 0.00359833 (-10959) imp:n=1 $Metal wl
10960 5 0.00359833 (-10960) imp:n=1 $Metal wl
10961 5 0.00359833 (-10961) imp:n=1 $Metal wl
10966 15 -0.4751 (-10966) imp:n=1 $Ext wl Filled
10967 15 -0.4751 (-10967) imp:n=1 $Ext wl Filled
c
c
c
c
c Floor1 Room 110/ Men B Room Women B Room/ Conf Room Women change room/ copy room
c Mens Room - MR/Pipe Chase -PC/Womens Room - WR
11001 5 0.00359833 (-11001) imp:n=1 $Metal wl
11002 5 0.00359833 (-11002) imp:n=1 $Metal wl
11003 5 0.00359833 (-11003) imp:n=1 $Metal wl
11004 5 0.00359833 (-11004) imp:n=1 $Metal wl
11005 5 0.00359833 (-11005) imp:n=1 $Metal wl
11006 5 0.00359833 (-11006) imp:n=1 $Metal wl
11007 5 0.00359833 (-11007) imp:n=1 $Metal wl
11008 5 0.00359833 (-11008) imp:n=1 $Metal wl
11009 5 0.00359833 (-11009) imp:n=1 $Metal wl
11010 5 0.00359833 (-11010) imp:n=1 $Metal wl
11011 5 0.00359833 (-11011) imp:n=1 $Metal wl
c Room 110/Conf Room - CR starts below here
11012 5 0.00359833 (-11012) imp:n=1 $Metal wl
11013 5 0.00359833 (-11013) imp:n=1 $Metal wl
11014 5 0.00359833 (-11014) imp:n=1 $Metal wl
11015 5 0.00359833 (-11015) imp:n=1 $Metal wl
11016 5 0.00359833 (-11016) imp:n=1 $Metal wl
11017 5 0.00359833 (-11017) imp:n=1 $Metal wl
11018 5 0.00359833 (-11018) imp:n=1 $Metal wl
11019 5 0.00359833 (-11019) imp:n=1 $Metal wl
11020 5 0.00359833 (-11020) imp:n=1 $Metal wl
11021 5 0.00359833 (-11021) imp:n=1 $Metal wl
11022 5 0.00359833 (-11022) imp:n=1 $Metal wl
11023 5 0.00359833 (-11023) imp:n=1 $Metal wl
11024 5 0.00359833 (-11024) imp:n=1 $Metal wl
11025 5 0.00359833 (-11025) imp:n=1 $Metal wl
11026 5 0.00359833 (-11026) imp:n=1 $Metal wl
11027 5 0.00359833 (-11027) imp:n=1 $Metal wl
c Room 110A - A/Room110C - C/Room 110B - B/Copy Room - copy/
11028 5 0.00359833 (-11028) imp:n=1 $Metal wl
11029 5 0.00359833 (-11029) imp:n=1 $Metal wl
11030 5 0.00359833 (-11030) imp:n=1 $Metal wl
11031 5 0.00359833 (-11031) imp:n=1 $Metal wl
11032 5 0.00359833 (-11032) imp:n=1 $Metal wl
11033 5 0.00359833 (-11033) imp:n=1 $Metal wl
11034 5 0.00359833 (-11034) imp:n=1 $Metal wl
11035 5 0.00359833 (-11035) imp:n=1 $Metal wl
11036 5 0.00359833 (-11036) imp:n=1 $Metal wl
11037 5 0.00359833 (-11037) imp:n=1 $Metal wl
11038 5 0.00359833 (-11038) imp:n=1 $Metal wl
11039 5 0.00359833 (-11039) imp:n=1 $Metal wl
11040 5 0.00359833 (-11040) imp:n=1 $Metal wl
11041 5 0.00359833 (-11041) imp:n=1 $Metal wl
11042 5 0.00359833 (-11042) imp:n=1 $Metal wl
11043 5 0.00359833 (-11043) imp:n=1 $Metal wl
11044 5 0.00359833 (-11044) imp:n=1 $Metal wl
11045 5 0.00359833 (-11045) imp:n=1 $Metal wl
c Women change room below here - WCR
11046 5 0.00359833 (-11046) imp:n=1 $Metal wl
11047 5 0.00359833 (-11047) imp:n=1 $Metal wl
11048 5 0.00359833 (-11048) imp:n=1 $Metal wl
11049 5 0.00359833 (-11049) imp:n=1 $Metal wl
11050 5 0.00359833 (-11050) imp:n=1 $Metal wl
c Wall above copy room and 110B but below Room 111 and the North Eastern Womens restroom below here
11051 5 0.00359833 (-11051) imp:n=1 $Metal wl
11052 13 -7.92 (-11052) imp:n=1 $SS

```
11053  5    0.00359833       (-11053)       imp:n=1    $Metal wl
11054  5    0.00359833       (-11054)       imp:n=1    $Metal wl
11055  5    0.00359833       (-11055)       imp:n=1    $Metal wl
11056  5    0.00359833       (-11056)       imp:n=1    $Metal wl
11057  5    0.00359833       (-11057)       imp:n=1    $Metal wl
c  Womens lounge - WL
11058  5    0.00359833       (-11058)       imp:n=1    $Metal wl
11059  5    0.00359833       (-11059)       imp:n=1    $Metal wl
11060  5    0.00359833       (-11060)       imp:n=1    $Metal wl
11061  5    0.00359833       (-11061)       imp:n=1    $Metal wl
11062  5    0.00359833       (-11062)       imp:n=1    $Metal wl
11063  5    0.00359833       (-11063)       imp:n=1    $Metal wl
11064  5    0.00359833       (-11064)       imp:n=1    $Metal wl
11065  5    0.00359833       (-11065)       imp:n=1    $Metal wl
11066  5    0.00359833       (-11066)       imp:n=1    $Metal wl
11067  5    0.00359833       (-11067)       imp:n=1    $Metal wl
11068  5    0.00359833       (-11068)       imp:n=1    $Metal wl
11069  5    0.00359833       (-11069)       imp:n=1    $Metal wl
11075  15   -0.4751         (-11075)       imp:n=1    $Ext wl Filled S wl MR-PC-WR
11076  5    0.00359833       (-11076)       imp:n=1    $Metal wl
11077  5    0.00359833       (-11077)       imp:n=1    $Metal wl l
11078  15   -0.4751         (-11078)       imp:n=1    $Ext wl Filled S o wl MR-PC-WR
c
c
c     Floor1 Room 111/Room 111A/NW Women Rest Room - NWW/Women change and shower room - WSR
11101  5    0.00359833       (-11101)       imp:n=1    $Metal wl
11102  5    0.00359833       (-11102)       imp:n=1    $Metal wl
11103  5    0.00359833       (-11103)       imp:n=1    $Metal wl
11104  5    0.00359833       (-11104)       imp:n=1    $Metal wl
11105  5    0.00359833       (-11105)       imp:n=1    $Metal wl
11106  5    0.00359833       (-11106)       imp:n=1    $Metal wl
11107  5    0.00359833       (-11107)       imp:n=1    $Metal wl
11108  5    0.00359833       (-11108)       imp:n=1    $Metal wl
11109  5    0.00359833       (-11109)       imp:n=1    $Metal wl
11110  5    0.00359833       (-11110)       imp:n=1    $Metal wl
11111  5    0.00359833       (-11111)       imp:n=1    $Metal wl
11112  5    0.00359833       (-11112)       imp:n=1    $Metal wl
11113  5    0.00359833       (-11113)       imp:n=1    $Metal wl
11114  5    0.00359833       (-11114)       imp:n=1    $Metal wl
11115  5    0.00359833       (-11115)       imp:n=1    $Metal wl
11116  5    0.00359833       (-11116)       imp:n=1    $Metal wl
11117  5    0.00359833       (-11117)       imp:n=1    $Metal wl
11118  5    0.00359833       (-11118)       imp:n=1    $Metal wl
11119  5    0.00359833       (-11119)       imp:n=1    $Metal wl
11120  5    0.00359833       (-11120)       imp:n=1    $Metal wl
11121  5    0.00359833       (-11121)       imp:n=1    $Metal wl
11122  5    0.00359833       (-11122)       imp:n=1    $Metal wl
11123  5    0.00359833       (-11123)       imp:n=1    $Metal wl
11124  5    0.00359833       (-11124)       imp:n=1    $Metal wl
11125  5    0.00359833       (-11125)       imp:n=1    $Metal wl
11126  5    0.00359833       (-11126)       imp:n=1    $Metal wl
11127  5    0.00359833       (-11127)       imp:n=1    $Metal wl
11128  5    0.00359833       (-11128)       imp:n=1    $Metal wl
11129  5    0.00359833       (-11129)       imp:n=1    $Metal wl
11130  5    0.00359833       (-11130)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 107/108
10701  5    0.00359833       (-10701)       imp:n=1    $Metal wl
10702  5    0.00359833       (-10702)       imp:n=1    $Metal wl
10703  5    0.00359833       (-10703)       imp:n=1    $Metal wl
10704  5    0.00359833       (-10704)       imp:n=1    $Metal wl
10705  5    0.00359833       (-10705)       imp:n=1    $Metal wl
10706  5    0.00359833       (-10706)       imp:n=1    $Metal wl
10707  5    0.00359833       (-10707)       imp:n=1    $Metal wl
c
c
c     Floor1 Room 103/104/104A
10301  5    0.00359833       (-10301)       imp:n=1    $Metal wl
10302  5    0.00359833       (-10302)       imp:n=1    $Metal wl
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10303  5    0.00359833      (-10303)      imp:n=1    $Metal wl
10304  5    0.00359833      (-10304)      imp:n=1    $Metal wl
10305  5    0.00359833      (-10305)      imp:n=1    $Metal wl
10306  5    0.00359833      (-10306)      imp:n=1    $Metal wl
10307  5    0.00359833      (-10307)      imp:n=1    $Metal wl
10308  5    0.00359833      (-10308)      imp:n=1    $Metal wl
10309  5    0.00359833      (-10309)      imp:n=1    $Metal wl
10310  5    0.00359833      (-10310)      imp:n=1    $Metal wl
10311  5    0.00359833      (-10311)      imp:n=1    $Metal wl
10312  5    0.00359833      (-10312)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 112/112A/113/114/115
11201  5    0.00359833      (-11201)      imp:n=1    $Metal wl
11202  5    0.00359833      (-11202)      imp:n=1    $Metal wl
11203  5    0.00359833      (-11203)      imp:n=1    $Metal wl
11204  5    0.00359833      (-11204)      imp:n=1    $Metal wl
11205  5    0.00359833      (-11205)      imp:n=1    $Metal wl
11206  5    0.00359833      (-11206)      imp:n=1    $Metal wl
11207  5    0.00359833      (-11207)      imp:n=1    $Metal wl
11208  5    0.00359833      (-11208)      imp:n=1    $Metal wl
11209  5    0.00359833      (-11209)      imp:n=1    $Metal wl
11210  5    0.00359833      (-11210)      imp:n=1    $Metal wl
11211  5    0.00359833      (-11211)      imp:n=1    $Metal wl
11212  5    0.00359833      (-11212)      imp:n=1    $Metal wl
c
c
c    Floor1 Room 116/117/118/119
11601  5    0.00359833      (-11601)      imp:n=1    $Metal wl
11602  5    0.00359833      (-11602)      imp:n=1    $Metal wl
11603  5    0.00359833      (-11603)      imp:n=1    $Metal wl
11604  5    0.00359833      (-11604)      imp:n=1    $Metal wl
11605  5    0.00359833      (-11605)      imp:n=1    $Metal wl
11606  5    0.00359833      (-11606)      imp:n=1    $Metal wl
11607  5    0.00359833      (-11607)      imp:n=1    $Metal wl
11608  5    0.00359833      (-11608)      imp:n=1    $Metal wl
11609  5    0.00359833      (-11609)      imp:n=1    $Metal wl
11610  5    0.00359833      (-11610)      imp:n=1    $Metal wl
c
c
c
c ///////////////Begin Roomspace Fill Section of Floor1\\\\\\\\\\\\\\\\\\\\\\
c This section contains all of the cells that define the interior of each Numbered Room
c These cells were all grouped together following the same regional layout in the floor -starting
c from the northwest section moving accross the floor to the east and then returning to the west.
c
c
c   TAG=TAGf1roomfill
c
c
c   Northwest and Northeast Room Fill Sections
70017  8    -0.10907      (-70017)      imp:n=1    $Roomspace  700
70107  8    -0.10907      (-70107)      imp:n=1    $Roomspace  701
70207  8    -0.10907      (-70207)      imp:n=1    $Roomspace  702
70316  8    -0.10907      (-70316 70302 70301)      imp:n=1    $Roomspace  703
32017  8    -0.10907      (-32017)      imp:n=1    $Roomspace  320/421
32418  8    -0.10907      (-32418)      imp:n=1    $Roomspace  324
32419  8    -0.10907      (-32419)      imp:n=1    $Roomspace  425 Partially Filled
33029  8    -0.10907      (-33029)      imp:n=1    $Roomspace  330
33030  1    -0.001202     (-33030)      imp:n=1    $Roomspace  427 Partially Filled
32523  8    -0.10907      (-32523 32504 32505 32506)      imp:n=1    $Roomspace  325 Partially Filled
32716  8    -0.10907      (-32716 32712 32711)      imp:n=1    $Roomspace  327
32717  8    -0.10907      (-32717)      imp:n=1    $Roomspace  327A
71115  8    -0.10907      (-71115)      imp:n=1    $Roomspace  327
42013  8    -0.10907      (-42013)      imp:n=1    $Roomspace  420
42014  8    -0.10907      (-42014)      imp:n=1    $Roomspace  420
52520  8    -0.10907      (-52520)      imp:n=1    $Roomspace  525
52521  8    -0.10907      (-52521)      imp:n=1    $Roomspace  525
52522  8    -0.10907      (-52522)      imp:n=1    $Roomspace  525
42620  8    -0.10907      (-42620)      imp:n=1    $Roomspace  426A
```

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42621  8    -0.10907       (-42621)       imp:n=1    $Roomspace  426
43014  1    -0.001202      (-43014 43003)       imp:n=1    $Roomspace  430
52724  8    -0.10907       (-52724)       imp:n=1    $Roomspace  527
52725  6    -0.04855       (-52725)       imp:n=1    $Roomspace  527A
52916  1    -0.001202      (-52916 52911 52912)       imp:n=1    $Roomspace  529
52016  1    -0.001202      (-52016)       imp:n=1    $Roomspace  520
52017  8    -0.10907       (-52017)       imp:n=1    $Roomspace  520N
52410  8    -0.10907       (-52410)       imp:n=1    $Roomspace  524
52811  8    -0.10907       (-52811 52807)       imp:n=1    $Roomspace  528 Partially Filled
53017  1    -0.001202      (-53017 53007 53008)       imp:n=1    $Roomspace  530
c
c
c  West and Southwest Room Fill Sections
20221  8    -0.10907       (-20221)       imp:n=1    $Roomspace  202
20222  8    -0.10907       (-20222)       imp:n=1    $Roomspace  203
20919  7    -0.05514      (-20919 20909) imp:n=1    $Roomspace  209
30113  6    -0.04855       (-30113 30111)       imp:n=1    $Roomspace  301
30309  1    -0.001202      (-30309)       imp:n=1    $Roomspace  303
30512  8    -0.10907       (-30512)       imp:n=1    $Roomspace  305 Partially Filled
30913  8    -0.10907       (-30913)       imp:n=1    $Roomspace  309
31313  8    -0.10907       (-31313)       imp:n=1    $Roomspace  313
31704  8    -0.10907       (-31704)       imp:n=1    $Roomspace  317
31912  6    -0.04855       (-31912)       imp:n=1    $Roomspace  319A
31913  6    -0.04855       (-31913)       imp:n=1    $Roomspace  319
30024  8    -0.10907       (-30024 30003 30005)       imp:n=1    $Roomspace  300
30025  8    -0.10907       (-30025)       imp:n=1    $Roomspace TBF 300
30612  8    -0.10907       (-30612 30602)       imp:n=1    $Roomspace  306
31006  8    -0.10907       (-31006)            imp:n=1    $Roomspace  310
31007  8    -0.10907       (-31007)            imp:n=1    $Roomspace  310 East
31217  8    -0.10907       (-31217 31201)       imp:n=1    $Roomspace  312
31612  8    -0.10907       (-31612 31602)       imp:n=1    $Roomspace  316
40116  8    -0.10907       (-40116 30003)       imp:n=1    $Roomspace  401 Partially Filled
40117  8    -0.10907       (-40117)            imp:n=1    $Roomspace  403
40514  8    -0.10907       (-40514 30006 40501 )       imp:n=1    $Roomspace  405 Partially Filled
40902  8    -0.10907       (-40902 30603)       imp:n=1    $Roomspace  409 Partially Filled
41119  8    -0.10907       (-41119 31202)       imp:n=1    $Roomspace  411
41908  8    -0.10907       (-41908 31602)       imp:n=1    $Roomspace  419
c
c
c  Southeast and East Room Fill Sections
40016  8    -0.10907       (-40016)       imp:n=1    $Roomspace  400 Partially Filled
50112  8    -0.10907       (-50112)       imp:n=1    $Roomspace  501 Partially Filled
50017  8    -0.10907       (-50017)       imp:n=1    $Roomspace  500
40405  1    -0.001202      (-40405)       imp:n=1    $Roomspace  404
50507  7    -0.05514      (-50507)       imp:n=1    $Roomspace  505 Partially Filled
50406  6    -0.02427       (-50407)       imp:n=1    $Roomspace  504 Partially Filled
50407  6    -0.02427       (-50406)       imp:n=1    $Roomspace  504A
40615  8    -0.10907       (-40615)       imp:n=1    $Roomspace  406 Partially Filled
50712  8    -0.10907       (-50712)       imp:n=1    $Roomspace  507 Partially Filled
50614  8    -0.10907       (-50614)       imp:n=1    $Roomspace  506
41014  8    -0.10907       (-41014)       imp:n=1    $Roomspace  410 Partially Filled
51110  8    -0.10907       (-51110)       imp:n=1    $Roomspace  511 Partially Filled
51010  8    -0.10907       (-51010)       imp:n=1    $Roomspace  510
51404  1    -0.001202      (-51404)       imp:n=1    $Roomspace  514
51502  8    -0.10907       (-51502)       imp:n=1    $Roomspace  515
41404  8    -0.10907       (-41404)       imp:n=1    $Roomspace  414
41615  8    -0.10907       (-41615)       imp:n=1    $Roomspace  416 Partially Filled
51711  8    -0.10907       (-51711)       imp:n=1    $Roomspace  517 Partially Filled
51614  8    -0.10907       (-51614)       imp:n=1    $Roomspace  516
60016  8    -0.10907       (-60016)       imp:n=1    $Roomspace  600
60231  8    -0.10907      (-60231)       imp:n=1    $Roomspace  606
c
c
c  Southernmost and Southeasternmost Room Fill Sections
20405  6    -0.04855       (-20405)       imp:n=1    $Roomspace  204
20406  1    -0.001202      (-20406)       imp:n=1    $Roomspace  205 Partially Filled
20407  1    -0.001202      (-20407)       imp:n=1    $Roomspace  205
10115  6    -0.04855       (-10115)       imp:n=1    $Roomspace  101
10116  6    -0.04855       (-10116)       imp:n=1    $Roomspace  102
10117  6    -0.04855       (-10117 10108 10109)       imp:n=1    $Roomspace  102A
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10962  6    -0.04855       (-10962)       imp:n=1    $Roomspace  109A
10963  6    -0.04855       (-10963 10960) imp:n=1    $Roomspace  109
11070  6    -0.04855       (-11070)       imp:n=1    $Roomspace  110
11071  6    -0.04855       (-11071)       imp:n=1    $Roomspace  110A Partially Filled
11072  6    -0.04855       (-11072)       imp:n=1    $Roomspace  110C
11073  6    -0.04855       (-11073)       imp:n=1    $Roomspace  Copy Room
11074  6    -0.04855       (-11074)       imp:n=1    $Roomspace  110B
11131  6    -0.04855       (-11131)       imp:n=1    $Roomspace  111 Partially Filled
11132  6    -0.04855       (-11132 11115) imp:n=1    $Roomspace  111A
10708  6    -0.04855       (-10708)       imp:n=1    $Roomspace  108
10709  6    -0.04855       (-10709)       imp:n=1    $Roomspace  107
10313  6    -0.04855       (-10313)       imp:n=1    $Roomspace  103
10314  6    -0.04855       (-10314)       imp:n=1    $Roomspace  104
10315  6    -0.04855       (-10315)       imp:n=1    $Roomspace  104A
10316  6    -0.04855       (-10316)       imp:n=1    $Roomspace  105
10317  6    -0.04855       (-10317)       imp:n=1    $Roomspace  106
11213  6    -0.04855       (-11213)       imp:n=1    $Roomspace  112
11214  6    -0.04855       (-11214)       imp:n=1    $Roomspace  112A
11215  6    -0.04855       (-11215)       imp:n=1    $Roomspace  113
11216  6    -0.04855       (-11216)       imp:n=1    $Roomspace  114
11217  6    -0.04855       (-11217)       imp:n=1    $Roomspace  115
11611  6    -0.04855       (-11611 11601) imp:n=1    $Roomspace  116
11612  6    -0.04855       (-11612)       imp:n=1    $Roomspace  117
11613  6    -0.04855       (-11613)       imp:n=1    $Roomspace  118
11614  6    -0.04855       (-11614)       imp:n=1    $Roomspace  119
11615  15   -0.4751        (-11615)       imp:n=1    $Ext wl Filled
c
c
c
c
c
c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
c ccccccccccccccccccccccccccccc        Cell Definition Area       ccccccccccccccccccccccccccccccccccccccccccccccccc
c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
c cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
c
c Cells used to bypass the 1000 charachter cell card limit
c
c
c
c
c
c      Cell that combines all of the Floor1 subsections
100 0          (-991 101 102 103 104 105 106 107 108 109 110 111
                112 113 114 115 116 117 118 119 120 121 122 123 124
                125 126 127 128 129 130 131 132 133 134 ) imp:n=1 $
c
c
c   Begin Northwest Section of the central Section of Floor1
101 1   -0.001202 (-101 70001 70002 70003 70004 70005 70006 70007 70008
                70009 70010 70012 70013 70014 70015 70016 70018 70101
                70102 70103 70104 70105 70106 70201 70202 70203 70204
                70205 70206 70017 70107 70207 70316
                 ) imp:n=1 $Air Filled Section Box
c
c
c
102 1   -0.001202 (-102 32501 32502 32503 32504 32505 32506 32506 32507
                32508 32509 32510 32511 32512 32513 32514 32515 32516
                32517 32518 32519 32520 32521 32522 32524 32701 32702
                32703 32704 32705 32706 32707 32708 32709 32710 32711
                32712 32713 32714 32715 32017 32418 32419 33029 33030
                32523 32716 32717 32718 #70204 #70013 #70018 #70012
                 ) imp:n=1 $Air Filled Section Box
c
```

```
c
c
103 1   -0.001202 (-103 70302 70303 70304 70305 70306 70307 70308 70309
             70310 70311 70312 70313 70314 70315 70316 32001 32002
             32003 32015 32016 #32017
             ) imp:n=1 $Air Filled Section Box
c
c
c
104 1   -0.001202 (-104 32004 32005 32006 32007 32008 32009 32010 32011
             32012 32013 32014 32401 32402 32403 32404 32405 32406
             32407 32408 32409 32410 32411 32412 32413 32414 32415
             32416 32417 70316 32017 32418 32419 33029 33030 33001
             33002 33003 33004 33005 33006 33007 33008 33009 33010
             33011 33012 33013 33014 33015 33016 33017 33018 33019
             33020 33021 33022 33023 33024 33025 33026 33027 33028
             33031 33032) imp:n=1 $Air Filled Section Box
c
c
c   Begin Northeast Section of the Central Section of Floor1
105 1   -0.001202 (-105 71101 71102 71103 71104 71105 71106 71107 71108
             71109 71110 71111 71112 71113 71114 71115 42001 42002
             42003 42004 42005 42006 42007 42008 42009 42010 42011
             42012 42013 42014 52501 52502 52503 52504 52505 52506
             52507 52508 52509 52511 52510 52512 52513 52514 52515
             52516 52517 52518 52519 52520 52521 52522 42601 42602
             42619 42620 #42621
             ) imp:n=1 $ NE Air Filled Section Box
c
c
c
106 1   -0.001202 (-106 42603 42604 42605 42606 42607 42608 42609 42610
             42611 42612 42613 42614 42615 42616 42617 42618 42621
             43001 43002 43003 43004  43006 43013 43014 52701
             52702 52703 52704 52705 52706 52707 52708 52709 52710
             52711 52712  52714 52715 52716 52717 52718 52719
             52720 52721 52722 52723 52724 52725 52901 52902 52903
             52904 52905 52906 52907 52908 52909 52910 52911 52912
             52913 52916 #52519 #52510 #52512 #52513
             ) imp:n=1 $ NE Air Filled Section Box
c
c
c
134 1   -0.001202 (-134 43007 43008 43009 43010 43011 43012 52914 52713
             52915 52726 43005 43015 ) imp:n=1 $ NW Air Filled Section Box
c
c
c
107 1   -0.001202 (-107 52001 52002 52003 52004 52005 52006 52007 52008
              52009 52010 52011 52012 52013 52014 52015 52016 52017
              52401 52402 52403 52404 52405 52406 52407 52408 52409
              52410 52801 52802 52803 52804 52805 52806 52807 52808
              52809 52810 52811 52812 53001 53002 53003 53004 53005
              53006 53007 53008 53009 53010 53011 53012 53013 53014
              53015 53016 53017 53018 #60406 #60408 60403 60404
              60405 60409 60317 60318 60319) imp:n=1 $ E Air Filled Section Box
c
c
c   Begin West Section of Floor1
108 1   -0.001202 (-108 20001 20002 20003 20004 20005 20006 20007 20008
             20009 20010 20011 20012 20013 20014 20905 20906 20907
             20908 20909 20915 20916 20917 20918 20919 20920 20921
             20101 20102 20103 20104 20105 20106 20107 20108 20109
             20110 20111 20112 20113 20114 20115 20116 20117 20118
             20201 20202 20203 20204 20205 20206 20207 20208 20209
             20210 20211 20212 20213 20214 20215 20216 20217 20218
             20219 20220 20221 20222 ) imp:n=1 $Air Filled N Section Box
c
c
c
```

```
109 1   -0.001202 (-109 20901 20902 20903 20904 20910 20911 20912
              20913 20914 20922 #20908 #20919
              ) imp:n=1 $Air Filled S Section Box
c
c
c  Begin SouthWest Section of Floor1
110 1   -0.001202 (-110 30101 30102 30103 30104 30105 30106 30107 30108
              30109 30110 30111 30112 30113 30301 30302 30303 30304
              30305 30306 30307 30308 30309 30501 30502 30503 30504
              30505 30506 30507 30508 30509 30510 30511 30512 30901
              30902 30903 30904 30905 30906 30907 30908 30909 30910
              30911 30912 30913 #31904 #31313 31303 #20920
              ) imp:n=1 $Air Filled SW Section Box
c
c
c
111 1   -0.001202 (-111 31301 31302  31304 31305 31306 31307 31308
              31309 31310 31311 31312 31313 31701 31702 31703 31704
              31901 31902 31903 31904 31905 31906 31907 31908 31909
              31910 31911 31912 31913) imp:n=1 $Air Filled NW Section Box
c
c
c
112 1   -0.001202 (-112 30001 30002 30003 30004 30005 30006 30007
              30008 30009 30010 30011 30012 30013 30014 30015
              30016 30017 30018 30019 30020 30021 30022 30023
              30024 40101 40102 40103 40104 40105 40106 40107
              40108 40109 40110 40111 40112 40113 40114 40115
              40116 40117 40501 #40514  #30601 30025 40505
              40506 40507 40508 40509 #30612
              ) imp:n=1 $Air Filled SE Section Box
c
c
c
113 1   -0.001202 (-113 40502 40503 40504 40510 40511 40512 40513
              40514 40901 40902 30601 30602 30603 30604 30605
              30606 30607 30608 30609 30610 30611 31001 31002
              31003 31004 31005 31006 31007 31201 31202 31203
              31204 31205 31206 31207 31208 31209 31210 31211
              31212 41102 41103 41104 41105 41106 41107 41108
              41109 41110 41111 41112 41113 #30024 #31217 #41119
              30612 ) imp:n=1 $Air Filled E Section Box
c
c
c
114 1   -0.001202 (-114 31213 31214 31215 31216 31217 41114 41115
              41116 41117 41118 41119 31601 31602 31603 31604
              31605 31606 31607 31608 31609 31610 31611 31612
              41901 41902 41903 41904 41905 41906 41907 41908
              #31001 31202 31203 41101 466
              ) imp:n=1 $Air Filled NE Section Box
c
c
c   Begin SouthEast Section of Floor1
115 1   -0.001202 (-115 40001 40002 40003 40004 40005 40006 40007
              40008 40009 40010 40011 40012 40013 40014 40015
              40016 50101 50102 50103 50104 50105 50106 50107
              50108 50109 50110 50111 50112 40401 40402 40403
              40404 40405 50501 50502 50503 50504 50505 50506
              50507 #40615 #50712 40606 40607 40608 50703
              50704 50705) imp:n=1 $Air Filled SW Section Box
c
c
c
116 1   -0.001202 (-116 40601 40602 40603 40604 40605 40609 40610
              40611 40612 40613 40614 40615 50701 50702 50706
              50707 50708 50709 50710 50711 50712 41001 41005
              41006 41007 41008 41009 41010 41014 51101 51104
              51105 51106 51110 #50502
              ) imp:n=1 $Air Filled W Section Box
```

```
c
c
c
117 1   -0.001202 (-117 41011 41012 41013 51107 51108 51109 51501
              51502 41401 41402 41403 41404 41601 41602 41603
              41604 41605 41606 41607 41608 41609 41610 41611
              41612 41613 41614 41615 51701 51702 51703 51704
              51705 51706 51707 51708 51709 51710 51711
              #41014 #51110 #41005 41004 41002 41003 51102
              51103 ) imp:n=1 $Air Filled NW Section Box
c
c
c
118 1   -0.001202 (-118 50001 50002 50003 50004 50005 50006 50007
              50008 50009 50010 50011 50012 50013 50014 50015
              50016 50017 50401 50402 50403 50404 50405 50406
              50407 50601 50602 50603 50604 50605 50606 50607
              50608 50609 50610 50611 50612 50613 50614 51001
              51002 51003 51004 51005 51006 51007 51008 51009
              51010 51401 51402 51403 51404 51601 51602 51603
              51604 51605 51606 51607 51608 51609 51610 51611
              51612 51613 51614 464
              ) imp:n=1 $Air Filled E Section Box
c
c
c  Begin East Section of Floor1
119 1   -0.001202 (-119 60001 60002 60003 60004 60005 60006 60007
              60008 60009 60010 60011 60012 60013 60014 60015
              60016 60017 60201
              ) imp:n=1 $Air Filled Section Box
c
c
c
120 1   -0.001202 (-120 60202 60203 60204 60223 60224 60226 60231
              60205 60206 60207 60208 60209 60210 60211 60216
              60217 60218 60219 467) imp:n=1 $Air Filled Section Box
c
c
c
121 1   -0.001202 (-121 #60007 #60008 #60224 #60017 60220 60221
              60222 60225) imp:n=1 $Air Filled Section Box
c
c
c
122 1   -0.001202 (-122 60212 60213 60214 60215 60220 60221 60222
              60223 60224 60225 60226 60227 60228 60231 60232
              #60224 #60017 #60007 #60008 #61002
              ) imp:n=1 $Air Filled Section Box
c
c
c
123 1   -0.001202 (-123 60311 60312 60313 60314 60315 60316 60317
              60320 60321 60322 60323 60324 60325 60326 60327
              60328 60329 60330 60331 60336 #60227 61007 61008
              61003 #61002 #61013 #61014 61009 61010 61011
              #60301 #60302 60101 60102 60103 60104 60105 60401
              #60406 60407 60408 60409 60410 60411 60412 60413
              60414 60415 60416 #60004 #60005 #60006
              468) imp:n=1 $Air Filled Section Box
c
c
c
124 1   -0.001202 (-124 60301 60302 60303 60304 60305 60306 60307
              60308 60309 60310 61001 61002 61004 61005 61006
              61012 61013 61014 61015 61016 61017 61018 61019
              61020 61021 61022 61023 61024 61025 61026 61027
              61028 61029 61030 61031 61032 61033 61034 61035
              61036 61037 61038
               ) imp:n=1 $E Truck Lock Air Filled Section Box
c
```

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c
c
125 1   -0.001202 (-125 #60318 #60319 60317 60320 #60311 #60312
              #60336    ) imp:n=1 $NE Air Filled Section Box
c
c
c   Begin Southernmost Section of Floor1
126 1   -0.001202 (-126 20601 20602 20603 20604 20605 20606 20607
             20617 20619 20621 20622 20623 #20615 10113 10114
              #20616 #20624) imp:n=1 $Air Filled Section Box
c
c
c
127 1   -0.001202 (-127 20607 20608 20609 20610 20611 20612 20613
             20614 20615 20616 20618 20620 20624 20401 20402
             20403 20404 20405 20406 20407 10101 10102 10103
             10104 10105 10106 10107 10108 10109 10110 10111
             10112 10115 10116 10117 #108
             ) imp:n=1 $Air Filled Section Box
c
c
c
128 1   -0.001202 (-128 ) imp:n=1 $Air Filled NW Small Section Box
c
c
c   Begin Southernmost East Section of Floor1
129 1   -0.001202 (-129 10901 10902 10903 10904 10905 10906 10907
             10908 10909 10910 10911 10912 10913 10914 10915
             10916 10917 10918 10919 10920 10921 10922 10923
             10924 10925 10926 10929 10958 10959 10960 10961
             10962 10963 10966 ) imp:n=1 $Air Filled Section Box
c
c
c
130 1   -0.001202 (-130 10701 10702 10703 10704 10705 10706 10707
             10708 10709 10301 10302 10303 10304 10305 10306
             10307 10308 10309 10310 10311 10312 10313 10314
             10315 10316 10317 10930 10931 10932 10933 10934
             10935 10936 10937 10938 10939 10940 10941 10942
             10943 10944 10945 10946 10947 10948 10949 10950
             10951 10952 10953 10954 10955 10956 10957 #10901
             #10902 #10105 #10117 ) imp:n=1 $Air Filled Section Box
c
c
c
131 1   -0.001202 (-131 11001 11002 11003 11004 11005 11006 11007
             11008 11009 11010 11011 11012 11015 11016 11017
             11021 11022 11023 11024 11025 11026 11027
             10928 11070 11129 11130 10967
             11075 11076 11077 10927 11078) imp:n=1 $Air Filled Section Box
c
c
c
132 1   -0.001202 (-132 11013 11014 11019 11020 11018 11028 11029
             11030 11031 11032 11033 11034 11035 11036 11037
             11038 11039 11040 11041 11042 11043 11044 11045
             11046 11047 11048 11049 11050 11051 11052 11053
             11054 11055 11056 11057 11058 11061 11062 11063
             11064 11065 11066 11067 11068 11069 11071 11072
             11073 11074  #11129
             #11130 #11059 11104 ) imp:n=1 $Air Filled Section Box
c
c
c
133 1   -0.001202 (-133 11101 11102 11103  11105 11106 11107
             11108 11109 11110 11111 11112 11113 11114 11115
             11116 11117 11118 11119 11120 11121 11122 11123
             11124 11125 11126 11127 11128 #11129 #11130 11131
             11132 11201 11202 11203 11204 11205 11206 11207
             11208 11209 11210 11211 11212 11213 11214 11215
```

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             11216 11217 11601 11602 11603 11604 11605 11606
             11607 11608 11609 11610 11611 11612 11613 11614
             11615 11059 11060 #11061 #11062 465
             ) imp:n=1 $Air Filled Section Box
c
c
c
c
c
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222     Second Floor    222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c
c
c
c
c   Begin Northwest Section of Floor2
c  ***************Notes for this section of Cells*************************
c
c
c
c  Floor2 Room 910/911/hallway above these rooms
91002   5    0.00359833       (-91002)       imp:n=1    $Metal wl
91003   5    0.00359833       (-91003)       imp:n=1    $Metal wl
91004   5    0.00359833       (-91004)       imp:n=1    $Metal wl
91005   5    0.00359833       (-91005)       imp:n=1    $Metal wl
91006   5    0.00359833       (-91006)       imp:n=1    $Metal wl
91007   5    0.00359833       (-91007)       imp:n=1    $Metal wl
91008   5    0.00359833       (-91008)       imp:n=1    $Metal wl
91009   5    0.00359833       (-91009)       imp:n=1    $Metal wl
91010   5    0.00359833       (-91010)       imp:n=1    $Metal wl
91011   5    0.00359833       (-91011)       imp:n=1    $Metal wl
91012   15   -0.4751         (-91012)       imp:n=1    $Metal wl
c
c
c      Floor2 Room 912/914/916
91201   5    0.00359833       (-91201)       imp:n=1    $Metal wl
91202   5    0.00359833       (-91202)       imp:n=1    $Metal wl
91203   5    0.00359833       (-91203)       imp:n=1    $Metal wl
91204   5    0.00359833       (-91204)       imp:n=1    $Metal wl
91205   5    0.00359833       (-91205)       imp:n=1    $Metal wl
91206   5    0.00359833       (-91206)       imp:n=1    $Metal wl
91207   5    0.00359833       (-91207)       imp:n=1    $Metal wl
91208   5    0.00359833       (-91208)       imp:n=1    $Metal wl
c
c
c      Floor2 Room 913/915/928/929
91301   5    0.00359833       (-91301)       imp:n=1    $Metal wl
91302   5    0.00359833       (-91302)       imp:n=1    $Metal wl
91303   5    0.00359833       (-91303)       imp:n=1    $Metal wl
91304   5    0.00359833       (-91304)       imp:n=1    $Metal wl
91305   5    0.00359833       (-91305)       imp:n=1    $Metal wl
91306   5    0.00359833       (-91306)       imp:n=1    $Metal wl
91307   5    0.00359833       (-91307)       imp:n=1    $Metal wl
91308   5    0.00359833       (-91308)       imp:n=1    $Metal wl
91309   5    0.00359833       (-91309)       imp:n=1    $Metal wl
91310   5    0.00359833       (-91310)       imp:n=1    $Metal wl
91311   5    0.00359833       (-91311)       imp:n=1    $Metal wl
91312   5    0.00359833       (-91312)       imp:n=1    $Metal wl
91313   5    0.00359833       (-91313)       imp:n=1    $Metal wl
91314   5    0.00359833       (-91314)       imp:n=1    $Metal wl
c
c
c     Floor2 Room 918/919/917/921/905/923
91801   5    0.00359833       (-91801)       imp:n=1    $Metal wl
91802   5    0.00359833       (-91802)       imp:n=1    $Metal wl
```

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91803   5    0.00359833       (-91803)       imp:n=1     $Metal wl
91804   5    0.00359833       (-91804)       imp:n=1     $Metal wl
91805   5    0.00359833       (-91805)       imp:n=1     $Metal wl
91806   5    0.00359833       (-91806)       imp:n=1     $Metal wl
91807   5    0.00359833       (-91807)       imp:n=1     $Metal wl
91808   5    0.00359833       (-91808)       imp:n=1     $Metal wl
91809   5    0.00359833       (-91809)       imp:n=1     $Metal wl
91810   5    0.00359833       (-91810)       imp:n=1     $Metal wl
91811   5    0.00359833       (-91811)       imp:n=1     $Metal wl
91812   5    0.00359833       (-91812)       imp:n=1     $Metal wl
91813   5    0.00359833       (-91813)       imp:n=1     $Metal wl
91814   5    0.00359833       (-91814)       imp:n=1     $Metal wl
91815   5    0.00359833       (-91815)       imp:n=1     $Metal wl
91816   5    0.00359833       (-91816)       imp:n=1     $Metal wl
91817   5    0.00359833       (-91817)       imp:n=1     $Metal wl
91818   5    0.00359833       (-91818)       imp:n=1     $Metal wl
91819   15   -0.4751        (-91819)       imp:n=1    $Ext wl
91820   5    0.00359833       (-91820)       imp:n=1     $Metal wl
c
c
c     Floor2 Room 927/933/935/926/937/925/939 section contains some hallway remnants
92701   5    0.00359833       (-92701)       imp:n=1     $Metal wl
92702   5    0.00359833       (-92702)       imp:n=1     $Metal wl
92703   5    0.00359833       (-92703)       imp:n=1     $Metal wl
92704   5    0.00359833       (-92704)       imp:n=1     $Metal wl
92705   5    0.00359833       (-92705)       imp:n=1     $Metal wl
92706   5    0.00359833       (-92706)       imp:n=1     $Metal wl
92707   5    0.00359833       (-92707)       imp:n=1     $Metal wl
92708   5    0.00359833       (-92708)       imp:n=1     $Metal wl
92709   5    0.00359833       (-92709)       imp:n=1     $Metal wl
92710   5    0.00359833       (-92710)       imp:n=1     $Metal wl
92711   5    0.00359833       (-92711)       imp:n=1     $Metal wl
92712   5    0.00359833       (-92712)       imp:n=1     $Metal wl
92713   5    0.00359833       (-92713)       imp:n=1     $Metal wl
92714   5    0.00359833       (-92714)       imp:n=1     $Metal wl
92715   5    0.00359833       (-92715)       imp:n=1     $Metal wl
92716   5    0.00359833       (-92716)       imp:n=1     $Metal wl
92717   5    0.00359833       (-92717)       imp:n=1     $Metal wl
92718   5    0.00359833       (-92718)       imp:n=1     $Metal wl
92719   5    0.00359833       (-92719)       imp:n=1     $Metal wl
92720   5    0.00359833       (-92720)       imp:n=1     $Metal wl
92721   5    0.00359833       (-92721)       imp:n=1     $Metal wl
92722   5    0.00359833       (-92722)       imp:n=1     $Metal wl
92723   5    0.00359833       (-92723)       imp:n=1     $Metal wl
92724   5    0.00359833       (-92724)       imp:n=1     $Metal wl
92725   5    0.00359833       (-92725)       imp:n=1     $Metal wl
92726   5    0.00359833       (-92726)       imp:n=1     $Metal wl
92727   5    0.00359833       (-92727)       imp:n=1     $Metal wl
c
c
c     Floor2 Room 920/927/924/968/965/967/964
92001   5    0.00359833       (-92001)       imp:n=1     $Metal wl
92002   5    0.00359833       (-92002)       imp:n=1     $Metal wl
92003   5    0.00359833       (-92003)       imp:n=1     $Metal wl
92004   5    0.00359833       (-92004)       imp:n=1     $Metal wl
92005   5    0.00359833       (-92005)       imp:n=1     $Metal wl
92006   5    0.00359833       (-92006)       imp:n=1     $Metal wl
92007   5    0.00359833       (-92007)       imp:n=1     $Metal wl
92008   5    0.00359833       (-92008)       imp:n=1     $Metal wl
92009   5    0.00359833       (-92009)       imp:n=1     $Metal wl
92010   5    0.00359833       (-92010)       imp:n=1     $Metal wl
92011   5    0.00359833       (-92011)       imp:n=1     $Metal wl
92012   5    0.00359833       (-92012)       imp:n=1     $Metal wl
92013   5    0.00359833       (-92013)       imp:n=1     $Metal wl
92014   5    0.00359833       (-92014)       imp:n=1     $Metal wl
92015   5    0.00359833       (-92015)       imp:n=1     $Metal wl
92016   5    0.00359833       (-92016)       imp:n=1     $Metal wl
92017   5    0.00359833       (-92017)       imp:n=1     $Metal wl
92018   5    0.00359833       (-92018)       imp:n=1     $Metal wl
92019   5    0.00359833       (-92019)       imp:n=1     $Metal wl
```

```
92020  5   0.00359833   (-92020)   imp:n=1   $Metal wl
92021  5   0.00359833   (-92021)   imp:n=1   $Metal wl
92022  5   0.00359833   (-92022)   imp:n=1   $Metal wl
92023  15  -0.4751      (-92023)   imp:n=1   $Exterior wl
92024  5   0.00359833   (-92024)   imp:n=1   $Metal wl
92025  5   0.00359833   (-92025)   imp:n=1   $Metal wl
92026  5   0.00359833   (-92026)   imp:n=1   $Metal wl
c
c
c   Floor2 Room 930/932/934/936/938/941/943/945/947/949
93001  5   0.00359833   (-93001)   imp:n=1   $Metal wl
93002  5   0.00359833   (-93002)   imp:n=1   $Metal wl
93003  5   0.00359833   (-93003)   imp:n=1   $Metal wl
93004  5   0.00359833   (-93004)   imp:n=1   $Metal wl
93005  5   0.00359833   (-93005)   imp:n=1   $Metal wl
93006  5   0.00359833   (-93006)   imp:n=1   $Metal wl
93007  5   0.00359833   (-93007)   imp:n=1   $Metal wl
93008  5   0.00359833   (-93008)   imp:n=1   $Metal wl
93009  5   0.00359833   (-93009)   imp:n=1   $Metal wl
93010  5   0.00359833   (-93010)   imp:n=1   $Metal wl
93011  5   0.00359833   (-93011)   imp:n=1   $Metal wl
93012  5   0.00359833   (-93012)   imp:n=1   $Metal wl
93013  5   0.00359833   (-93013)   imp:n=1   $Metal wl
93014  5   0.00359833   (-93014)   imp:n=1   $Metal wl
93015  5   0.00359833   (-93015)   imp:n=1   $Metal wl
93016  5   0.00359833   (-93016)   imp:n=1   $Metal wl
93017  5   0.00359833   (-93017)   imp:n=1   $Metal wl
93018  5   0.00359833   (-93018)   imp:n=1   $Metal wl
93019  5   0.00359833   (-93019)   imp:n=1   $Metal wl
93020  5   0.00359833   (-93020)   imp:n=1   $Metal wl
93021  5   0.00359833   (-93021)   imp:n=1   $Metal wl
93022  5   0.00359833   (-93022)   imp:n=1   $Metal wl
93023  5   0.00359833   (-93023)   imp:n=1   $Metal wl
93024  5   0.00359833   (-93024)   imp:n=1   $Metal wl
93025  5   0.00359833   (-93025)   imp:n=1   $Metal wl
93026  5   0.00359833   (-93026)   imp:n=1   $Metal wl
93027  5   0.00359833   (-93027)   imp:n=1   $Metal wl
c
c
c   Floor2 Room 940/942/944/946/948/954/955/956/957/958
94001  5   0.00359833   (-94001)   imp:n=1   $Metal wl
94002  5   0.00359833   (-94002)   imp:n=1   $Metal wl
94003  5   0.00359833   (-94003)   imp:n=1   $Metal wl
94004  5   0.00359833   (-94004)   imp:n=1   $Metal wl
94005  5   0.00359833   (-94005)   imp:n=1   $Metal wl
94006  5   0.00359833   (-94006)   imp:n=1   $Metal wl
94007  5   0.00359833   (-94007)   imp:n=1   $Metal wl
94008  5   0.00359833   (-94008)   imp:n=1   $Metal wl
94009  5   0.00359833   (-94009)   imp:n=1   $Metal wl
94010  5   0.00359833   (-94010)   imp:n=1   $Metal wl
94011  5   0.00359833   (-94011)   imp:n=1   $Metal wl
94012  5   0.00359833   (-94012)   imp:n=1   $Metal wl
94013  5   0.00359833   (-94013)   imp:n=1   $Metal wl
94014  5   0.00359833   (-94014)   imp:n=1   $Metal wl
94015  5   0.00359833   (-94015)   imp:n=1   $Metal wl
94016  5   0.00359833   (-94016)   imp:n=1   $Metal wl
94017  5   0.00359833   (-94017)   imp:n=1   $Metal wl
94018  5   0.00359833   (-94018)   imp:n=1   $Metal wl
94019  5   0.00359833   (-94019)   imp:n=1   $Metal wl
94020  5   0.00359833   (-94020)   imp:n=1   $Metal wl
94021  5   0.00359833   (-94021)   imp:n=1   $Metal wl
94022  5   0.00359833   (-94022)   imp:n=1   $Metal wl
94023  5   0.00359833   (-94023)   imp:n=1   $Metal wl
94024  5   0.00359833   (-94024)   imp:n=1   $Metal wl
94025  5   0.00359833   (-94025)   imp:n=1   $Metal wl
94026  5   0.00359833   (-94026)   imp:n=1   $Metal wl
94027  5   0.00359833   (-94027)   imp:n=1   $Metal wl
94028  5   0.00359833   (-94028)   imp:n=1   $Metal wl
94029  5   0.00359833   (-94029)   imp:n=1   $Metal wl
c
```

```
c
c     Floor2 Room 961/960/951/952/950 with the Elevator
96101   5    0.00359833      (-96101)      imp:n=1    $Metal wl
96102   5    0.00359833      (-96102)      imp:n=1    $Metal wl
96103   5    0.00359833      (-96103)      imp:n=1    $Metal wl
96104   5    0.00359833      (-96104)      imp:n=1    $Metal wl
96105   5    0.00359833      (-96105)      imp:n=1    $Metal wl
96106   5    0.00359833      (-96106)      imp:n=1    $Metal wl
96107   5    0.00359833      (-96107)      imp:n=1    $Metal wl
96108   5    0.00359833      (-96108)      imp:n=1    $Metal wl
96109   5    0.00359833      (-96109)      imp:n=1    $Metal wl
96110   5    0.00359833      (-96110)      imp:n=1    $Metal wl
96111   5    0.00359833      (-96111)      imp:n=1    $Metal wl
96112   5    0.00359833      (-96112)      imp:n=1    $Metal wl
96113   5    0.00359833      (-96113)      imp:n=1    $Metal wl
96114   5    0.00359833      (-96114)      imp:n=1    $Metal wl
96115   5    0.00359833      (-96115)      imp:n=1    $Metal wl
96116   5    0.00359833      (-96116)      imp:n=1    $Metal wl
96117   5    0.00359833      (-96117)      imp:n=1    $Metal wl
96118   5    0.00359833      (-96118)      imp:n=1    $Metal wl
96119   5    0.00359833      (-96119)      imp:n=1    $Metal wl
96120   5    0.00359833      (-96120)      imp:n=1    $Metal wl
96121   5    0.00359833      (-96121)      imp:n=1    $Metal wl
96122   5    0.00359833      (-96122)      imp:n=1    $Metal wl
96123   5    0.00359833      (-96123)      imp:n=1    $Metal wl
96124   5    0.00359833      (-96124)      imp:n=1    $Metal wl
96125   5    0.00359833      (-96125)      imp:n=1    $Metal wl
96126   5    0.00359833      (-96126)      imp:n=1    $Metal wl
96127   5    0.00359833      (-96127)      imp:n=1    $Metal wl
96128   5    0.00359833      (-96128)      imp:n=1    $Metal wl
96129   5    0.00359833      (-96129)      imp:n=1    $Metal wl
96130   5    0.00359833      (-96130)      imp:n=1    $Metal wl
96131   5    0.00359833      (-96131)      imp:n=1    $Metal wl
96132   5    0.00359833      (-96132)      imp:n=1    $Metal wl
96133   5    0.00359833      (-96133)      imp:n=1    $Metal wl
96134   5    0.00359833      (-96134)      imp:n=1    $Metal wl
96135   5    0.00359833      (-96135)      imp:n=1    $Metal wl
96136   5    0.00359833      (-96136)      imp:n=1    $Metal wl
96137   5    0.00359833      (-96137)      imp:n=1    $Metal wl
96138   5    0.00359833      (-96138)      imp:n=1    $Metal wl
96139   5    0.00359833      (-96139)      imp:n=1    $Metal wl
96140   5    0.00359833      (-96140)      imp:n=1    $Metal wl
96141   5    0.00359833      (-96141)      imp:n=1    $Metal wl
96142   5    0.00359833      (-96142)      imp:n=1    $Metal wl
96143   5    0.00359833      (-96143)      imp:n=1    $Metal wl
96144   5    0.00359833      (-96144)      imp:n=1    $Metal wl
c
c
c
c     Floor2 Room 900/Change Room - CR
c   This room contains all of the surfaces for this section
90001   5    0.00359833      (-90001)      imp:n=1    $Metal wl
90002   5    0.00359833      (-90002)      imp:n=1    $Metal wl
90003   5    0.00359833      (-90003)      imp:n=1    $Metal wl
90004   5    0.00359833      (-90004)      imp:n=1    $Metal wl
90005   5    0.00359833      (-90005)      imp:n=1    $Metal wl
90006   5    0.00359833      (-90006)      imp:n=1    $Metal wl
90007   5    0.00359833      (-90007)      imp:n=1    $Metal wl
90008   5    0.00359833      (-90008)      imp:n=1    $Metal wl
90009   15    -0.4751      (-90009)      imp:n=1    $Exterior wl
90010   15    -0.4751      (-90010)      imp:n=1    $Exterior wl
90011   15    -0.4751      (-90011)      imp:n=1    $Exterior wl
c
c
c  ///////////////Begin South Section of Floor2\\\\\\\\\\\\\\\\\\\\\\\\
c
c
c     Floor2 Room 903/904/South Mechanical - Mech/Roofs
90301   15   -0.4751      (-90301)      imp:n=1    $Ext wl
90302   15   -0.4751      (-90302)      imp:n=1    $Ext wl
```

```
90303   3    -2.3            (-90303)       imp:n=1    $Conc Filled
90304   5    0.00359833       (-90304)       imp:n=1    $Metal wl
90305   5    0.00359833       (-90305)       imp:n=1    $Metal wl
90306   5    0.00359833       (-90306)       imp:n=1    $Metal wl
90307   5    0.00359833       (-90307)       imp:n=1    $Metal wl
90308   5    0.00359833       (-90308)       imp:n=1    $Metal wl
90309   5    0.00359833       (-90309)       imp:n=1    $Metal wl
90310   3    -2.3            (-90310)       imp:n=1    $Conc Filled
90311   3    -2.3            (-90311)       imp:n=1    $Conc Filled
90312   3    -2.3            (-90312)       imp:n=1    $Conc Filled
90313   3    -2.3            (-90313)       imp:n=1    $Conc Filled
90314   3    -2.3            (-90314)       imp:n=1    $Conc Filled
90315   3    -2.3            (-90315)       imp:n=1    $Conc Filled
90316   3    -2.3            (-90316)       imp:n=1    $Conc Filled
90319   3    -2.3            (-90319)       imp:n=1    $Conc Filled
90320   3    -2.3            (-90320)       imp:n=1    $Conc Filled
c
c
c  ///////////////Begin East Section of Floor2\\\\\\\\\\\\\\\\\\\\\\\\
c
c
c     Floor2 Room 609/608/607/Topp of hot cells
60901   15   -0.4751         (-60901)       imp:n=1    $Ext wl
60902   3    -2.3            (-60902)       imp:n=1    $Conc Filled
60903   5    0.00359833       (-60903)       imp:n=1    $Metal wl
60905   5    0.00359833       (-60905)       imp:n=1    $Metal wl
60906   5    0.00359833       (-60906)       imp:n=1    $Metal wl
60907   5    0.00359833       (-60907)       imp:n=1    $Metal wl
60908   15   -0.4751         (-60908)       imp:n=1    $Ext wl
60909   5    0.00359833       (-60909)       imp:n=1    $Metal wl
60910   5    0.00359833       (-60910)       imp:n=1    $Metal wl
60911   5    0.00359833       (-60911)       imp:n=1    $Metal wl
60912   5    0.00359833       (-60912)       imp:n=1    $Metal wl
60913   5    0.00359833       (-60913)       imp:n=1    $Metal wl
60914   5    0.00359833       (-60914)       imp:n=1    $Metal wl
60915   5    0.00359833       (-60915)       imp:n=1    $Metal wl
60916   5    0.00359833       (-60916)       imp:n=1    $Metal wl
60917   5    0.00359833       (-60917)       imp:n=1    $Metal wl
60918   13    -7.92          (-60918)       imp:n=1    $SS
60919   5    0.00359833       (-60919)       imp:n=1    $Metal wl
60920   15   -0.4751         (-60920)       imp:n=1    $Ext wl
60921   3    -2.3            (-60921)       imp:n=1    $Conc Filled
60922   15   -0.4751         (-60922)       imp:n=1    $Ext wl
60923   15   -0.4751         (-60923)       imp:n=1    $Ext wl
60924   3    -2.3            (-60924)       imp:n=1    $Conc Filled
60925   3    -2.3            (-60925)       imp:n=1    $Conc Filled
60926   13    -7.92          (-60926)       imp:n=1    $SS
60927   3    -2.3            (-60927)       imp:n=1    $Conc Filled
60928   13    -7.92          (-60928)       imp:n=1    $SS
60929   13    -7.92          (-60929)       imp:n=1    $SS
60930   3    -2.3            (-60930)       imp:n=1    $Conc Filled
60931   3    -2.3            (-60931)       imp:n=1    $Conc Filled
60932   13    -7.92          (-60932)       imp:n=1    $SS
60933   13    -7.92          (-60933)       imp:n=1    $SS
60934   13    -7.92          (-60934)       imp:n=1    $SS
60935   3    -2.3            (-60935)       imp:n=1    $Conc Filled
60936   15   -0.4751         (-60936)       imp:n=1    $Ext wl
60937   15   -0.4751         (-60937)       imp:n=1    $Ext wl
60938   13    -7.92          (-60938)       imp:n=1    $SS
60939   13    -7.92          (-60939)       imp:n=1    $SS
60940   3    -2.3            (-60940)       imp:n=1    $Conc Filled
60941   15   -0.4751         (-60941)       imp:n=1    $Ext wl
60942   15   -0.4751         (-60942)       imp:n=1    $Ext wl
60943   15   -0.4751         (-60943)       imp:n=1    $Ext wl
60944   15   -0.4751         (-60944)       imp:n=1    $Ext wl
60945   3    -2.3            (-60945)       imp:n=1    $Conc Filled
60946   3    -2.3            (-60946)       imp:n=1    $Conc Filled
60947   13    -7.92          (-60947)       imp:n=1    $SS
60948   13    -7.92          (-60948)       imp:n=1    $SS
60949   13    -7.92          (-60949)       imp:n=1    $SS
```

```
60950   3    -2.3             (-60950)       imp:n=1    $Conc Filled
60951   3    -2.3             (-60951)       imp:n=1    $Conc Filled
60952   3    -2.3             (-60952)       imp:n=1    $Conc Filled
60953   3    -2.3             (-60953)       imp:n=1    $Conc Filled
60954   13    -7.92            (-60954)       imp:n=1    $SS
c 60955   3    -2.3            (-60955)       imp:n=1    $
60956   15   -0.4751          (-60956)       imp:n=1    $Ext wl
c
c
c  ///////////////Begin Roomspace Fill Section of Floor2\\\\\\\\\\\\\\\\\\\\\\\\
c  This section contains all of the cells that define the interior of each Numbered Room
c  These cells were all grouped together regaurdless of their regional location within the floor
c
c
c   TAG=TAGf2roomfill
c
c
91013   6    -0.04855         (-91013)        imp:n=1    $Roomspace 910
91014   6    -0.04855         (-91014)        imp:n=1    $Roomspace 911
91209   6    -0.02427         (-91209)        imp:n=1    $Roomspace 912
91210   6    -0.04855         (-91210)        imp:n=1    $Roomspace 914
91211   8    -0.10907         (-91211)        imp:n=1    $Roomspace 916
91315   1    -0.001202        (-91315)        imp:n=1    $Roomspace 913
91316   6    -0.04855         (-91316)        imp:n=1    $Roomspace 915
91317   6    -0.04855         (-91317)        imp:n=1    $Roomspace 928
91318   6    -0.04855         (-91318)        imp:n=1    $Roomspace 929
91821   6    -0.04855         (-91821)        imp:n=1    $Roomspace 918
91822   6    -0.04855         (-91822)        imp:n=1    $Roomspace 917
91823   6    -0.04855         (-91823)        imp:n=1    $Roomspace 905
91824   6    -0.04855         (-91824)        imp:n=1    $Roomspace 919
91825   6    -0.04855         (-91825 91817)  imp:n=1    $Roomspace 921
91826   6    -0.04855         (-91826)        imp:n=1    $Roomspace 923
92728   6    -0.04855         (-92728)        imp:n=1    $Roomspace 927
92729   6    -0.04855         (-92729)        imp:n=1    $Roomspace 926
92730   6    -0.04855         (-92730)        imp:n=1    $Roomspace 925
92731   6    -0.04855         (-92731 #92706) imp:n=1    $Roomspace 933
92732   6    -0.04855         (-92732 #92711) imp:n=1    $Roomspace 935
92733   6    -0.04855         (-92733)        imp:n=1    $Roomspace 937
92734   6    -0.04855         (-92734)        imp:n=1    $Roomspace 939 Room Partial Fill
92027   6    -0.04855         (-92027)        imp:n=1    $Roomspace 920
92028   6    -0.04855         (-92028)        imp:n=1    $Roomspace 927
92029   6    -0.04855         (-92029)        imp:n=1    $Roomspace 924
92030   6    -0.04855         (-92030)        imp:n=1    $Roomspace 968
92031   6    -0.04855         (-92031)        imp:n=1    $Roomspace 965
92032   6    -0.04855         (-92032)        imp:n=1    $Roomspace 967
92033   6    -0.04855         (-92033)        imp:n=1    $Roomspace 964-Conf. Room Partial Fill
93028   6    -0.04855         (-93028)        imp:n=1    $Roomspace 930
93029   6    -0.04855         (-93029)        imp:n=1    $Roomspace 932
93030   6    -0.04855         (-93030)        imp:n=1    $Roomspace 934
93031   6    -0.04855         (-93031)        imp:n=1    $Roomspace 936
93032   6    -0.02427         (-93032)        imp:n=1    $Roomspace 938
93033   6    -0.04855         (-93033 #93025) imp:n=1    $Roomspace 941
93034   6    -0.04855         (-93034)        imp:n=1    $Roomspace 943
93035   6    -0.04855         (-93035 #93026) imp:n=1    $Roomspace 945
93036   6    -0.04855         (-93036)        imp:n=1    $Roomspace 947
93037   6    -0.04855         (-93037 #93027) imp:n=1    $Roomspace 949
94030   6    -0.04855         (-94030 #94015) imp:n=1    $Roomspace 940
94031   6    -0.04855         (-94031)        imp:n=1    $Roomspace 942
94032   6    -0.04855         (-94032 #94016) imp:n=1    $Roomspace 944
94033   6    -0.04855         (-94033)        imp:n=1    $Roomspace 946
94034   6    -0.04855         (-94034 #94017) imp:n=1    $Roomspace 948
94035   6    -0.04855         (-94035)        imp:n=1    $Roomspace 954
94036   6    -0.04855         (-94036)        imp:n=1    $Roomspace 955
94037   6    -0.04855         (-94037)        imp:n=1    $Roomspace 956
94038   6    -0.04855         (-94038)        imp:n=1    $Roomspace 957
94039   6    -0.04855         (-94039)        imp:n=1    $Roomspace 958
96145   6    -0.04855         (-96145)        imp:n=1    $Roomspace 961
96146   6    -0.04855         (-96146)        imp:n=1    $Roomspace 960 Room Partial Fill
96147   6    -0.04855         (-96147)        imp:n=1    $Roomspace Empty LR
90317   6    -0.04855         (-90317)        imp:n=1    $Roomspace 903 Room Partial Fill
```

```
90318   6    -0.04855        (-90318)       imp:n=1    $Roomspace 904
60957   6    -0.04855        (-60957)       imp:n=1    $Roomspace 609 Room Partial Fill
60958   6    -0.04855        (-60958)       imp:n=1    $Roomspace 608
60959   6    -0.04855        (-60959)       imp:n=1    $Roomspace 607
60960   1    -0.001202       (-60960)       imp:n=1    $Roomspace 607N
c
c
c   Begin Northwest Section of Floor3
c  ***************Notes for this section of Cells*************************
c
c      Floor3 Room 611/Top of the Hot Cells
61101   3    -2.3            (-61101)       imp:n=1    $Conc Filled
61102   3    -2.3            (-61102)       imp:n=1    $Conc Filled
61103   3    -2.3            (-61103)       imp:n=1    $Conc Filled
61104   3    -2.3            (-61104)       imp:n=1    $Conc Filled
61105   5    0.00359833      (-61105)       imp:n=1    $Metal wl
61106   5    0.00359833      (-61106)       imp:n=1    $Metal wl
61107   5    0.00359833      (-61107)       imp:n=1    $Metal wl
61108   5    0.00359833      (-61108)       imp:n=1    $Metal wl
61109   3    -2.3            (-61109)       imp:n=1    $Conc Filled
61110   3    -2.3            (-61110)       imp:n=1    $Conc Filled
61111   3    -2.3            (-61111)       imp:n=1    $Conc Filled
61112   3    -2.3            (-61112)       imp:n=1    $Conc Filled
61113   3    -2.3            (-61113)       imp:n=1    $Conc Filled
61114   3    -2.3            (-61114)       imp:n=1    $Conc Filled
61115   3    -2.3            (-61115)       imp:n=1    $Conc Filled
61116   3    -2.3            (-61116)       imp:n=1    $Conc Filled
61117   3    -2.3            (-61117)       imp:n=1    $Conc Filled
61118   3    -2.3            (-61118)       imp:n=1    $Conc Filled
61119   3    -2.3            (-61119)       imp:n=1    $Conc Filled
61120   13    -7.92          (-61120)       imp:n=1    $SS
61121   13    -7.92          (-61121)       imp:n=1    $SS
61122   13    -7.92          (-61122)       imp:n=1    $SS
61123   13    -7.92          (-61123)       imp:n=1    $SS
61124   13    -7.92          (-61124)       imp:n=1    $SS
61125   13    -7.92          (-61125)       imp:n=1    $SS
c
c
c
c
c
c
c    Cell that combines all of the 2nd floors subsections
201 0            (-992 201 212 213 214 215  218 90311 90312 90313
                90314 90315 90316 90319 90320 92023 90318 #60956
                #90301               )  imp:n=1
c
c
c
c    Begin Cells for NW Section of Floor2
c
c Largest cell that envelopes all of the NW Section
202 1   -0.001202 (-201 203 204 205 206 207 #91012 #91819 #92701
               #92728 #92703 208 #92023 209 210 211 #96104
               #92023 #90318 #90301 #90308) imp:n=1   $NW Section Box
c
c
c    SW Box
203 1   -0.001202 (-203 91002 91003 91004 91005 91006 91013 91007
                91008 91014 90308 90301 )  imp:n=1
c
c
c   W Box
204 1   -0.001202 (-204 91011 91201 91202 91203 91204 91205 91206 91207
                91208 91209 91210 91211 91805 ) imp:n=1
c
c
c   NW Box
205 1   -0.001202 (-205 91301 91302 91303 91304 91305 91306 91307 91308
                91309 91310 91311 91312 91313 91314 91315 91316 91317
```

```
                91318 91801 91802 91803 91804 91806 91807 91808 91809
                91810 91811 91812 91813 91814 91815 91816 91818 91821
                91822 91823 91824 91825 91826 )  imp:n=1
c
c
c   S1 Box
206 1   -0.001202 (-206 91009 91010 92724 92725 92726 92727 #92701
               #92728 92702 #90308 #90318)  imp:n=1
c
c
c   S2 Box
207 1   -0.001202 (-207 #92703 92704 92705 92706 92707 92708 92709
                92710 92711 92712 92713 92714 92715 92716 92717
                92718 92719 92720 92721 92722 92723 92728 92729
                92730 92731 92732 92733 92734 93001 ) imp:n=1
c
c
c   N Box
208 1   -0.001202 (-208 92001 92002 92003 92004 92005 92006 92007
                92008 92009 92010 92011 92012 92013 92014 92015
                92016 92017 92018 92019 92020 92021 92022 92024
                92025 92026 92027 92028 92029 92030 92031 92032
                92033 91820 #96104 )  imp:n=1
c
c
c   SE1 Box
209 1   -0.001202 (-209 93002 93003 93004 93005 93006 93007 93008
               93009 93010 93011 93012 93013 93014 93015 93016
               93017 93018 93019 93020 93021 93022 93023 93024
               93025 93026 93027 93028 93029 93030 93031 93032
               93033 93034 93035 93036 93037 )  imp:n=1
c
c
c   SE2 Box
210 1   -0.001202 (-210 94001 94002 94003 94004 94005 94006 94007
                94008 94009 94010 94011 94012 94013 94014 94015
                94016 94017 94018 94019 94020 94021 94022 94023
                94024 94025 94026 94027 94028 94029 94030 94031
                94032 94033 94034 94035 94036 94037 94038 94039
                )  imp:n=1
c
c
c   NE Box
211 1   -0.001202 (-211 96101 96102 96103 96105 96106 96107 96108
               96109 96110 96111 96112 96113 96114 96115 96116
               96117 96118 96119 96120 96121 96122 96123 96124
               96125 96126 96127 96128 96129 96130 96131 96132
               96133 96134 96135 96136 96137 96138 96139 96140
               96141 96142 96143 96144 96145 96146 96147 #96104
               )  imp:n=1
c
c
c
c    Begin Cells for NE Section of Floor2
c
212 1   -0.001202 (-212 90001 90002 90003 90004 90005 90006 90007
                90008 90009 90010 90011 #92023 #60956 #61101
                )  imp:n=1
c
c
c    Begin Cells for S Section of Floor2
c
213 1   -0.001202 (-213 90301 90302 90303 90304 90305 90306 90307
                90309 90310 90317 #90318 #60956 #90308
                )  imp:n=1
c
c
c
c    Begin Cells for E Section of Floor2
c
```

```
214 1   -0.001202 (-214 60901 60902 60903 60905 60906 60907 60908
                60909 60910 60911 60912 60913 60914 60915 60916
                60917 60918 60919 60935 60940 60941 60942 60943
                60944 60945 60946 60947 60948 60949 60950 60951
                60952 60953 60954  60956 60957 60958 60959 60960
                60920 60921 60930 60931)  imp:n=1
c
c
c
215 1   -0.001202 (-215 60936 60937 60938 60939 60940 60922 60923
              60924 60925 60926 60927 60928 60929 60932 60933
              60934 )  imp:n=1
c
218 1   -0.001202 (-218 61101 61102 61103 61104 61105 61106 61107
              61108 61109 61110 61111 61112 61113 61114 61115
              61116 61117 61118 61119 61120 61121 61122 61123
              61124 61125 #60956) imp:n=1  $Air Filled
c
c
c
c
c
c
c
c
c ---------BLANK LINE FOLLOWS THIS LINE------------

c
c ============================================================================
c
c   ############################
c   #  Surface definition cards#
c   ############################
c  ***************************Surface Notes**********************************
c Format of Surface Cards is as follows: ##@@, ## is the room number as designated by
c the set of Drawings taken from meridian. @@ runs from 01-99 and represents a surface
c in that room. Descriptions of each surface follow every card using the cardinal
c directions in the orientation listed on the drawings from meridian.
c
c
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB     Basement 1
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
BBBBBBBBBBBBBBBBBBBBBBBBB
c
c
c
c    TAG=TAGbasementsurfaces
c
c
c  Start of boxes used to group the surfaces.
c
c
c  All of the following surfaces are used to group
```

```
c  the cells together. This had to be done to avoid overloading the data type associated with
c  cell cards. These boxes are purely for the codes sake and in no way affect the actual geometry
c  of the model.
c
999 rpp     -1200    4000       -3000    4000   -304.8 1498.6  $Void
c
c
c Void box surrounding model
990 rpp     -1200    4000       -3000    4000   -304.8 442     $Void
c
c
c  NW Section of Basement 1
401 46 rpp  -4.5     817        -290     1091.5      0  432.5  $Cell box NW Section
c
c
c  Begin North-Center Section of the Central Section of Basement1
402 45 rpp  -48      526        -96      549.5       0  432.5  $Cell box W
403 45 rpp  526      998        -96      621.5       0  432.5  $Cell box E
c
c
c  Begin Northeast Section of the Central Section of Basement1
404 44 rpp  -407     639        -290     446         0  432.5  $Cell box SW
405 44 rpp  639      1123.5     -290     1091.5      0  432.5  $Cell box E
c
c
c  Begin West Section of Basement1
406 41 rpp  -179     242        0        1152        0  432.5  $Cell box W Section
c
c
c  Begin Southwest Section of the Central Section of Basement1
407    rpp  -10      1187.5     -10      998.5       0  432.5  $Cell box S Section
c
c
c  Begin Southeast Section of the Central Section of Basement1
408 42 rpp  -41      1123.5     -15.5    993         0  432.5  $Section Cell box
c
c
c  Begin East Section of Basement1
409 43 rpp  -10      1083       -10      1600        0  432.5  $Section Cell box
c
c
c  Begin South Section of Basement1
410 47 rpp  -12.8    245        -101.75   867.5      152.4  432.5  $W Cell box
411 47 rpp  245      1080       -101.75   200        152.4  432.5  $S Cell box
412 47 rpp  1080     1335.2     -101.75   867.5      152.4  432.5  $E Cell box
413 47 rpp  245      1080       200       867.5      152.4  432.5  $Central Cell box
c
c
c   Below are the Decks of Basement1 and the Sand surrounding the building
c   The southern mezzanine section is set 5ft above the B1 Deck. This is an observed measured distance because
c   I have found no blueprint that clearly defines this distance.  There is a small gap between Rm23B and the
c   top of Rm32 where there is no sand and just air. This gap was left for the sake of saving time. No conservancy
c   is lost. There is no sand up to the grade height in the SE corner of the building. This was done to be conservative.
c   There are numerous areas in the SE that do not have a backfill to the same grade as the rest of the building.
c   There is also a loading dock located in the SE corner which is simply free space.
414    rpp  -10      2390       -10       2390       -30.5  0      $Central Section of Basement foundation Deck
415    rpp  2390     2931.5     -10       1551.5     -30.5  0      $East Section of B1 foundation Deck
416    rpp  501.8    1849.8     -903      -10        121.9  152.4  $South Section of B1 foundation Deck
417    rpp  -264     -10        121       538.5      -30.5  0      $SW Bl foundation Deck
418    rpp  -431     -10        538.5     1186.5     -30.5  0      $W B1 foundation Deck
419    rpp  -1000    4000       -2000     4000       -304.8 -30.5  $Sand 10ft thick under building
420    rpp  501.8    1849.8     -903      -10        -30.5  121.9  $Sand filling the gap below South Section of B1
421    rpp  -10      2390       2390      2999.6     -30.5  327.7  $N of B1 20ft Thick sand up to a building grade of 327.7cm
422    rpp  2390     2999.6     1551.5    2999.6     -30.5  327.7  $NE of B1 20ft Thick sand up to a building grade of 327.7cm
423    rpp  501.8    1849.8     -1512.6   -903       -30.5  327.7  $S of B1 20ft Thick sand up to a building grade of 327.7cm
424    rpp  -619.6   501.8      -1512.6   -10        -30.5  327.7  $S2 20ft Thick sand up to a building grade of 327.7cm
425    rpp  -873.6   -264       121       536.5      -30.5  327.7  $SW 20ft Thick sand up to a building grade of 327.7cm
426    rpp  -1040.6  -431       536.5     1186.5     -30.5  327.7  $W 20ft Thick sand up to a building grade of 327.7cm
427    rpp  -609.6   -10        -10       121        -30.5  327.7  $SW B1 20ft Thick sand up to a building grade of 327.7cm
428    rpp  -609.6   -10        1186.5    2999.6     -30.5  327.7  $NW 20ft Thick sand up to a building grade of 327.7cm
```

```
c
c
c
c  Basement1 ceiling/First Floor Deck  From the previous methodology of NCS99 the ceiling of B1 was smeared
c  to a slab with a thickness of 3.75". It was found from investigation that 3.75" was the approximate
c  average of the thickness of the ceiling. Drawing H-3-306083-2.DWG shows the structure of the ceiling and is to scale.
430    rpp  -10      2390       -10       2390       432.5   442 $Central Section of Basement ceiling
431    rpp  2390     2931.5     -10       1551.5     432.5   442 $East Section of B1 ceiling
432    rpp  501.8    1849.8     -903      -10        432.5   442 $South Section of B1 ceiling
433    rpp  -264     -10        121       548.5      432.5   442 $SW Bl ceiling
434    rpp  -431     -10        548.5     1186.5     432.5   442 $W B1 ceiling
c
c
c   First Crack at a minimum accident TAG=TAGPuPu
440 44   s   950   1000 50  19.54  $ Pu Sphere N Rm52 in Rm45
c 440    s  390      200       50  19.54  $ Pu Sphere in Rm22
c 440    s   2303.5   1228.5    50  19.54  $ Pu Sphere in Rm48 in cells 405 and 4808
c 440    s   1314.5   2300.5    50  19.54  $ Pu Sphere in Rm90
c 440 46  s  40       1288.5    50  19.54  $ Pu Sphere in NW corner B1 Rm45
c 440 46  s  1140     -260      50  19.54  $ Pu Sphere in SW corner of NW section -Center of B1
c 440 41  s  50       50        50  19.54  $ Pu Sphere in SW corner of Rm23B in cell 425 2321
c 440 41  s  50       353       50  19.54  $ Pu Sphere in W of Rm23 in cell 425 2322
c 440 41  s  160      800       50  19.54  $ Pu Sphere in E of Rm32 (Under SAL) in cell 426
c 440 41  s  -130     1020      50  19.54  $ Pu Sphere in NW of Rm32 (Under SAL)
c 440 42  s  525      675       50  19.54  $ Pu Sphere in Rm34 B1
c 440 47  s  820      30        202.5  19.54  $ Pu Sphere in LR Mezzanine
c 440 43  s  520      40        50  19.54  $ Pu Sphere in Rm40c
c
c
c  First Floor Accident Locations
c 440 12   s  -370  1000  492  19.54  $ Pu Sphere in Rm203
c 440 17   s  50    50    492  19.54  $ Pu Sphere in LR
c 440 18   s  40    780   492  19.54  $ Pu Sphere in Rm327A
c 440 11   s  1075  810   492  19.54  $ Pu Sphere in Rm528
c 440 15   s  1020  400   492  19.54  $ Pu Sphere in Truck Lock
c 440 17   s  1770  925   492  19.54  $ Pu Sphere in Rm119
c 440 14   s  165   720   492  19.54  $ Pu Sphere in Rm410
c
c
c  Second Floor Accident Locations
c
c 440    s  2875     1520    1122  19.54  $ Pu Sphere Above Rm 603 in cell 214
c 440    s  44.5     2350    934  19.54 $ Pu Sphere Above Rm 327 in Rm903 cell202
c
c
c
c 440    s     50  19.54  $ Pu Sphere in Rm
c
c
c
c   Below are all of the Detectors for all of building 325. The detectors are all in one section
c   Because doing so makes it much easier to iterate their locations throughout the model TAG=TAGdetectors
c
c   Location of the Surface the detector is attatched to
c     rpp  257       267        269.5     277.5     0       432.5
461    rcc  272.7  263.35   412.2   0 20.3 0   5.7  $B1 N Column Rm22
c     rpp  267       297.5      258.25    288.75    391.9   432.5
c
c
c   Location of the Surface the detector is attatched to
c   42 rpp  302       312        983       993       391.9   432.5
462 42 rcc  317.7   977.85  412.2   0 20.3 0   5.7  $B1 Next(2nd) Column moving E
c
c   42 rpp  312       342.5      972.75    1003.25   391.9   432.5
c
c   Location of the Surface the detector is attatched to
c   42 rpp  0         10         504       512       391.9   432.5
463 42 rcc  15.7  497.85   412.2    0 20.3 0   5.7    $B1 W Column above(4516) 2nd column above origin
c   42 rpp  10        40.5       492.75    523.25    391.9   432.5
c
```

```
c
c   Location of the Surface the detector is attatched to
c   14 rpp  719       722        1156.5    1200      843.3   883.9
464 14 rcc  713.3   1174.65  863.6 0 20.3 0  5.7   $F1 W wl Rm516 Placed at the NW corner
c 464 14 s 708.3  1174.65  863.6  8.66
c
c
c   14 rpp  688.5     719        1169.5    1200      843.3   883.9
c
c
c   Location of the Surface the detector is attatched to
c   17 rpp  1252      1422       1050.75   1053.75   843.3   883.9
465 17 rcc  1315.25  1059.45  863.6  20.3 0 0 5.7  $F1 N wl Rm115 Placed Approx. where observed
c
c   17 rpp  1300      1330.5     1053.75   1084.25   843.3   883.9
c
c   Location of the Surface the detector is attatched to
c   13 rpp  108       111        1033.5    1117.25   843.3   883.9
466 13 rcc  102.3  1176.5  863.6  0 20.3 0 5.7 $F1 W block wl Rm316
c 466  13  s   97.3   1179.5  863.6  8.66
c
c
c   13 rpp  77.5      108        1086.75   1117.25   843.3   883.9
c
c   Location of the Surface the detector is attatched to
c   15 rpp  287       405.75     199.25    204.25    843.3   883.9
467 15 rcc  390.5  209.95   863.6  20.3 0 0 5.7  $F1 N wl Rm605
c   15 rpp  375.25    405.75     204.25    234.75    843.3   883.9
c
c
c   Location of the Surface the detector is attatched to
c   15 rpp  360       361.5      1057.5    1217.5    843.3   883.9
468 15 rcc  367.2  1115.25  863.6  0 20.3 0 5.7  $F1 Central wl Rm603  Placed Approx. where observed
c
c  15 rpp  361.5     392        1100      1130.5    843.3   883.9
c
c
c
c
c
c
c Start of Wing Surfaces ==========================================================
c
c
c
c
c
c ///////////////Begin Northwest Section of the Central Section of Basement1\\\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Surfaces****************************************
c The origin (0,0,0) was designated as the south west corner of the south westernmost pillar of
c the exploded basement drawing H-3-305009-1.DWG.  This pillar is not under the yellow dashed line
c because these pillars were included in the south west Section model.  Main structural wall was
c left out from this section to be included in a later model of the central basement area
c
c
c  Basement1 Room 45
c    This room contains mainly columns and is a continuation of Room45 in both the
c Southwest and Southeast sections. Room 45 is the number given to the largest room/open
c space of Basement1. Immeadiatly following this comment block will be the start of all of
c the columns for room 45. The first column will be the South Westernmost column from the exploded
c basement drawing. The numbering will go east from this column then return to the western edge
c once a terminating surface is encounterd. The numbering will then continue with the closest northern column.
4536 46 rpp  0        10         0         10      0  432.5  $SW Column ORIGIN Designated (0,0,0) Here
4537 46 rpp  252.5    262.5      0         10      0  432.5  $Next(2nd) Column moving Eastward Rm45
4538 46 rpp  505      515        0         10      0  432.5  $3rd Column moving East Rm45
4539 46 rpp  807      817        0         10      0  432.5  $4th Column moving East Rm45
4540 46 rpp  1109     1119       0         10      0  432.5  $5th Column moving East Rm45 Farthest SE Column
4541 46 rpp  0        10         249       259     0  432.5  $West Column Above Origin(4536)
4542 46 rpp  252.5    262.5      249       259     0  432.5  $Next(2nd) Column moving Eastward Rm45
4543 46 rpp  505      515        249       259     0  432.5  $3rd Column moving East Rm45
```

```
4544 46 rpp  807     817      249      259    0  432.5  $4th Column moving East Rm45
4545 46 rpp  1109    1119     249      259    0  432.5  $5th Column moving East Rm45
4546 46 rpp  0       10       537      547    0  432.5  $W Column above(4541) 2nd column above origin
4547 46 rpp  252.5   262.5    537      547    0  432.5  $Next(2nd) Column moving Eastward Rm45
4548 46 rpp  505     515      537      547    0  432.5  $3rd Column moving East Rm45
4549 46 rpp  807     817      537      547    0  432.5  $4th Column moving East Rm45
4550 46 rpp  0       10       825      835    0  432.5  $W Column above(4546) 3rd column above origin
4551 46 rpp  252.5   262.5    825      835    0  432.5  $Next(2nd) Column moving Eastward Rm45
4552 46 rpp  505     515      825      835    0  432.5  $3rd Column moving East Rm45
4553 46 rpp  807     817      825      835    0  432.5  $4th Column moving East Rm45
4554 46 rpp  0       10       1077     1087   0  432.5  $W Column above(4550) 3rd column above origin
4555 46 rpp  252.5   262.5    1077     1087   0  432.5  $Next(2nd) Column moving Eastward Rm45
4556 46 rpp  390     400      1077     1087   0  432.5  $3rd Column moving East Rm45
4557 46 rpp  505     515      1077     1087   0  432.5  $4th Column moving East Rm45
4558 46 rpp  807     817      1077     1087   0  432.5  $5th Column moving East Rm45
c
c
c
c   Basement Room 55/55A/55B
5501 46 rpp  144     152      153      189    0  432.5  $W wall Rm55
5502 46 box  144  189  0  44  44  0  5.657  -5.657  0  0  0  304.8  $Slant W wall Rm55
5503 46 rpp  188     385.5    225      233    0  432.5  $NW wall Rm55
5504 46 rpp  425.5   722      225      233    0  432.5  $NE wall Rm55-Rm55B
5505 46 rpp  595     599      161      225    0  432.5  $E wall Rm55
5506 46 rpp  595     599      43       125    0  432.5  $SE wall Rm55
5507 46 rpp  477     722      35       43     0  432.5  $S wall Rm55-Rm55A
5508 46 rpp  144     405      35       43     0  432.5  $SW wall Rm55
5509 46 rpp  144     152      43       117    0  432.5  $W all Rm55
5510 46 rpp  714     722      43       125    0  432.5  $E wall Rm55A-Rm55B
5511 46 rpp  714     722      161      225    0  432.5  $E wall Rm55B
5512 46 rpp  645     714      115      119    0  432.5  $NE Wall Rm55A
5513 46 rpp  599     609      115      119    0  432.5  $NW wall Rm55A
5514 46 rpp  191.5   595      43       225    0  432.5  $Roomspace  55 Partially Filled
5515 46 rpp  599     714      43       115    0  432.5  $Roomspace  55A
5516 46 rpp  599     714      119      225    0  432.5  $Roomspace  55B
c
c
c
c   Basement room 56
5601 46 rpp  311     319      233      361    0  432.5  $W wall Rm56
5602 46 rpp  319     471      353      361    0  432.5  $N wall Rm56
5603 46 rpp  463     471      335      353    0  432.5  $E wall Rm56
5604 46 rpp  463     471      233      299    0  432.5  $SW wall Rm56
5605 46 rpp  319     463      233      353    0  432.5  $Roomspace 56
c
c
c
c
c
c  ///////////////Begin North-Center Section of the Central Section of Basement1\\\\\\\\\\\\\\\\\\\\\\\\
c    **********************Notes for this section of Surfaces**********************************
c   The origin (0,0,0) was designated as the outside south west corner of the south westernmost wall of
c   Room 91 in the exploded basement drawing H-3-305008-1.DWG.
c
c
c   Basement1 Room 91
9101 45 rpp  0       154.5    0        3      0  432.5  $S wall Rm91
9102 45 rpp  226.5   232      0        3      0  432.5  $S small wall Rm91
9103 45 rpp  232     246      0        227    0  432.5  $E wall Rm91
9104 45 rpp  95      187      329      337    0  432.5  $N wall Rm91
9105 45 rpp  95      103      337      339    0  432.5  $N wall Stub Rm91
9106 45 rpp  80.5    95       329      332    0  432.5  $N Thin wall Rm91
9107 45 rpp  3       8.5      329      332    0  432.5  $NW Thin wall Rm91
9108 45 rpp  0       3        3        332    0  432.5  $W wall Rm91
9109 45 rpp  3       232      3        280    0  432.5  $Roomspace 91 Partially Filled
c
c
c  Basement Room 93
9301 45 rpp  246     262.5    0        15     0  432.5  $SW wall stub Rm93
9302 45 rpp  244     254      -5       0      0  432.5  $SW wall stub Rm93
```

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9303 45 rpp  310.5    526       0        15      0  432.5  $S wall Rm93
9304 45 rpp  514      526       15       241     0  432.5  $E wall Rm93
9305 45 rpp  524      526       241      273     0  432.5  $E wall Rm93
9306 45 rpp  513.75   526       273      549.5   0  304.1  $E wall Rm 93-Rm90
9307 45 rpp  355      513.75    372      384     0  304.1  $N wall Rm93
9308 45 rpp  355      371.5     329      372     0  432.5  $N wall Rm93
9309 45 rpp  351.5    355       329      341     0  432.5  $N wall stub Rm93
9310 45 rpp  187      312.5     329      341     0  432.5  $NW wall Rm93
9311 45 rpp  235      241       325      329     0  432.5  $N Closet stub Rm93
9312 45 rpp  187      199       280      329     0  432.5  $W Closet wall Rm93
9313 45 rpp  199      246       280      293     0  432.5  $S closet Wall Rm93
9314 45 rpp  232      246       268      280     0  432.5  $Closet Stub Rm93
9315 45 rpp  246      260.5     278      295     0  432.5  $Closet Stub Rm93
9316 45 rpp  241      246       293      295     0  432.5  $Closet Stub Rm93
9317 45 rpp  235      241       293      297     0  432.5  $Closet Stub Rm93
9318 45 rpp  355      373       280      296     0  432.5  $Central Column Rm93
9319 45 rpp  246      513.75    15       278     0  432.5  $Roomspace 93
c
c
c  Basement1 Room 94/94A/94B
9401 45 rpp  526      606       0        8       0  432.5  $S wall Rm94
9402 45 rpp  642      662       0        8       0  432.5  $S wall Rm94
9403 45 rpp  662      670       -42      133     0  432.5  $E wall Rm94
9404 45 rpp  670      671       -5       5       0  432.5  $SE Wall Stub Rm94-Rm95
9405 45 rpp  661      662       -5       0       0  432.5  $SE Wall Stub Rm94-Rm95
9406 45 rpp  599.5    728.5     133      141     0  432.5  $N wall Rm94-Rm95
9407 45 rpp  599.5    607.5     141      239     0  432.5  $W wall
9408 45 rpp  580.75   599.5     231.5    235     0  432.5  $S wall Rm94A
9409 45 rpp  526      545.75    231.5    235     0  432.5  $S wall Rm94A
9410 45 rpp  526      559       275      278.5   0  432.5  $N wall Rm94A
9411 45 rpp  592      599.5     275      278.5   0  432.5  $N wall Rm94A
9412 45 rpp  599.5    607.5     271      369     0  432.5  $W wall Rm94B
9413 45 rpp  526      700       369      377     0  432.5  $N wall Rm94B
9414 45 rpp  526      662       8        133     0  432.5  $Roomspace 94 Partially Filled
9415 45 rpp  526      599.5     278.5    369     0  432.5  $Roomspace 94B
c
c
c  Basement1 Room 95
9501 45 rpp  662      670       -96      -78     0  432.5  $SW wall Rm95
9502 45 rpp  670      877.5     -96      -88     0  432.5  $S wall Rm95
9503 45 rpp  833.5    841.5     -88      133     0  432.5  $E wall Rm95
9504 45 rpp  764.5    878.5     133      141     0  432.5  $N wall Rm95
9505 45 rpp  670      833.5     -88      133     0  432.5  $Roomspace 95
c
c
c  Basement1 Room 96/96A
9601 45 rpp  913.5    972       -96      -88     0  432.5  $S wall Rm96
9602 45 rpp  964      972       -88      -6      0  432.5  $E wall Rm96-Rm96a
9603 45 rpp  962      974       -6       6       0  432.5  $Column in wall Rm96
9604 45 rpp  915.5    962       -4       4       0  432.5  $N wall Rm96
9605 45 rpp  841.5    879.5     -4       4       0  432.5  $N wall Rm96
9606 45 rpp  964      972       6        282     0  432.5  $E wall Rm96-Rm96A-Rm97-Rm97A
9607 45 rpp  914.5    964       133      141     0  432.5  $N wall Rm96A
9608 45 rpp  841.5    964       -88      -4      0  432.5  $Roomspace 96
9609 45 rpp  841.5    964       4        133     0  432.5  $Roomspace 96A
c
c
c  Basement Room 97/97A
9701 45 rpp  773      964       197.5    201.5   0  432.5  $S wall Rm97A
9702 45 rpp  773      777       201.5    205.5   0  432.5  $S wall stub Rm97A
9703 45 rpp  773      777       277.5    369     0  432.5  $W wall Rm97A
9704 45 rpp  962      974       282      294     0  432.5  $Column in E wall Rm97A
9705 45 rpp  964      972       294      377     0  432.5  $E wall Rm97A
9706 45 rpp  771      964       369      377     0  432.5  $N wall Rm97A
9707 45 rpp  660      672       282      294     0  432.5  $Column Rm97
9708 45 rpp  607.5    773       141      369     0  432.5  $Roomspace 97
9709 45 rpp  777      962       201.5    369     0  432.5  $Roomspace 97A
c
c
c  Basement Room 98
```

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9801 45 rpp  526      667.8      459       467     0  432.5  $N wall Rm98
9802 45 rpp  526      667.8      377       459     0  432.5  $Roomspace   98
c
c
c   Basement Room 45 East Section
4560 45 rpp  938      942       453.5     513.5   0  432.5  $W wall Sump Rm45
4561 45 rpp  942      998       509.5     513.5   0  432.5  $N wall Sump Rm45
4562 45 rpp  994      998       453.5     509.5   0  432.5  $E wall Sump Rm45
4563 45 rpp  942      994       453.5     457.5   0  432.5  $S wall Sump Rm45
4564 45 rpp  661      671       535       545     0  432.5  $Column NW Rm45
4565 45 rpp  963      973       535       545     0  432.5  $Column NE Rm45
4566 45 rpp  526      530.5     549.5     559.5   0  432.5  $Stub NW Rm45
4567 45 rpp  530.5    532       549.5     557.5   0  432.5  $Stub NW Rm45
4568 45 rpp  568      570       549.5     557.5   0  432.5  $Stub N wall Rm45
4569 45 rpp  570      1482      549.5     559.5   0  432.5  $N wall Rm45
c 4570 45 rpp  516      526       561.5     621.5   0  432.5  $W wall Stairwell Rm45
c 4571 45 rpp  526      783       611.5     621.5   0  432.5  $N wall Stairwell Rm45
c
c
c   Basement Room 90/Elevator Room
9001 45 rpp  355      367       384       446.5   0  304.1  $W wall Rm90
9002 45 rpp  367      513.75    384       391.5   0  304.1  $Inside S wall Rm90
9003 45 rpp  506.25   513.75    391.5     549.5   0  304.1  $Inside E wall Rm90
9004 45 rpp  372.5    506.25    542       549.5   0  304.1  $Inside N wall Rm90
9005 45 rpp  367      526       549.5     561.5   0  432.5  $N outside wall Rm90
9006 45 rpp  355      367       485.5     549.5   0  304.1  $W wall Rm90
9007 45 rpp  367      372.5     529       549.5   0  304.1  $W wall Stub Rm90
9008 45 rpp  364      367       559.5     561.5   0  432.5  $NW wall Stub Rm90
9009 45 rpp  -879.5   367       549.5     559.5   0  432.5  $N wall hallway Rm90------------------------------------
9010 45 rpp  241      257       532       549.5   0  432.5  $Stub wall Elev Rm
9011 45 rpp  95       103       375       549.5   0  432.5  $W wall Elevator Rm
9012 45 rpp  145      153       379       493     0  432.5  $W wall Elev
9013 45 rpp  153      242       485       493     0  432.5  $N wall Elev
9014 45 rpp  233      242       473       485     0  432.5  $E wall Elev
9015 45 rpp  233      242       387       405     0  432.5  $E wall Elev
9016 45 rpp  153      242       379       387     0  432.5  $S wall Elev
9017 45 rpp  372.5    506.25    391.5     542     0  304.1  $Roomspace   90 Partially Filled
c
c
c
c ///////////////Begin Northeast Section of the Central Section of Basement1\\\\\\\\\\\\\\\\\\\\\\\\
c   *******************Notes for this section of Surfaces*************************
c  The origin (0,0,0) was designated as the south west corner of the south westernmost pillar of
c  the exploded basement drawing H-3-3050010-1.DWG.  This pillar is not under the yellow dashed line
c  because these pillars were included in the south east Section model.
c
c
c   Basement Room 45
4575 44 rpp  0        10        0         10      0  432.5  $SW Column ORIGIN Designated (0,0,0) Here
4576 44 rpp  302      312       0         10      0  432.5  $Next(2nd) Column moving Eastward Rm45
4577 44 rpp  603      615       -1        11      0  432.5  $3rd Column moving East Rm45
4578 44 rpp  856.5    865.5     249       259     0  432.5  $Column between Rm58 and Rm54
4579 44 rpp  856.5    865.2     537       547     0  432.5  $Column directly N of (4504)
4580 44 rpp  1109     1119      825       835     0  432.5  $Column between Rm52 and Main wall
4581 44 rpp  719      729       1077      1087    0  432.5  $NW most Column Rm45
4582 44 rpp  856.5    865.5     1077      1087    0  432.5  $Next(2nd) Column moving Eastward Rm45
4583 44 rpp  1109     1119      1077      1087    0  432.5  $3rd Column moving East Rm45
c
c
c   Basement room 48
4801 44 rpp  656.5    664.5     -202      97      0  432.5  $W wall Rm48
4802 44 rpp  664.5    1035      -202      -194    0  432.5  $S wall Rm48
4803 44 rpp  1071     1123.5    -202      -194    0  432.5  $S wall Rm48
4804 44 rpp  664.5    674.5     89        97      0  432.5  $NW wall stub Rm48
4805 44 rpp  746.5    1123.5    89        97      0  432.5  $N wall Rm48
4806 44 rpp  856.5    866.5     0         10      0  432.5  $W Column Rm48
4807 44 rpp  1109     1119      0         10      0  432.5  $E Column Rm48
4808 44 rpp  664.5    1123.5    -194      89      0  432.5  $Roomspace   48 Partially Filled
c
c
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c
c  Basement Room 57/57W/57E
5701 44 rpp  1       613       66       74      0  432.5  $S wall Rm57-57W-57E
5702 44 rpp  1       9         74       100     0  432.5  $SW wall Rm57W
5703 44 rpp  1       9         136      249     0  432.5  $W wall Rm57W-Rm58
5704 44 rpp  9       288.9     166      170     0  432.5  $N wall Rm57W-57
5705 44 rpp  324.9   605       166      170     0  432.5  $N wall Rm57-57E
5706 44 rpp  453     459       114.5    166     0  432.5  $E wall Rm57
5707 44 rpp  453     459       74       78.5    0  432.5  $E wall Rm57
5708 44 rpp  605     613       74       100     0  432.5  $E wall Rm57E
5709 44 rpp  141     147       74       166     0  432.5  $E wall Rm57W
5710 44 rpp  605     613       136      199     0  432.5  $E wall Rm57E-Rm58
5711 44 rpp  9       141       74       166     0  432.5  $Roomspace   57W
5712 44 rpp  147     453       74       166     0  432.5  $Roomspace   57
5713 44 rpp  459     605       74       166     0  432.5  $Roomspace   57E
c
c
c   Basement Room 58
5801 44 rpp  605     613       234.5    248     0  432.5  $E wall Rm58
5802 44 rpp  603     615       248      260     0  432.5  $Column in E wall Rm58
5803 44 rpp  605     613       260      362     0  432.5  $E wall Rm58
5804 44 rpp  1       605       354      362     0  432.5  $N wall Rm58
5805 44 rpp  1       9         320      354     0  432.5  $W wall Rm58
5806 44 rpp  1       9         259      288     0  432.5  $W wall Rm58
5807 44 rpp  0       10        249      259     0  432.5  $Column in W wall Rm58
5808 44 rpp  302     312       249      259     0  432.5  $Central Column Rm58
5809 44 rpp  10      603       170      354     0  432.5  $Roomspace   58 Partially Filled
c
c
c   Basement Room 54
5401 44 rpp  1109    1119      249      259     0  432.5  $S column Rm54
5402 44 rpp  1109    1119      537      547     0  432.5  $N column Rm54
5403 44 rpp  914     1123.5    220      228     0  432.5  $S wall Rm54
5404 44 rpp  914     922       228      417     0  432.5  $W wall Rm54
5405 44 rpp  914     922       493      634     0  432.5  $W wall Rm54
5406 44 rpp  893.5   1123.5    634      642     0  432.5  $N wall Rm54
5407 44 rpp  1123.5  1133.5    166.5    1101.5  0  432.5  $Boundary wall between Northeast and East Sections
5408 44 rpp  922     1123.5    228      634     0  432.5  $Roomspace   54
c
c
c   Basement Room 52
5201 44 rpp  720     857.5     634      642     0  432.5  $S wall Rm52
5202 44 rpp  720     728       642      892     0  432.5  $W wall Rm52
5203 44 rpp  728     880       884      892     0  432.5  $N wall Rm52
5204 44 rpp  952     1037      884      892     0  432.5  $N wall Rm52
5205 44 rpp  1029    1037      642      884     0  432.5  $E wall Rm52
5206 44 rpp  856.5   866.5     825      835     0  432.5  $Column Rm52
5207 44 rpp  728     1029      642      884     0  432.5  $Roomspace   52
c
c
c
c
c
c   //////////////Begin West Section of Surfaces for Basement1\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
c   ****************************Section NOTES**********************************
c   SW outside corner of the southern wall of Room 23B is designated
c   as (0,0,0)
c   3216 and 3217 include a doorway through the outer wall.
c
c    Basement Room 23B and Room 23
2310 41 rpp  0       242       0        10      0  432.5  $S wall Rm23B
2311 41 rpp  0       10        10       140.5   0  432.5  $W wall Rm23B
2312 41 rpp  23      31        119      127     0  432.5  $NW column Rm23B
2313 41 rpp  125.5   133.5     119      127     0  432.5  $N(center) column Rm23B
2314 41 rpp  227.5   235.5     119      127     0  432.5  $NE column Rm23B
2315 41 rpp  -12     164.5     140.5    152.5   0  432.5  $N Wall Rm23B
2316 41 rpp  212.5   242       140.5    152.5   0  432.5  $NE Wall Rm23B
2317 41 rpp  -12     0         152.5    415.5   0  432.5  $W wall Rm23
2318 41 rpp  23      31        388.5    396.5   0  432.5  $NW Column Rm23
2319 41 rpp  125.5   133.5     388.5    396.5   0  432.5  $N(center) Column Rm23
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2320 41 rpp  227.5    237.5      388.5     396.5   0  432.5  $NE Column Rm23
2321 41 rpp  10       242        10        140.5   0  432.5  $Roomspace   23B
2322 41 rpp  0        242        152.5     415.5   0  432.5  $Roomspace   23
c
c
c  Basement Room 45
4501 41 rpp  -167     -159.5     427.5     435     0  432.5  $SW Block Rm45
4502 41 rpp  -179     -167       415.5     1065.5  0  432.5  $W wall Rm45-Rm32
4503 41 rpp  -167     -56.5      549       555     0  432.5  $NW wall Rm45
4504 41 rpp  -62.5    -56.5      504.5     549     0  432.5  $N wall Rm45
4505 41 rpp  -56.5    109        504.5     510.5   0  432.5  $N wall Rm45
4506 41 rpp  -14.5    98.5       486.5     504.5   0  432.5  $N Block Rm45
4507 41 rpp  169      242        504.5     510.5   0  432.5  $N wall Rm45
4508 41 rpp  -13      242        415.5     427.5   0  432.5  $S Wall Rm45
4509 41 rpp  -167     -49        415.5     427.5   0  432.5  $SW wall Rm45
c
c
c  Basement Room 32
3201 41 rpp  -167     -159.5     626.5     638.5   0  432.5  $W Block Rm32
3202 41 rpp  -167     -159.5     866.5     878.5   0  432.5  $W2 Block Rm32
3203 41 rpp  -167     -159.5     1046      1053.5  0  432.5  $NW Block Rm32
3204 41 rpp  -167     -154       1053.5    1065.5  0  432.5  $Frag in NW wall Rm32
3205 41 rpp  -162     -154       1065.5    1108.5  0  432.5  $NW Indent Rm32
3206 41 rpp  -154     -116       1100.5    1108.5  0  432.5  $NW Indent Mid Rm32
3207 41 rpp  -124     -116       1053.5    1100.5  0  432.5  $NW Indent Rgt Rm32
3208 41 rpp  -116     242        1053.5    1065.5  0  432.5  $N wall Rm32
3209 41 rpp  142.5    152.5      1065.5    1151.5  0  432.5  $NE Indent Rm32
3210 41 rpp  152.5    190.5      1141.5    1151.5  0  432.5  $NE Indent Rm32
3211 41 rpp  180.5    190.5      1113.5    1141.5  0  432.5  $NE Indent Rm32
3212 41 rpp  190.5    242        1113.5    1123.5  0  432.5  $NE Indent Rm32
3213 41 rpp  225.5    237.5      734.5     746.5   0  432.5  $E Column Rm32
3214 41 rpp  -14.5    98.5       728.5     752.5   0  432.5  $Central "Object"Rm32
3215 41 rpp  -14.5    98.5       956.4     980.4   0  432.5  $N Central "Object" Rm32
3216 41 rpp  242      252        492.5     2025.5  0  432.5  $Boundary wall for West and NorthWest sections
3217 41 rpp  242      252        2122      2259    0  432.5 $Boundary wall for West and NorthWest sections
c
c
c
c
c
c  //////////////Begin South West Section of Surfaces for Basement1\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
c   ****************Section NOTES**********************************************
c   This area is very open and it is difficult to distinguish which walls belong to what room
c  Origin set on the SW corner of Room 22 in the inside corner of the exterior wall
c
c  Basemnt1 Room 22
2201  rpp  4.5      14.5       4.5       14.5    0  432.5  $SW Column Rm22
2202  rpp  257      267        5.5       13.5    0  432.5  $S Column Rm22
2203  rpp  509.5    519.5      4.5       14.5    0  432.5  $SE Column Rm22
2204  rpp  519.5    523.5      0         279.5   0  432.5  $E wall Rm22
2205  rpp  509.5    519.5      269.5     277.5   0  432.5  $E Column Rm22
2206  rpp  257      267        269.5     277.5   0  432.5  $N Column Rm22
2207  rpp  0        4.5        511.5     515.5   0  432.5  $Far NW Spur Wall betweenRm22 and Rm45
2208  rpp  4.5      14.5       508.5     518.0   0  432.5  $2207cont'd Rm22 and Rm45
2209  rpp  14.5     117.5      511.5     515.5   0  432.5  $2207cont'd Rm22 and Rm45
c
c
c These surfaces will be the new Hot Cells
2230  rpp  324    402    86     188    0  156.20  $SW Mod Cell-1 Rm22
2231  rpp  331    409    290    392    0  156.20  $W  Mod Cell-1 Rm22A
2232  rpp  624.5  792.5  82     178    0  156.20  $S  Big Cell-3 Rm30A
2233  rpp  616.5  736.5  342.5  438.5  0  156.20  $N  Metalographycell-2 Rm31A
2234  rpp  896.5  998.5  358.5  436.5  0  156.20  $SE Mod Cell-1 Rm31
2235  rpp  943    1021   597.5  699.5  0  156.20  $NE Mod Cell-1 Rm33
c   rpp    0  432.5  $
c   rpp    0  432.5  $
c   rpp    0  432.5  $
c   rpp    0  432.5  $
c   rpp    0  432.5  $
c
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c
c  Basement Room 22A
2210  rpp  155     160.5    363.5    511.5   0  432.5  $W wall Rm22a
2211  rpp  153.5   257      511.5    515.5   0  432.5  $N wall Rm22a
2212  rpp  257     267      509.5    517.5   0  432.5  $Column in N wall Rm22a
2213  rpp  267     509.5    511.5    515.5   0  432.5  $N wall Rm22a
2214  rpp  509.5   519.5    509.5    517.5   0  432.5  $Column in N wall Rm22a
2215  rpp  519.5   811.5    511.5    515.5   0  432.5  $N wall Rm22a-Rm31a
2216  rpp  524.5   528.5    351.5    511.5   0  432.5  $E wall Rm22a
2217  rpp  478.25  524.5    356      359     0  432.5  $SE wall Rm22a
c 2218  rpp  279.25  443.25   356      359     0  432.5  $SW Wall Rm22a
2219  rpp  -10     0        0        287.5   0  432.5  $Boundary wall between West and Southwest Sections
2220  rpp  -10     0        359.5    564     0  432.5  $Boundary wall between West and Southwest Sections
2221  rpp  -10     1187.5   -10      0       0  432.5  $Boundary wall between West and Southeast Sections
2222  rpp  160.5   524.5    359      511.5   0  432.5  $Roomspace   22A Partially Filled
c
c
c  Basement Room 23A
2301  rpp  0       161      130      135.5   0  432.5  $S wall Rm23a
2302  rpp  155.5   161      135.5    284.5   0  432.5  $E wall Rm23a
2303  rpp  61      155.5    279      284.5   0  432.5  $NE wall Rm23a
2304  rpp  0       26       279      284.5   0  432.5  $NW wall Rm23a
2305  rpp  5       14.5     268.5    278.5   0  432.5  $NW  Column Rm23a
2306  rpp  0       155.5    135.5    279     0  432.5  $Roomspace   23A
c
c
c  Basement Room 30A
3001  rpp  523.5   576.25   237.75   242.75  0  432.5  $NW wall Rm30a
3002  rpp  611.25  1118.5   237.75   242.75  0  432.5  $NE wall Rm30a
3003  rpp  1113.5  1118.5   158.5    237.75  0  432.5  $SE wall Rm30a
3004  rpp  1113.5  1118.5   13.5     86.5    0  432.5  $SE wall Rm30a
3005  rpp  1113.5  1123.5   5.5      13.5    0  432.5  $SE Column Rm30a
3006  rpp  811.5   821.5    4.5      14.5    0  432.5  $S Column Rm30a
3007  rpp  523.5   1113.5   0        237.75  0  432.5  $Roomspace   30A
c
c
c  Basement Room 31/31A
c 3101  rpp  528.5   818.25   358      363     0  432.5  $S wall Rm31
3102  rpp  806.75  811.75   363.5    402.75  0  432.5  $E wall Rm31
3103  rpp  806.75  811.75   438.75   508.5   0  432.5  $E wall Rm31 major wall
3104  rpp  806.75  811.5    508.5    511.5   0  432.5  $E wall Rm31(Small piece atop major wall)
c 3105  rpp  854.25  1041     358      363     0  432.5  $S wall Rm31a
3106  rpp  1037    1041     363      509.5   0  432.5  $E wall Rm31a
3107  rpp  821.5   1123.5   509.5    517.5   0  432.5  $N wall Rm31a
3108  rpp  811.5   821.5    508.5    518.5   0  432.5  $NW Column in N wall Rm31A
3109  rpp  528.5   806.75   363      511.5   0  432.5  $Roomspace   31A
3110  rpp  811.75  1037     363      509.5   0  432.5  $Roomspace   31 Partially Filled
c
c
c  Basement Room 33
3301  rpp  812.5   820.5    518.5    748.5   0  432.5  $W wall Rm33
3302  rpp  811.5   821.5    748.5    758.5   0  432.5  $NW wall Rm33
3303  rpp  821.5   1140     749.5    757.5   0  432.5  $N wall Rm33
3304  rpp  1117    1121     608      749.5   0  432.5  $E wall Rm33
3305  rpp  1117    1121     517.5    548     0  432.5  $SE wall Rm33
3306  rpp  820.5   1117     517.5    749.5   0  432.5  $Roomspace   33
c
c
c  Basement Room 45
4584  rpp  4.5     14.5     748.5    758.5   0  432.5  $W Column Rm45
4585  rpp  257     267      749.5    757.5   0  432.5  $W Central Column Rm45
4586  rpp  509.5   519.5    749.5    757.5   0  432.5  $E Central Column Rm45
4587  rpp  4.5     14.5     988.5    998.5   0  432.5  $NW Column Rm45 ON BORDER OF SECTION
4588  rpp  257     267      988.5    998.5   0  432.5  $NW Column Rm45 ON BORDER OF SECTION
4589  rpp  509.5   519.5    988.5    998.5   0  432.5  $N Column Rm45 ON BORDER OF SECTION
4590  rpp  811.5   821.5    988.5    998.5   0  432.5  $NE Column Rm45 ON BORDER OF SECTION
4591  rpp  1113.5  1123.5   988.5    998.5   0  432.5  $NE Column Rm45 ON BORDER OF SECTION
4592  rpp  811.5   821.5    268.5    278.5   0  432.5  $W Central Column between Rm31 and Rm30
4593  rpp  1113.5  1123.5   269.5    277.5   0  432.5  $E Central Column between Rm31 and Rm30
c
```

```
c
c
c
c
c ///////////////Begin South East Section of the Central Section of Basement1\\\\\\\\\\\\\\\\\\\\\\\\\
c   ***************Notes for this section of Surfaces****************************************
c  SW Column Located at the Origin (0,0,0) Rm45
c
c    Basement1 Room 45
c   This room contains mainly columns. The SE corner has a wall that does
c  not appear in the other sections so I will include it in this section to be safe.
c  Surface numbers are continued from the SW basement1 section which also contains Room 45.
4511 42 rpp  0       10        0        8       0  432.5  $SW Column Located at the Origin (0,0,0) Rm45
4512 42 rpp  302      312       -1       9       0  432.5  $Next(2nd) Column moving Eastward Rm45
4513 42 rpp  604      614       -1       9       0  432.5  $3rd Column moving East Rm45
4514 42 rpp  856.5    866.5     0        8       0  432.5  $4th Column moving East Rm45
4515 42 rpp  1109     1119      -1       9       0  432.5  $5th Column moving East Rm45 Farthest SE Column
4516 42 rpp  0       10        264      272     0  432.5  $West Column Above Origin(4511)
4517 42 rpp  302      312       263      273     0  432.5  $Next(2nd) Column moving Eastward Rm45
4518 42 rpp  604      614       264      272     0  432.5  $3rd Column moving East Rm45
4519 42 rpp  856.5    865.5     264      272     0  432.5  $4th Column moving East Rm45
4520 42 rpp  1109     1119      263      273     0  432.5  $5th Column moving East Rm45
4521 42 rpp  0       10        504      512     0  432.5  $W Column above(4516) 2nd column above origin
4522 42 rpp  856.5    865.5     504      512     0  432.5  $Technically the 4th Column moving E
4523 42 rpp  1109     1119      503      513     0  432.5  $Tech. 5th Column moving E
4524 42 rpp  0       10        983      993     0  432.5  $W Column above(4521) 3rd up from origin on Border of section
4525 42 rpp  302      312       983      993     0  432.5  $Next(2nd) Column moving E
4526 42 rpp  604      614       983      993     0  432.5  $3rd Column moving E
4527 42 rpp  856.5    866.5     983      993     0  432.5  $4th Column moving E
4528 42 rpp  1109     1119      983      992     0  432.5  $5th Col moving E, Omitted small piece <------Check for accuracy after
translation
4529 42 rpp  612      886.5     -15.5    -5.5    0  432.5  $SE Wall Rm45
4530 42 rpp  886.5    904.5     -15.5    5.5     0  432.5  $Column at end of (4529) wall Rm45
4531 42 rpp  1024.5   1042.5    -15.5    5.5     0  432.5  $Column at start of (4533)
4532 42 rpp  1042.5   1061      -15.5    -5.5    0  432.5  $SE Stub wall Rm45
4533 42 rpp  1097     1123.5    -15.5    -5.5    0  432.5  $SE wall Rm45
4534 42 rpp  1063     1123.5    58       130     0  432.5  $Large Block SE Corner Rm45
c 4535 42 rpp  1063     1109      130      348     0  432.5  $Second Large Block SE Corner Rm45
c
c
c  Basement Room 34
3401 42 rpp  -16.5    302       744      752     0  432.5  $N wall Rm34
3402 42 rpp  302      312       743      753     0  432.5  $Column in N wall Rm34
3403 42 rpp  312      618.5     744      752     0  432.5  $N wall cont'd Rm34
3404 42 rpp  597.5    610.5     576.25   744     0  432.5  $E wall Rm34
3405 42 rpp  0       597.5     592.25   596.25  0  432.5  $S wall Rm34
3406 42 rpp  0       5         596.25   652     0  432.5  $W wall Rm34
3407 42 rpp  0       5         724      744     0  432.5  $W wall Rm34
3408 42 rpp  5       597.5     596.25   744     0  432.5  $Roomspace   34
c
c
c  Basement Room 35
3501 42 rpp  94.5     99.5      475      592.25  0  432.5  $W wall Rm35
3502 42 rpp  99.5     220       475      478     0  432.5  $S wall Rm35
3503 42 rpp  292      597.5     475      478     0  432.5  $SE wall Rm35-Rm36
3504 42 rpp  304.5    309.5     478      503     0  432.5  $E wall Rm35
3505 42 rpp  302      312       503      513     0  432.5  $Column in E wall Rm35
3506 42 rpp  304.5    309.5     513      540.3   0  432.5  $E wall Rm35
3507 42 rpp  304.5    309.5     576.3    592.25  0  432.5  $E wall Rm35
3508 42 rpp  99.5     304.5     478      592.25  0  432.5  $Roomspace   35 Partially Filled
c
c
c  Basement Room 36
3601 42 rpp  597.5    610.5     475      540.5   0  432.5  $SE wall Rm36
3602 42 rpp  610.5    614       504      512     0  432.5  $Portion of column in SE wall Rm36
3603 42 rpp  309.5    597.5     478      592.25  0  432.5  $Roomspace   36
c
c
c  Basement Room 46
4601 42 rpp  602.5    615       303      475     0  167.6  $W wall Rm46
```

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4602 42 rpp 615 855.5 303 315.5 0 167.6 $S wall Rm46
4603 42 rpp 856 867.5 303 475 0 167.6 $E wall Rm46
4604 42 rpp 615 855.5 463 475 0 167.6 $N wall Rm46
4605 42 rpp 615 855.5 315.5 463 0 167.6 $Roomspace 46 Empty
c
c
c Basement Room 43 and Room44
4301 42 rpp 956 1123.5 970 973 0 432.5 $N wall Rm43a
4302 42 rpp 956 959 785.25 970 0 432.5 $W wall Rm43a
4303 42 rpp 871.5 989 782.25 785.25 0 432.5 $N Wall Rm43-Rm44
4304 42 rpp 986 989 700 782.25 0 432.5 $W wall Rm43a
4305 42 rpp 1070 1123.5 579 582 0 432.5 $S wall Rm43a
4306 42 rpp 962 1034 579 582 0 432.5 $S wall Rm43a
4307 42 rpp 962 965 582 661.5 0 432.5 $W bottom wall Rm43a
4308 42 rpp 1109 1119 743 753 0 432.5 $Column Rm43
4309 42 rpp 871.5 962 658.5 661.5 0 432.5 $S wall Rm43
4310 42 rpp 871.5 874.5 661.5 671 0 432.5 $SW wall Rm43
4311 42 rpp 871.5 874.5 707 782.25 0 432.5 $NW wall Rm43
4312 42 rpp 714.5 867.5 744 752 0 432.5 $S wall Rm44 <---Chain link omitted
4313 42 rpp 874.5 986 661.5 782.25 0 432.5 $Roomspace 43
4314 42 rpp 959 1123.5 785.25 970 0 432.5 $Roomspace 43A
4315 42 rpp 725.5 956 785.25 973 0 432.5 $Roomspace 44
c
c
c Modular Shielded Storage Container E of Tank Vault
4610 42 rpp 1004.5 1087.5 314 462 0 226 $Outer Box
4611 42 rpp 1012.5 1079.5 322 454 8 218 $Inner void
c
c
c Modular Shielded Storage Container W of Tank Vault
4612 42 rpp 406 489 280 428 0 226 $Outer Box
4613 42 rpp 414 481 288 420 8 218 $Inner void
c
c
c
c
c
c //////////////Begin East Section of Surfaces for Basement1\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
c **************************Section NOTES***********************************************
c The origin was located at the SW corner of Room 40 on the inside edge of the
c inresection of the bordering walls. The origin lies underneath the yellow dashed line. If
c using Turbo Cad, right click white space, select the arrow then click the yellow line. When the
c yellow line highlights push delete, problem solved. Note to self or the QA, I rule.
c
c
c Basement1 Room 40/40A/40C
4001 43 rpp 0 540.5 -10 0 0 432.5 $S wall Rm40C
4002 43 rpp -10 0 -10 57.5 0 432.5 $SW spur wall Rm40
4003 43 rpp 185.5 189.5 0 56 0 432.5 $S spur wall Rm40C
4004 43 rpp 322.5 356.5 0 9.5 0 432.5 $S Block
4005 43 rpp 540.5 569.5 -10 9.5 0 432.5 $SE Corner Block Rm40C
4006 43 rpp 559.5 569.5 9.5 1058.5 0 432.5 $E wall Rm40C-Basin-40A-40B-50A
4007 43 rpp 185.5 189.5 128 321.5 0 432.5 $W wall Rm40C
4008 43 rpp 189.5 200.5 183.5 197.5 0 432.5 $Block in W wall Rm40C
4009 43 rpp 315.5 329.5 183.5 197.5 0 432.5 $Column Center Rm40C
4010 43 rpp 540.5 559.5 181 195 0 432.5 $SE Block E wall Rm40C
4011 43 rpp 540.5 559.5 258 272 0 432.5 $NE Block E wall Rm40C
4012 43 rpp 185.5 356.5 321.5 369.5 0 432.5 $N Thick wall Rm40C
4013 43 rpp 320.5 356.5 369.5 699.5 0 432.5 $N wall Rm40C-Basin-40A
4014 43 rpp 356.5 559.5 380 390 0 432.5 $N wall Rm40C
4015 43 rpp 12.5 24.5 183.5 197.5 0 432.5 $SW Column Rm40
4016 43 rpp 12.5 24.5 340.5 352.5 0 432.5 $W1 Column Rm40
4017 43 rpp 16.5 28.5 491.5 503.5 0 432.5 $W2 Column Rm40
4018 43 rpp 0 52 507.5 517.5 0 432.5 $W wall Rm40
4019 43 rpp 42 52 517.5 663.5 0 432.5 $W wall Rm40
4020 43 rpp 0 42 609.5 617.5 0 432.5 $W wall NStairs Rm40
4021 43 rpp 60.5 72.5 617.5 629.5 0 432.5 $NW Column Rm40
4022 43 rpp 0 42 653.5 663.5 0 432.5 $W wall above stairs2 wall Rm40
4023 43 rpp 42 52 663.5 809.5 0 432.5 $W wall cont Rm40
4024 43 rpp 0 101 809.5 819.5 0 432.5 $W wall above stairs3 Rm40
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4025 43 rpp  93.5     98.5       819.5     885.5   0  432.5  $NW wall by Ramp Rm40
4026 43 rpp  98.5     356.5      880.5     885.5   0  432.5  $N wall above Ramp Rm40<<<<----Check This In Real World
4027 43 rpp  163      356.5      819.5     826.5   0  432.5  $N wall below Ramp Rm40<<<<----Check This In Real World
4028 43 rpp  163      559.5      809.5     819.5   0  432.5  $N wall Rm40-Rm40A
4029 43 rpp  185.5    233.5      411.5     809.5   0  432.5  $W Thick wall Rm40
4030 43 rpp  233.5    356.5      772       809.5   0  432.5  $NW Thick wall in Rm40A
4031 43 rpp  356.5    559.5      689.5     699.5   0  432.5  $S wall Rm40A
4032 43 rpp  540.5    559.5      740.5     754.5   0  432.5  $Block in E wall Rm40A
4033 43 rpp  465.5    559.5      610.5     620.5   0  432.5  $N Basin Wall
4034 43 rpp  450.5    465.5      504.5     620.5   0  432.5  $W Basin Wall
4035 43 rpp  465.5    475.5      514.5     610.5   0  432.5  $W inside Basin Wall
4036 43 rpp  465.5    559.5      504.5     514.5   0  432.5  $S Basin Wall
4037 43 rpp  540.5    559.5      500.5     504.5   0  432.5  $S Basin protrusion
4045 43 rpp  189.5    540.5      9.5       321.5   0  432.5  $Roomspace   40C Partially Filled
4046 43 rpp  356.5    559.5      699.5     809.5   0  432.5  $Roomspace   40A<-------------Discontinuous Surface #'s because of Room
40B
c
c
c   Basement Room 40B
4038 43 rpp  162.5    559.5      990       1000    0  432.5  $N wall Rm40B
4039 43 rpp  0        122.5      990       1000    0  432.5  $NW wall Rm40B
4040 43 rpp  540.5    559.5      980.5     990     0  432.5  $NE Block wall Rm40B
4041 43 rpp  322.5    356.5      980.5     990     0  432.5  $N Block wall Rm40B
4042 43 rpp  -10      0          129.5     523.5   0  432.5  $Boundary wall for SE and E sections
4043 43 rpp  -10      0          559.5     1401    0  432.5  $Boundary wall for SE and E sections
4044 43 rpp  0        559.5      885.5     990     0  432.5  $Roomspace   40B
c
c
c   Basement Room 50/50A
5001 43 rpp  343.5    351.5      1000      1311.5  0  432.5  $E wall Rm50
5002 43 rpp  343.5    351.5      1347.5    1539.5  0  432.5  $E wall Rm50
5003 43 rpp  0        569.5      1539.5    1551.5  0  432.5  $N wall Rm50-Rm50A
5004 43 rpp  19       27         1045.5    1053.5  0  432.5  $SW Column Rm50
5005 43 rpp  185      195.5      1044.5    1054.5  0  432.5  $S Column Rm50
5006 43 rpp  331.5    343.5      1043      1056    0  432.5  $SE Column Rm50
5007 43 rpp  351.5    352.25     1043      1056    0  432.5  $Very Small edge of column SE Rm50A
5008 43 rpp  19       27         1283.5    1291.5  0  432.5  $W Column Rm50
5009 43 rpp  185      195        1282.5    1292.5  0  432.5  $Center Column Rm50
5010 43 rpp  331.5    341.5      1282.5    1292.5  0  432.5  $E Column Rm50
5011 43 rpp  17       25         1517.5    1525.5  0  432.5  $NW Column Rm50
5012 43 rpp  186      194        1517.5    1525.5  0  432.5  $N Column Rm50
5013 43 rpp  331.5    343.5      1521.5    1539.5  0  432.5  $NE Column Rm50
5014 43 rpp  533.5    559        1042.5    1058.5  0  432.5  $SE Protrusion Rm50A
5015 43 rpp  545.5    553.5      1058.5    1279.5  0  432.5  $E wall Rm50A
5016 43 rpp  533.5    569.5      1279.5    1295.5  0  432.5  $E Block in wall Rm50A
5017 43 rpp  545.5    553.5      1295.5    1528.5  0  432.5  $NE wall Rm50A
5018 43 rpp  533.5    569.5      1528.5    1539.5  0  432.5  $NE Block in wall Rm50A
5019 43 rpp  0        343.5      1055      1539.5  0  432.5  $Roomspace   50
5020 43 rpp  351.5    545.5      1000      1539.5  0  432.5  $Roomspace   50A
c
c
c   Basement1 Vaults A, B, and C
c   Designated as a continuation of the 5000 series
c   ******************This Section is INCOMPLETE********************************
c 5019  rpp  569.5 623.5  747.5 1539.5  0  442  $Pipe Trench
c 5020  rpp  623.5 1035.5 1000  1539.5  0  442  $Vault Room
c
c
c
c
c
c
c  ////////////Begin South Section of Basement1\\\\\\\\\\\\
c  ******************************Section NOTES***************************
c  The Southwest inside corner of the inside wall of room 7 was designated as the
c  origin (0,0,0) This is the only section where the CAD measurements did not come
c  out to quarter centimeter increments(.25, .5, .75, .00). The CAD measurements for
c  this section instead came out to Tenths of Centimeters( .10, .20, .30, etc..). -koo koo ka chew
c
c
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c  Basement1  Room 7
701 47 rpp  -4.8      0         -4        805.5   152.4  432.5  $West wall Rm7-Rm17
702 47 rpp  0         147.5     146       152     152.4  432.5  $N wall
703 47 rpp  141.5     147.5     152       198.25  152.4  432.5  $N wall
704 47 rpp  147.5     203.5     192.25    198.25  152.4  432.5  $N wall
705 47 rpp  203.5     208.5     180.5     241.75  152.4  432.5  $NE wall Rm7-Rm9
706 47 rpp  203.5     208.5     -4        144.5   152.4  432.5  $E wall Rm7
707 47 rpp  0         203.5     -4        0       152.4  432.5  $S wall Rm7
708 47 rpp  -12.8     -4.8      -25.5     867.5   152.4  432.5  $W Main Structural Wall South Section Basement1
709 47 rpp  -4.8      8.7       -17.5     -4      152.4  432.5  $Block1 in SW corner Main wall
710 47 rpp  -4.8      220.7     -25.5     -17.5   152.4  432.5  $SW Main Structural Wall South Section Basement1
711 47 rpp  94.7      106.7     -17.5     -4      152.4  432.5  $Block2 in main Wall
712 47 rpp  195.7     207.7     -17.5     -4      152.4  432.5  $Block3 in main Wall
713 47 rpp  258.7     1335.2    -25.5     -17.5   152.4  432.5  $S Main Structural Wall South Section Basement1
714 47 rpp  292.7     307.7     -17.5     -4      152.4  432.5  $Block4 in main Wall
715 47 rpp  396.7     408.7     -17.5     -4      152.4  432.5  $Block5 in main Wall
716 47 rpp  496.7     508.7     -17.5     -4      152.4  432.5  $Block6 in main Wall
717 47 rpp  597.7     609.7     -17.5     -4      152.4  432.5  $Block7 in main Wall
718 47 rpp  712.7     719.2     -17.5     -4      152.4  432.5  $Block8 in main Wall
719 47 rpp  813.7     825.7     -17.5     -4      152.4  432.5  $Block9 in main Wall
720 47 rpp  913.7     925.7     -17.5     -4      152.4  432.5  $Block10 in main Wall
721 47 rpp  1115.7    1127.7    -17.5     -4      152.4  432.5  $Block11 in main Wall
722 47 rpp  1215.7    1227.7    -17.5     -4      152.4  432.5  $Block12 in main Wall
723 47 rpp  1313.7    1327.2    -17.5     -4      152.4  432.5  $Block13 in main Wall
724 47 rpp  1327.2    1335.2    -17.5     867.5   152.4  432.5  $E Main Structural Wall South Section Basement1
725 47 rpp  0         203.5     0         146     152.4  432.5  $Roomspace   7
c
c
c  Basement1  Room 9
901 47 rpp  0         9.75      279       300     152.4  432.5  $pillar NW corner
902 47 rpp  9.75      203.5     287       292     152.4  432.5  $N Wall Rm13
903 47 rpp  203.5     208.5     277.75    389.75  152.4  432.5  $E wall through Rm09
904 47 rpp  0         141.5     152       287     152.4  432.5  $Roomspace   9 Partially Filled
c
c
c  Basement1 Room 11
1101 47 rpp  203.5    208.5     425.75    447.4   152.4  432.5  $E wall Rm9-Rm11
1102 47 rpp  0        203.5     434.5     439.5   152.4  432.5  $N wall Rm11
1103 47 rpp  0        203.5     292       434.5   152.4  432.5  $Roomspace   11 Partially Filled
c
c
c   Basement1 Room 13
1301 47 rpp  203.5    208.5     483.4     597.4   152.4  432.5  $E wall Rm13
1302 47 rpp  0        9.75      576.5     598     152.4  432.5  $pillar NW corner Rm13
1303 47 rpp  9.75     203.5     584.5     589.5   152.4  432.5  $N wall Rm13
1304 47 rpp  0        203.5     439.5     584.5   152.4  432.5  $Roomspace   13 Partially Filled
c
c
c   Basement1 Room 15
1501 47 rpp  203.8    208.5     633.4     706.4   152.4  432.5  $E wall Rm15-Rm17
1502 47 rpp  0        203.5     692.5     697.5   152.4  432.5  $N wall Rm15
1503 47 rpp  0        203.5     589.5     692.5   152.4  432.5  $Roomspace   15 Partially Filled
c
c
c   Basement1 Room 17
1701 47 rpp  0        208.5     800.5     805.5   152.4  432.5  $N wall Rm17
1702 47 rpp  203.5    208.5     742.4     800.5   152.4  432.5  $E wall Rm17
1703 47 rpp  208.5    228       767.4     772.4   152.4  432.5  $E Stub wall Rm17
1704 47 rpp  0        203.5     697.5     800.5   152.4  432.5  $Roomspace   17
c
c
c  Basement1 Room 16
1601 47 rpp  292.7    298.7     -4        178     152.4  432.5  $W wall Rm16
1602 47 rpp  298.7    318.7     173       178     152.4  432.5  $N stub wall rm16
1603 47 rpp  354.7    558.7     173       178     152.4  432.5  $N wall Rm16-Rm18
1604 47 rpp  447.2    452.2     0         173     152.4  432.5  $E wall Rm16
1605 47 rpp  298.7    600.2     -4        0       152.4  432.5  $South Wall Rm16-Rm18
1606 47 rpp  298.7    447.2     1         173     152.4  432.5  $Roomspace   16
c
c
```

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c  Basement1 Room 18
1801 47 rpp  594.7   613.7    173     178    152.4  432.5  $N Stub wall Rm18
1802 47 rpp  600.2   604.2    -4      173    152.4  432.5  $E wall Rm18
1803 47 rpp  452.2   600.2    1       173    152.4  432.5  $Roomspace   18
c
c
c  Basement1 Room 20
2001 47 rpp  714.2   719.2    -4      173    152.4  432.5  $E wall Rm20
2002 47 rpp  694     714.2    153.5   173    152.4  432.5  $NE Box Rm20
2003 47 rpp  652.7   762.2    173     178    152.4  432.5  $N wall Rm20-LRm
2010 47 rpp  604.2   714.2    -4      173    152.4  432.5  $Roomspace   20 Partially Filled
c
c
c  Basement1 Lunch Room
2004 47 rpp  762.2   873.7    173     174    152.4  432.5  $N Thin LR wall
2005 47 rpp  909.7   916.7    173     174    152.4  432.5  $N Thin LR wall
2006 47 rpp  916.7   929.7    173     178    152.4  432.5  $NE Block LR
2007 47 rpp  917.2   922.2    -4      173    152.4  432.5  $E wall LR
2008 47 rpp  749.2   917.2    -.5     4.5    152.4  432.5  $S wall LR
2009 47 rpp  719.2   749.2    -17.5   4.5    152.4  432.5  $SW Block LR
2011 47 rpp  719.2   917.2    4.5     173    152.4  432.5  $Roomspace   Lunch Room
c
c
c  Basement1 Room 26
2601 47 rpp  965.7   1058.7   173     178    152.4  432.5  $N wall Rm26
2602 47 rpp  1047.7  1052.7   1.5     173    152.4  432.5  $E wal Rm26
2603 47 rpp  922.2   1047.7   1.5     173    152.4  432.5  $Roomspace   26
c
c
c  Basement1 Room 28 <<<Not Defining Southwall>>>>
2801 47 rpp  1114.7  1324     157     162    152.4  432.5  $N wall Rm28
2802 47 rpp  1114.7  1119.7   162     239.5  152.4  432.5  $N Stub wall Rm28
2803 47 rpp  1094.7  1114.7   173     178    152.4  432.5  $N per. wall Rm28
2804 47 rpp  1052.7  1315.2   1.5     157    152.4  432.5  $Roomspace   28 Partially Filled
c
c
c  Basement1 Room 70
7001 47 rpp  1114.7  1119.7   275.5   296.5  152.4  432.5  $NW wall Rm70
7002 47 rpp  1119.7  1310.4   283.7   289.7  152.4  432.5  $N wall Rm70
7003 47 rpp  1310.4  1324     271.2   305.2  152.4  432.5  $NE Block Rm70
7004 47 rpp  1324    1327.2   162     797.75 152.4  432.5  $E Inside wall Rm70-72-74-76-78
7005 47 rpp  1119.7  1324     162     283.7  152.4  432.5  $Roomspace   70 Partially Filled
c
c
c  Basement1 Room 72
7201 47 rpp  1114.7  1119.7   332.5   539.5  152.4  432.5  $W wall Rm72-Rm74
7202 47 rpp  1119.7  1324     434.5   439.5  152.4  432.5  $N wall Rm72
7203 47 rpp  1119.7  1324     289.7   434.5  152.4  432.5  $Roomspace   72 Partially Filled
c
c
c  Basement1 Room 74
7401 47 rpp  1114.7  1119.7   575.5   597.5  152.4  432.5  $NW Stub wall Rm74
7402 47 rpp  1119.7  1310.4   584.5   589.5  152.4  432.5  $N wall Rm74
7403 47 rpp  1310.4  1324     572     603    152.4  432.5  $NE Block Rm74
7404 47 rpp  1119.7  1324     439.5   584.5  152.4  432.5  $Roomspace   74 Partially Filled
c
c
c  Basement1 Room 76
7601 47 rpp  1114.7  1119.7   633.5   728    152.4  432.5  $W wall Rm76
7602 47 rpp  1119.7  1324     714.5   719.5  152.4  432.5  $N wall Rm76
7603 47 rpp  1119.7  1324     589.5   714.5  152.4  432.5  $Roomspace   76 Partially Filled
c
c
c  Basement1 Room 78
7801 47 rpp  1114.7  1119.7   764     805.5  152.4  432.5  $W wall Rm78
7802 47 rpp  1119.7  1327.2   797.75  805.5  152.4  432.5  $N wall Rm78
7803 47 rpp  1107.5  1114.7   767.5   772.5  152.4  432.5  $W walstub Rm78ish
7804 47 rpp  1119.7  1324     719.5   797.75 152.4  432.5  $Roomspace   78
c
c
```

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c   Basement1 Room 14
1401 47 rpp  263.75   270.75     767.4     772.4   152.4  432.5  $Wstub wall Rm14
1402 47 rpp  270.75   275.75     755       805.5   152.4  432.5  $W wall Rm14
1403 47 rpp  275.75   757.7      800.5     805.5   152.4  432.5  $N wall Rm14-Rm27-Rm5
1404 47 rpp  438.5    448.2      589.5     800.5   152.4  432.5  $E wall Rm14-Rm12
1405 47 rpp  275.75   438.5      704       709     152.4  432.5  $S wall Rm14
1406 47 rpp  270.75   275.75     633.75    719     152.4  432.5  $W wall Rm14-12
1407 47 rpp  275.75   438.5      709       800.5   152.4  432.5  $Roomspace   14
c
c
c   Basement1 Room 12
1201 47 rpp  270.75   275.75     573.5     597.8   152.4  432.5  $W wall Rm12-Rm10
1202 47 rpp  275.75   293.75     584.5     589.5   152.4  432.5  $SW wall Rm12
1203 47 rpp  293.75   309.75     578.5     594.5   152.4  432.5  $SW Block Rm12
1204 47 rpp  309.75   602.7      584.5     589.5   152.4  432.5  $S wall Rm12-Rm25
1205 47 rpp  275.75   438.5      589.5     704     152.4  432.5  $Roomspace   12 Partially Filled
c
c
c  Basement1 Room 10
1001 47 rpp  449      457.2      482       584.5   152.4  432.5  $E wall Rm10
1002 47 rpp  449      456.2      457.5     482     152.4  432.5  $E wall Rm10
1003 47 rpp  275.75   449        457.5     462.5   152.4  432.5  $S wall Rm10
1004 47 rpp  270.75   275.75     454.5     537.5   152.4  432.5  $W wall Rm10
1005 47 rpp  275.75   449        462.5     584.5   152.4  432.5  $Roomspace   10 Partially Filled
c
c
c   Basement1 Room 27
2701 47 rpp  602.7    607.7      656       800.5   152.4  432.5  $E wall Rm27
2702 47 rpp  602.7    607.7      535       620     152.4  432.5  $E wall Rm27-Rm25
2703 47 rpp  448.2    602.7      589.5     800.5   152.4  432.5  $Roomspace   27
c
c
c   Basement1 Room 25
2501 47 rpp  457.2    540.7      482       487.5   152.4  432.5  $S wall Rm25
2502 47 rpp  535.7    540.7      457.5     482     152.4  432.5  $S wall Rm25
2503 47 rpp  540.7    602.7      457.5     462.5   152.4  432.5  $S wall Rm25
2504 47 rpp  602.7    607.7      323       487.5   152.4  432.5  $E wall Rm25-Rm8
2505 47 rpp  457.2    602.7      487.5     584.5   152.4  432.5  $Roomspace   25 Partially Filled
c
c
c   Basement1 Room 8
801 47 rpp  564.5     607.7      250.5     323     152.4  432.5  $SE Block Rm8
802 47 rpp  270.75    275.75     291       418.5   152.4  432.5  $W wall Rm8
803 47 rpp  315.7     564.5      294       299     152.4  432.5  $S wall Rm8
804 47 rpp  292.75    315.7      250.5     299     152.4  432.5  $SW Block Rm8
805 47 rpp  275.75    292.75     291       299     152.4  432.5  $SW wall Rm8
806 47 rpp  315.7     564.5      274.5     279.5   152.4  432.5  $S wall Rm8
807 47 rpp  275.75    602.7      323       457.5   152.4  432.5  $Roomspace   8 Partially Filled
c
c
c   Basement1 Room 5
501 47 rpp  793.5     1024       800.5     805.5   152.4  432.5  $N wall Rm5
502 47 rpp  1019      1024       595       800.5   152.4  432.5  $E wall Rm5
503 47 rpp  1024      1071.7     767.5     772.5   152.4  432.5  $E wall Rm5hall
504 47 rpp  1012.7    1028.7     579       595     152.4  432.5  $Column in East wall Rm5
505 47 rpp  1019      1024       295       579     152.4  432.5  $E wall Rm5
506 47 rpp  1012.7    1028.7     279       295     152.4  432.5  $S Column in East wall Rm5
507 47 rpp  1019      1024       250.5     279     152.4  432.5  $SE wall Rm5
508 47 rpp  1024      1055       250.5     258     152.4  432.5  $SE wallRm5hall
509 47 rpp  1010.5    1019       250.5     255.5   152.4  432.5  $SE stub wall Rm5
510 47 rpp  819       974.7      250.5     255.5   152.4  432.5  $S wall Rm5
511 47 rpp  819       824        255.5     283     152.4  432.5  $S spur wallRm5
512 47 rpp  806.7     819        278       283     152.4  432.5  $S spur wallRm5
513 47 rpp  717       734.7      278       283     152.4  432.5  $S spur wallRm5
514 47 rpp  717       722        250.5     278     152.4  432.5  $S spur wallRm5
515 47 rpp  607.7     717        250.5     255.5   152.4  432.5  $S wall Rm5
516 47 rpp  653.2     669.2      579       595     152.4  432.5  $NW Column Rm5
517 47 rpp  653.2     669.2      279       295     152.4  432.5  $SW Column Rm5
518 47 rpp  607.7     1019       283       800.5   152.4  432.5  $Roomspace   5
c
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c
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111     First Floor     1111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c
c
c
c
c    TAG=TAGfloor1surfaces
c
c
c
c  Start of boxes used to group the surfaces.
c
c
c  All of the following surfaces are used to group
c  the cells together. This had to be done to avoid overloading the data type associated with
c  cell cards. These boxes are purely for the codes sake and in no way affect the actual geometry
c  of the model.
c
c
c     Void box surrounding First Floor
991 rpp -1000  4000 -3000  4000 442 883.9 $Void
c
c
c  Begin Northwest Section of the Central Section of Floor1
101 18 rpp  -180       440      -47.5   243.5     442 883.9  $SW Cell box
102 18 rpp  -180       440      243.5   927       442 883.9  $NW Cell box
103 18 rpp  440        1160     -47.5   230       442 883.9  $SE Cell box
104 18 rpp  440        1160     230     927       442 883.9  $NE Cell box
c
c
c  Begin Northeast Section of the Central Section of Floor1
105 11 rpp  -42        680      -25.5  528        442 883.9  $SW Cell box
106 11 rpp  -42        680      528    843        442 883.9  $NW Cell box
107 11 rpp  680        1347.5   -25.5  1023.5     442 883.9  $E Cell box
134 11 rpp  -42        680      843    1023.5     442 883.9  $NW Cell box
c
c
c  Begin West Section of Floor1
108 12 rpp  -422       345       46.25  1372.5    442 883.9  $N Cell box
109 12 rpp -422        303.75    -25.5  46.25     442 883.9  $S Cell box
c
c
c   Begin SouthWest Section of Floor1
110 13 rpp  -295       24       -3.5    780       442 883.9  $SW Cell box
111 13 rpp  -295       24       780     1261.5    442 883.9  $NW Cell box
112 13 rpp  24         743      -3.5    410       442 883.9  $SE Cell box
113 13 rpp  24         743      410     900       442 883.9  $E Cell box
114 13 rpp  24         743      900     1261.5    442 883.9  $NE Cell box
c
c
c  Begin SouthEast Section of Floor1
115 14 rpp  -84        635      0       420       442 883.9  $SW Cell box
116 14 rpp  -84        635      420     780       442 883.9  $W Cell box
117 14 rpp  -84        635      780     1264.5    442 883.9  $NW Cell box
118 14 rpp  635        1116.5   0       1264.5    442 883.9  $Cell box
c
c
c  Begin East Section of Floor1
119 15 rpp  -16.5      220      -7.5    264.5     442 883.9  $S Cell box
120 15 rpp  220        446      40      264.5     442 883.9  $S2 Cell box
121 15 rpp  220        446      -7.5    40        442 883.9  $S2 Cell box
122 15 rpp  446        580.5    -7.5    264.5     442 883.9  $S3 Cell box
123 15 rpp  -16.5      580.5    264.5   1503      442 883.9  $NW Cell box
124 15 rpp  580.5      1318.5   257     1552      442 883.9  $E Cell box
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125 15 rpp  214.5      580.5    1503    1552      442 883.9  $NE Cell box
c
c
c  Begin Southernmost Section of Floor1
126 16 rpp  0          64.75    0       1012      442 883.9  $W Section Cell box
127 16 rpp  64.75      517      0       1083.75   442 883.9  $E Section Cell box
128 16 rpp  106        517      1083.75 1145      442 883.9  $E Section Cell box
c
c
c  Begin Southernmost East Section of Floor1
129 17 rpp  0          670      -232    640       442 883.9  $SW Cell box
130 17 rpp  0          670      640     1137.5    442 883.9  $NW Cell box
131 17 rpp  670        1343     -232    294       442 883.9  $SE Cell box
132 17 rpp  670        1343     294     640       442 883.9  $E Cell box
133 17 rpp  670        1827.5   640     1137.5    442 883.9  $NE Cell box
c
c
c
c
c
c
c
c  Start of Wing Surfaces ==========================================================
c
c  The exterior wall height is set at 404'-6" at which point the material changes from
c  concrete to the "Exterior Wall" material. See the explanation in the assumptions for
c  exterior walls for a more thorough explanation of why.
c
c
c
c  ///////////////Begin Northwest Section of the central Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Surfaces*****************************************
c  The origin was set as the SW corner of the inside wall of Room 700.
c
c
c
c    Floor1 Room 700
70001 18 rpp  -3        0       0       243.5     442 883.9  $W wall Rm700
70002 18 rpp  0         14.25   240.5   243.5     442 883.9  $NW wall Rm700
70003 18 rpp  51        153     240.5   243.5     442 883.9  $N wall Rm700-Rm701
70004 18 rpp  120       123     0       240.5     442 883.9  $E wall Rm700
70005 18 rpp  -3        33      -3      0         442 883.9  $SE wall Rm700
70006 18 rpp  72        170.5   -3      0         442 883.9  $Box Rm700
70007 18 rpp  30        33      -21     -3        442 883.9  $Box Rm700
70008 18 rpp  -1.25     34.5    -24     -21       442 883.9  $Box Rm700
70009 18 rpp  -1.25     1.75    -45.5   -24       442 883.9  $Box Rm700
70010 18 rpp  -10.75    -1.25   -45.5   -42.5     442 883.9  $Box Rm700
70012 18 rpp  -14       -10.75  -45.5   281.5     442 883.9  $W 2nd wl
70013 18 rpp  -18       -14     -45.5   281.5     442 518.2  $W 3rd wl Exterior
70014 18 rpp  72        75      -21     -3        442 883.9  $Box Rm700-701
70015 18 rpp  70.5      172     -24     -21       442 883.9  $Box Rm700-701
70016 18 rpp  167.5     170.5   -21     -3        442 883.9  $Box Rm700-701
70017 18 rpp  0         120     0       240.5     442 883.9  $Roomspace   700
70018 18 rpp  -18       -14     -45.5   281.5     518.2 883.9  $W 3rd wl Exterior
c
c
c    Floor1 Room 701
70101 18 rpp  189       280.2   240.5   243.5     442 883.9  $N wl Rm701-702
70102 18 rpp  258       261     0       240.5     442 883.9  $E wl Rm701
70103 18 rpp  209.5     309     -3      0         442 883.9  $Box Rm701-702
70104 18 rpp  209.5     212.5   -21     -3        442 883.9  $Box Rm701-702
70105 18 rpp  208       310.5   -24     -21       442 883.9  $Box Rm701-702
70106 18 rpp  306       309     -21     -3        442 883.9  $Box Rm701-702
70107 18 rpp  123       258     0       240.5     442 883.9  $Roomspace   701
c
c
c    Floor1 Room 702
70201 18 rpp  316.2     390     240.5   243.5     442 883.9  $N wl Rm702
70202 18 rpp  387       390     0       240.5     442 883.9  $E i wall Rm702
70203 18 rpp  348       390     -3      0         442 883.9  $Box Rm702
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70204 18 rpp  396.75     399.75   -24     386.75     442 883.9  $Eo wl Rm702
70205 18 rpp  348        351      -21     -3         442 883.9  $Box Rm702
70206 18 rpp  346.5      396.75   -24     -21        442 883.9  $Box Rm702
70207 18 rpp  261        387      0       240.5      442 883.9  $Roomspace   702
c
c
c    Floor1 Room 703/Mens Bathroom/Unlabled Room Next to it
70301 18 rpp  486.75     504.75   -20.5   -5.5       442 883.9  $Box i air Rm703
70302 18 rpp  483.75     507.75   -23.5   -2.5       442 883.9  $Box o wl Rm703
70303 18 rpp  483.75     486.75   -2.5    150.75     442 883.9  $W wl Rm703
70304 18 rpp  486.75     981.75   112     115        442 883.9  $N wl
70305 18 rpp  507.75     569.75   -23.5   -20.5      442 883.9  $SE wl
70306 18 rpp  604.75     821.75   -23.5   -20.5      442 883.9  $S wl
70307 18 rpp  856.75     995.75   -23.5   -20.5      442 883.9  $S wl Mens Rm
70308 18 rpp  1030.25    1118.75  -23.5   -20.5      442 883.9  $SE wl Mens Rm
70309 18 rpp  861.75     864.75   -20.5   112        442 883.9  $W wl Mens Rm
70310 18 rpp  981.75     989.75   -20.5   27         442 883.9  $Divider wl Mens Rm
70311 18 rpp  981.75     989.75   63      103        442 883.9  $Divider wl Mens Rm
70312 18 rpp  981.75     1094.75  103     115        442 883.9  $N Block Mens Rm
70313 18 rpp  1034.25    1094.75  -20.5   -15.5      442 883.9  $S Block Mens Rm
70314 18 rpp  1094.75    1097.75  -20.5   174.25     442 883.9  $E wl Mens Rm
70315 18 rpp  1115.75    1118.75  -20.5   133.75     442 883.9  $E o wl Mens Rm
70316 18 rpp  486.75     861.75   -20.5   112        442 883.9  $Roomspace   703
c
c
c    Floor1 Room 320/421
32001 18 rpp  504.75     507.75   115     211        442 883.9  $W box Rm320
32002 18 rpp  486.75     504.75   208     211        442 883.9  $W box Rm320
32003 18 rpp  483.75     486.75   178     212.5      442 883.9  $W box Rm320
32004 18 rpp  483.75     486.75   248.5   445        442 883.9  $NW box Rm320-324
32005 18 rpp  486.75     507.75   250     253        442 883.9  $NW box Rm320
32006 18 rpp  504.75     507.75   253     511        442 883.9  $NW box Rm320
32007 18 rpp  486.75     504.75   508     511        442 883.9  $NW box Rm320
32008 18 rpp  483.75     486.75   481     512.5      442 883.9  $NW box Rm320
32009 18 rpp  507.75     1094.75  350.5   353.5      442 883.9  $NW wl Rm320
32010 18 rpp  1094.75    1097.75  250.25  510.25     442 883.9  $E box Rm320
32011 18 rpp  1097.75    1118.75  507.25  510.25     442 883.9  $E box Rm320
32012 18 rpp  1115.75    1118.75  369.25  507.25     442 883.9  $E box Rm320
32013 18 rpp  1097.75    1115.75  250.25  253.25     442 883.9  $E box Rm320
32014 18 rpp  1115.75    1118.75  248.25  339.25     442 883.9  $E box Rm320
32015 18 rpp  1097.75    1115.75  171.25  174.25     442 883.9  $E box Rm320
32016 18 rpp  1115.75    1118.75  160.75  176.25     442 883.9  $E box Rm320
32017 18 rpp  507.75     1094.75  115     350.5      442 883.9  $Roomspace   320/421
c
c
c    Floor1 Room 324/425
32401 18 rpp  486.75     504.75   553     627.5      442 883.9  $W i box air filled
32402 18 rpp  483.75     507.75   550     630.5      442 883.9  $W o box Conc filled
32403 18 rpp  486.75     504.75   672.5   742.5      442 883.9  $NW i box air filled
32404 18 rpp  483.75     507.75   669.5   745.5      442 883.9  $NW o box Conc filled
32405 18 rpp  507.75     749.75   701.5   704.5      442 883.9  $N wl Rm324
32406 18 rpp  749.75     752.75   569     742.5      442 883.9  $NE wl
32407 18 rpp  752.75     806      542.5   566        442 883.9  $NE i box air filled
32408 18 rpp  749.75     809      539.5   569        442 883.9  $NE o box Conc filled
32409 18 rpp  847.25     949.25   566     569        442 883.9  $NE wl
32410 18 rpp  946.25     949.25   569     606        442 883.9  $NE wl
32411 18 rpp  949.25     1027.25  603     606        442 883.9  $NE wl
32412 18 rpp  1024.25    1027.25  561.75  603        442 883.9  $NE wl
32413 18 rpp  1027.25    1093.75  561.75  564.75     442 883.9  $NE wl
32414 18 rpp  1096.75    1116.75  553.75  571.75     442 883.9  $NE i box air filled
32415 18 rpp  1093.75    1119.75  550.75  574.75     442 883.9  $NE o box Conc filled
32416 18 rpp  1115.75    1118.75  546.25  550.75     442 883.9  $E Stub wl
32417 18 rpp  1119.75    1142.75  550.75  553.75     442 883.9  $E stub wl
32418 18 rpp  507.75     749.75   353.5   701.5      442 883.9  $Roomspace   324
32419 18 rpp  749.75     1094.75  353.5   539.5      442 883.9  $Roomspace   425 Partially Filled
c
c
c    Floor1 Room 330/Room 427/Elevator
c    *****Small protrusions ignored in west and east hallways*****
c    I also ommitted the strange caps on the E edge of the elevator because I was unable to
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c   to verify they existed.
33001 18 rpp  504.75     507.75   784.5   821.5     442 883.9  $NW Block
33002 18 rpp  486.75     504.75   784.5   787.5     442 883.9  $
33003 18 rpp  483.75     486.75   783     813.5     442 883.9  $
33004 18 rpp  461.25     483.75   810.5   813.5     442 883.9  $
33005 18 rpp  461.25     464.25   813.5   824.75    442 883.9  $
33006 18 rpp  507.75     947      818     821.5     442 883.9  $N i wl
33007 18 rpp  464.25     947      821.5   824.75    442 883.9  $N wl 2nd wl moving north
33008 18 rpp  473.25     947      824.75  836       442 518.2  $N Exterior wl
33009 18 rpp  749.75     752.75   779.5   818       442 883.9  $E wl Rm330
33010 18 rpp  752.75     848.75   808.5   811.5     442 883.9  $Extension wl into Rm427
33011 18 rpp  845.75     848.75   811.5   818       442 883.9  $Extension wl into Rm427
33012 18 rpp  946.25     947      606     818       442 883.9  $Very thin E wl Rm427
33013 18 rpp  947        955      606     829       442 883.9  $W wl Elevator
33014 18 rpp  955        1141.25  821     829       442 518.2  $N o Elev wl
33015 18 rpp  955        1093.75  606     614       442 883.9  $S Elev wl
33016 18 rpp  997        1005     655.5   770.25    442 883.9  $W Elev shaft
33017 18 rpp  1005       1094     762.25  770.25    442 883.9  $N Elev shaft
33018 18 rpp  1005       1094     655.5   663.5     442 883.9  $S Elev shaft
33019 18 rpp  1086.25    1094     663.5   682.25    442 883.9  $E Elev shaft stub wl
33020 18 rpp  1086.25    1094     750.25  762.25    442 883.9  $E Elev shaft stub wl
33021 18 rpp  1044.75    1050.75  564.75  606       442 883.9  $SE compartment wl
33022 18 rpp  1050.75    1093.75  564.75  570.75    442 883.9  $S compartment wl
33023 18 rpp  1085.75    1093.75  570.75  576.75    442 883.9  $E compartment stub wl
33024 18 rpp  1085.75    1093.75  602     606       442 883.9  $E compartment stub wl
33025 18 rpp  1093.75    1098.75  574.75  616.75    442 883.9  $E compartment capping wl
33026 18 rpp  1093.75    1141.25  815.75  821       442 883.9  $Doodad in E hallway on N wl
33027 18 rpp  1093.75    1111     809.75  815.75    442 883.9  $Doodad in E hallway on N wl
33028 18 rpp  1093.75    1098.75  806     809.75    442 883.9  $Doodad in E hallway on N wl
33029 18 rpp  507.75     749.75   704.5   818       442 883.9  $Roomspace   330
33030 18 rpp  752.75     946.25   569     808.5     442 883.9  $Roomspace   427 Partially Filled
33031 18 rpp  955        1141.25  821     829       518.2 883.9  $N o Elev wl
33032 18 rpp  473.25     947      824.75  836       518.2 883.9  $N Exterior wl
c
c    Floor1 Room 325/Filter Building
c   ************Ignored small blocks on ramp****************
32501 18 rpp  7          10       243.5   284.5     442 883.9  $SW Block Rm325
32502 18 rpp  -14        7        281.5   284.5     442 883.9  $
32503 18 rpp  -3         0        359.5   546.5     442 883.9  $W wl
32504 18 rpp  0          23       543.5   546.5     442 883.9  $NW Block
32505 18 rpp  20         23       546.5   577.5     442 883.9  $
32506 18 rpp  -3         20       574.5   577.5     442 883.9  $
32507 18 rpp  -3         0        577.5   810       442 883.9  $W wl Rm325-Rm327
32508 18 rpp  0          62.25    598     601       442 883.9  $N wl Rm235
32509 18 rpp  98.25      375.75   598     601       442 883.9  $N wl Rm235
32510 18 rpp  375.75     378.75   556.5   641       442 883.9  $NE BlockRm235
32511 18 rpp  378.75     396.75   638     641       442 883.9  $NE BlockRm235
32512 18 rpp  396.75     399.75   613.75  642.5     442 883.9  $NE BlockRm235
32513 18 rpp  396.75     399.75   555     577.5     442 883.9  $NE BlockRm235
32514 18 rpp  378.75     396.75   556.5   559.5     442 883.9  $NE BlockRm235
32515 18 rpp  375.75     378.75   243.5   481.5     442 883.9  $E wl Rm235
32516 18 rpp  378.75     396.75   478.5   481.5     442 883.9  $E Block
32517 18 rpp  396.75     399.75   459     483       442 883.9  $
32518 18 rpp  -6         -3       362.5   811.5     442 883.9  $W 2nd wl moving outward
32519 18 rpp  -10.75     -6       362.5   811.5     442 883.9  $W 3rd wl moving outward
32520 18 rpp  -14        -10.75   362.5   824.75    442 883.9  $W 4th wl moving outward
32521 18 rpp  -18.25     -14      362.5   829       442 518.2  $W 5th wl moving outward
32522 18 rpp  -147.25    -32.25   585     693       442 883.9  $Cover of Filter
32523 18 rpp  10         375.75   243.5   460       442 883.9  $Roomspace   325 Partially Filled <------------------------------------------Fix
This---------------
32524 18 rpp  -18.25     -14      362.5   829       518.2 883.9  $W 5th wl moving outward
c
c
c    Floor1 Room 327/327A
32701 18 rpp  237.75     240.75   601     638       442 883.9  $Dividing wl Rm327/327A
32702 18 rpp  237.75     240.75   674     818       442 883.9  $Dividing wl Rm327/327A
32703 18 rpp  375.75     378.75   680     818       442 883.9  $E wl Rm327
32704 18 rpp  378.75     396.75   680     683       442 883.9  $E Block wl
32705 18 rpp  396.75     399.75   678.5   813.5     442 883.9  $E Block wl
32706 18 rpp  399.75     422.25   810.5   813.5     442 883.9  $E Block wl
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32707 18 rpp  419.25     422.25   813.5   824.75    442 883.9  $E Block wl
32708 18 rpp  -10.75     419.25   821.5   824.75    442 883.9  $N 2nd wl Rm327
32709 18 rpp  7.5        379.25   818     821.5     442 883.9  $N 1st wl Rm327
32710 18 rpp  379.25     389.25   811.5   821.5     442 883.9  $NE Block Rm327
32711 18 rpp  7.5        10.5     807     818       442 883.9  $NW Dogleg in wl
32712 18 rpp  0          7.5      807     810       442 883.9  $NW Dogleg in wl
32713 18 rpp  -10.75     -0.75    811.5   821.5     442 883.9  $NW Block
32714 18 rpp  -14        422.25   824.75  829       442 883.9  $N 3rd  wl
32715 18 rpp  -18.25     409.25   829     836       442 518.2  $N 4th e wl
32716 18 rpp  0          237.75   601     818       442 883.9  $Roomspace   327
32717 18 rpp  240.75     375.75   601     818       442 883.9  $Roomspace   327A
32718 18 rpp  -18.25     409.25   829     836       518.2 883.9  $N 4th e wl
c
c
c
c  ///////////////Begin Northeast Section of the Central Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Surfaces****************************************
c  The origin was set as the SW corner of the outside wall of the blue print of the womens rest room.
c  This room is directly west of Room 711.
c  c
c
c
c
c  Floor1 Room 711/Womens Rm
c  *********Wall on W of womens rm ignored
71101 11 rpp  0          93       0       3         442 883.9  $SE Wl
71102 11 rpp  0          3        3       242.25    442 883.9  $W o wl
71103 11 rpp  22.5       87.5     3       8         442 883.9  $SW Womens block
71104 11 rpp  22.5       25.5     8       183       442 883.9  $W womens wl
71105 11 rpp  25.5       130.5    137.5   147       442 883.9  $NW womens wl
71106 11 rpp  130.5      138.5    91.5    147       442 883.9  $Central womens wl
71107 11 rpp  130.5      138.5    3       55.5      442 883.9  $Central womens wl
71108 11 rpp  126        269.5    0       3         442 883.9  $S womens wl
71109 11 rpp  252.5      255.5    3       144       442 883.9  $E womens wl
71110 11 rpp  138.5      269.5    144     147       442 883.9  $N womens wl
71111 11 rpp  305.5      638      0       3         442 883.9  $S wl Rm711
71112 11 rpp  310.5      322.5    6.75    19.75     442 883.9  $Column  Rm711
71113 11 rpp  439.25     444.25   3       145       442 883.9  $E wl Rm711
71114 11 rpp  304.5      439.25   142     145       442 883.9  $N wl Rm711
71115 11 rpp  322.5      439.25   3       142       442 883.9  $Roomspace   327
c
c
c  Floor1 Room 420
42001 11 rpp  3          22.5     180     183       442 883.9  $SW Block wl Rm420
42002 11 rpp  3          22.5     222     225       442 883.9  $Central block wl Rm420
42003 11 rpp  22.5       25       222     308.75    442 883.9  $Central block wl Rm420
42004 11 rpp  3          22.5     305.75  308.75    442 883.9  $Central block wl Rm420
42005 11 rpp  0          3        278.75  308.75    442 883.9  $Central block wl Rm420
42006 11 rpp  25         255.5    264     267       442 883.9  $Central wl  Rm420
42007 11 rpp  350        355      191.5   394.5     442 883.9  $E wl Rm420
42008 11 rpp  188.5      390      394.5   399.5     442 883.9  $N wl Rm420
42009 11 rpp  0          188.5    394.5   397.5     442 883.9  $N wl Rm420
42010 11 rpp  0          3        347.75  394.5     442 883.9  $NW Block Rm420
42011 11 rpp  3          22.5     347.75  350.75    442 883.9  $NW Block Rm420
42012 11 rpp  22.5       25       347.75  394.5     442 883.9  $NW Block Rm420
42013 11 rpp  25.5       255.5    147     264       442 883.9  $Roomspace   420
42014 11 rpp  25.5       255.5    267     394.5     442 883.9  $Roomspace   420
c
c
c  Floor1 Room 525/Freezer
52501 11 rpp  491.5      594.75   66.25   71.25     442 883.9  $SE wl Rm525
52502 11 rpp  589.5      594.75   71.25   109       442 883.9  $SE wl Rm525
52503 11 rpp  594.75     635      104     109       442 883.9  $SE wl Rm525
52504 11 rpp  635        638      3       168.25    442 883.9  $SE wl Rm525
52505 11 rpp  621        635      144     147       442 883.9  $E block wl Rm525
52506 11 rpp  621        624      147     386.25    442 883.9  $E block wl Rm525
52507 11 rpp  624        635      383.25  386.25    442 883.9  $E block wl Rm525
52508 11 rpp  635        638      377.5   386.25    442 883.9  $E block wl Rm525
52509 11 rpp  635        638      240.25  339.75    442 883.9  $E block wl Rm525
52510 11 rpp  621        624      422.25  621       442 883.9  $NE block wl Rm525
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52511 11 rpp 624 638 460 463 442 883.9 $NE block wl Rm525
52512 11 rpp 635 638 463 621 442 883.9 $NE block wl Rm525
52513 11 rpp 624 635 618 621 442 883.9 $NE block wl Rm525
52514 11 rpp 191.5 621 525 528 442 883.9 $N wl Rm525
52515 11 rpp 478.5 483.5 174.5 525 442 883.9 $Central wl Rm525
52516 11 rpp 483.5 514.5 174.5 179.5 442 883.9 $Central wl Rm525
52517 11 rpp 441.75 478.5 199 204 442 883.9 $Central wl Rm525
52518 11 rpp 329 334 485 525 442 883.9 $E Freezer wl
52519 11 rpp 188.5 191.5 399.5 843 442 883.9 $W Freezer wl
52520 11 rpp 355 478.5 204 394.5 442 883.9 $Roomspace 525
52521 11 rpp 334 478.5 399.5 525 442 883.9 $Roomspace 525
52522 11 rpp 483.5 621 179.5 525 442 883.9 $Roomspace 525
c
c
c Floor1 Room 426/426A
42601 11 rpp 3 83 493.5 498.5 442 883.9 $S wl Rm426
42602 11 rpp 125 188.5 493.5 498.5 442 883.9 $S wl Rm426
42603 11 rpp 156.75 188.5 700.5 703.5 442 883.9 $N wl Rm426
42604 11 rpp 79.5 107.75 700.5 703.5 442 883.9 $N wl Rm426
42605 11 rpp 69.5 79.5 636.25 703.5 442 883.9 $E Closet wl Rm426
42606 11 rpp 76.5 79.5 578.25 636.25 442 883.9 $E Closet wl Rm426
42607 11 rpp 69 76.5 578.25 581.25 442 883.9 $SE Closet wl Rm426
42608 11 rpp 4 33 578.25 581.25 442 883.9 $SW Closet wl Rm426
42609 11 rpp 4 25 581.25 591.75 442 883.9 $SW Closet Block wl Rm426
42610 11 rpp 4 29 591.75 596.75 442 883.9 $SW Closet Block wl Rm426
42611 11 rpp 0 3 548.75 578.25 442 883.9 $SW Closet wl Rm426
42612 11 rpp -24 -1 572.75 575.75 442 883.9 $SW Closet wl Rm426
42613 11 rpp -1 0 575.75 578.25 442 883.9 $Very Small Wall Remainder SW wl Rm426
42614 11 rpp -1 4 578.25 645.5 442 883.9 $W Closet wl Rm426
42615 11 rpp 4 30 639.25 645.5 442 883.9 $NW Closet wl Rm426
42616 11 rpp 25 30 645.5 697.25 442 883.9 $NW Closet wl Rm426
42617 11 rpp 25 69.5 697.25 703.5 442 883.9 $N Closet wl Rm426
42618 11 rpp -1 25 692.75 703.5 442 883.9 $N Closet wl Rm426
42619 11 rpp 0 3 397.5 513.75 442 883.9 $W wl Rm426A
42620 11 rpp 3 188.5 397.5 493.5 442 883.9 $Roomspace 426A
42621 11 rpp 79.5 188.5 498.5 700.5 442 883.9 $Roomspace 426
c
c
c Floor1 Room 430/Receiving Room
43001 11 rpp -1 2 703.5 737.75 442 883.9 $W wl Rm430
43002 11 rpp -1 2 809.75 843 442 883.9 $W wl Rm430
43003 11 rpp 2 22.5 827.75 840 442 883.9 $NW block Rm430
43004 11 rpp 2 76.5 840 843 442 883.9 $N wl Rm430
43005 11 rpp -23.5 76.5 843 851 442 518.2 $N o wl Rm430
43006 11 rpp -23.5 -1 837.75 843 442 883.9 $NE wl Rm430
43007 11 rpp 177.5 208.5 843 851 442 883.9 $N Cap wl Rm430
43008 11 rpp -9 37 928 930 442 883.9 $NW Receiving Room
43009 11 rpp -9 -7 930 1005.25 442 883.9 $NW Receiving Room
43010 11 rpp -7 157.4 1003.25 1005.25 442 883.9 $NW Receiving Room
43011 11 rpp 155.4 157.4 928 1003.25 442 883.9 $NW Receiving Room
43012 11 rpp 111 155.4 928 930 442 883.9 $NW Receiving Room
43013 11 rpp 177.5 188.5 840 843 442 883.9 $NE wl Rm430
43014 11 rpp 2 188.5 703.5 840 442 883.9 $Roomspace 430
43015 11 rpp -23.5 76.5 843 851 518.2 883.9 $N o wl Rm430
c
c
c Floor1 Room 527/527A
52701 11 rpp 199.5 621 536 539 442 883.9 $S wl Rm527A
52702 11 rpp 489 621 616.75 619.75 442 883.9 $N wl Rm527A
52703 11 rpp 402 453 616.75 619.75 442 883.9 $NW wl Rm527A
52704 11 rpp 399 402 539 619.75 442 883.9 $W wl Rm527A
52705 11 rpp 322.5 325.5 539 619.75 442 883.9 $SW wl in SW Room of Rm527
52706 11 rpp 309.5 322.5 579.75 582.75 442 883.9 $Box in SW wl Rm527
52707 11 rpp 309.5 312.5 582.75 595.75 442 883.9 $Box in SW wl Rm527
52708 11 rpp 312.5 322.5 592.75 595.75 442 883.9 $Box in SW wl Rm527
52709 11 rpp 294.5 322.5 616.75 619.75 442 883.9 $N wl in SW Room of Rm527
52710 11 rpp 202.5 237 616.75 619.75 442 883.9 $N wl in SW Room of Rm527
52711 11 rpp 199.5 202.5 539 843 442 883.9 $W wl Rm527
52712 11 rpp 202.5 208.5 840 843 442 883.9 $NW small wl Rm527
52713 11 rpp 304.5 663 843 851 442 518.2 $N o Major wl Rm527
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52714 11 rpp  304.5    310.5      840    843       442 883.9  $N i minor wl Rm527
52715 11 rpp  307.5    310.5      830    840       442 883.9  $N i minor wl Rm527
52716 11 rpp  310.5    328.5      830    833       442 883.9  $N i minor wl Rm527
52717 11 rpp  325.5    328.5      833    840       442 883.9  $N i minor wl Rm527
52718 11 rpp  325.5    372.5      840    843       442 883.9  $N i minor wl Rm527
52719 11 rpp  369.5    372.5      810.5  840       442 883.9  $N i minor wl Rm527
52720 11 rpp  372.5    383.5      813.5  816.5     442 883.9  $N i minor wl Rm527
52721 11 rpp  380.5    383.5      816.5  843       442 883.9  $N i minor wl Rm527/Rm529
52722 11 rpp  369.5    372.5      696    743.5     442 883.9  $NE  wl Rm527
52723 11 rpp  372.5    635        696    699       442 883.9  $NE wl Rm527
52724 11 rpp  202.5    369.5      619.75 830       442 883.9  $Roomspace   527
52725 11 rpp  402      621        539    616.75    442 883.9  $Roomspace   527A
52726 11 rpp  304.5    663        843    851       518.2 883.9  $N o Major wl Rm527
c
c
c  Floor1 Room 529
52901 11 rpp  372.5    383.5      737.5  740.5     442 883.9  $W wl Rm529
52902 11 rpp  380.5    383.5      707    737.5     442 883.9  $W wl Rm529
52903 11 rpp  383.5    621        707    710       442 883.9  $S wl Rm529
52904 11 rpp  621      624        699    756       442 883.9  $SE wl Rm529
52905 11 rpp  624      635        753    756       442 883.9  $SE wl Rm529
52906 11 rpp  635      638        694.5  757.5     442 883.9  $SE wl Rm529
52907 11 rpp  635      638        793.5  843       442 883.9  $E wl Rm529
52908 11 rpp  638      663        840    843       442 883.9  $NE wl Rm529
52909 11 rpp  621      635        795    798       442 883.9  $NE wl Rm529
52910 11 rpp  621      624        798    834       442 883.9  $NE wl Rm529
52911 11 rpp  613      621        831    834       442 883.9  $NE wl Rm529
52912 11 rpp  613      616        834    843       442 883.9  $NE wl Rm529
52913 11 rpp  383.5    613        840    843       442 883.9  $N wl Rm529
52914 11 rpp  341.5    530        851    858       442 883.9  $S Stairwell  wl Rm529
52915 11 rpp  341.5    630        913    917.5     442 883.9  $N stairwell wl Rm529
52916 11 rpp  383.5    621        710    840       442 883.9  $Roomspace   529
c
c
c  Floor1 Room 520
52001 11 rpp  719      1052       -6     -3        442 883.9  $SW
52002 11 rpp  1088     1116.5     -6     -3        442 883.9  $SE
52003 11 rpp  719      722        -3     110       442 883.9  $SW Box
52004 11 rpp  722      745        105.5  108.5     442 883.9  $SW Box
52005 11 rpp  742      745        -3     105.5     442 883.9  $SW Box
52006 11 rpp  719      722        182    264       442 883.9  $NW Box
52007 11 rpp  719      722        294    328       442 883.9  $NW Box
52008 11 rpp  722      745        323.5  326.5     442 883.9  $NW Box
52009 11 rpp  742      745        183.5  323.5     442 883.9  $NW Box
52010 11 rpp  722      742        183.5  186.5     442 883.9  $NW Box
52011 11 rpp  745      1034.5     285    288       442 883.9  $N
52012 11 rpp  1070.5   1116.5     285    288       442 883.9  $N
52013 11 rpp  981.5    984.5      288    538.5     442 883.9  $W wl small rm 520-Rm524
52014 11 rpp  984.5    1119.5     394.25 397.25    442 883.9  $N wl small rm520
52015 11 rpp  1116.5   1119.5     285    394.25    442 883.9  $E wl small rm520
52016 11 rpp  745      1116.5     -3     285       442 883.9  $Roomspace   520
52017 11 rpp  984.5    1116.5     288    394.25    442 883.9  $Roomspace   520N
c
c
c  Floor1 Room 524
52401 11 rpp  719      722        397.5  632       442 883.9  $NW block rm524
52402 11 rpp  722      745        399    402       442 883.9  $NW block rm524
52403 11 rpp  742      745        402    630.5     442 883.9  $NW block rm524
52404 11 rpp  722      742        627.5  630.5     442 883.9  $NW block rm524
52405 11 rpp  745      984.5      585    588       442 883.9  $N wl rm524
52406 11 rpp  981.5    984.5      574.5  585       442 883.9  $E wl rm524
52407 11 rpp  984.5    1005.5     497.25 500.25    442 883.9  $E box wl rm524
52408 11 rpp  1002.5   1005.5     453.25 497.25    442 883.9  $E box wl rm524
52409 11 rpp  984.5    1002.5     453.25 456.25    442 883.9  $E box wl rm524
52410 11 rpp  745      981.5      288    585       442 883.9  $Roomspace   524
c
c
c  Floor1 Room 528
52801 11 rpp  719      722        704    771.5     442 883.9  $NE box Rm528
52802 11 rpp  722      745        705.5  708.5     442 883.9  $NE box Rm528
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52803 11 rpp  742      745        708.5  733       442 883.9  $NE box Rm528
52804 11 rpp  722      737        767    770       442 883.9  $NE box Rm528-Rm530
52805 11 rpp  734      737        741    767       442 883.9  $NE box Rm528-Rm530
52806 11 rpp  745      897.5      730    733       442 883.9  $NW wl Rm528
52807 11 rpp  897.5    900.5      730    840       442 883.9  $NW wl Rm528
52808 11 rpp  800.75   1119.75    840    843       442 883.9  $N i wl Rm528-Rm530
52809 11 rpp  1119.75  1129       -21.5  843       442 883.9  $W wl Rm528
52810 11 rpp  800.75   1137       843    851       442 518.2  $N o wl Rm528-Rm530
52811 11 rpp  897.5    1119.5     588    840       442 883.9  $Roomspace   528 Partially Filled
52812 11 rpp  800.75   1137       843    851       518.2 883.9  $N o wl Rm528-Rm530
c
c
c  Floor1 Room 530/North Cylinder Dock
53001 11 rpp  737      886.5      741    744       442 883.9  $S wl Rm530
53002 11 rpp  883.5    886.5      744    840       442 883.9  $E wl Rm530
53003 11 rpp  699      764.5      840    843       442 883.9  $NW wl Rm530
53004 11 rpp  719      722        806.5  840       442 883.9  $NW block wl Rm530
53005 11 rpp  722      734        808    811       442 883.9  $NW block wl Rm530
53006 11 rpp  734      737        808    834       442 883.9  $NW block wl Rm530
53007 11 rpp  737      745        831    834       442 883.9  $NW block wl Rm530
53008 11 rpp  742      745        834    840       442 883.9  $NW block wl Rm530
53009 11 rpp  711      719        851    941       442 883.9  $Cylinder Dock wl
53010 11 rpp  815      823        851    941       442 883.9  $Cylinder Dock wl
53011 11 rpp  948      956        851    941       442 883.9  $Cylinder Dock wl
53012 11 rpp  1062     1070       851    941       442 883.9  $Cylinder Dock wl
53013 11 rpp  1137     1162       777.5  781.5     442 883.9  $Cylinder Dock small wl
53014 11 rpp  1137     1162       813    817       442 883.9  $Cylinder Dock small wl
53015 11 rpp  1129     1137       851    941       442 883.9  $Cylinder Dock wl
53016 11 rpp  699      764.5      843    851       442 518.2  $Cylinder Dock exterior wl
53017 11 rpp  737      883.5      744    840       442 883.9  $Roomspace   530
53018 11 rpp  699      764.5      843    851       518.2 883.9  $Cylinder Dock exterior wl
c
c
c  ///////////////Begin West Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Surfaces****************************************
c  The origin was set as the SW corner of the inside wall of Room 209. For conservancy the hot
c  cells in SAL were modled as a solid RPP of metal.
c
c
c
c  Floor1 Room 200
20001 12 rpp  -174     -161.25  485.5  487.5    442 883.9  $SW thin wl Rm200
20002 12 rpp  -89      -82      485.5  487.5    442 883.9  $SW thin wl Rm200
20003 12 rpp  -85.5    -83.5    410.5  485.5    442 883.9  $SW thin wl Rm200
20004 12 rpp  -87      -82      406.5  410.5    442 883.9  $SW thin wl Rm200
20005 12 rpp  -87      -82      402.5  406.5    442 883.9  $SW thin wl Rm200
20006 12 rpp  -46      -13      485.5  487.5    442 883.9  $SW thin wl Rm200
20007 12 rpp  89       91       410.5  422      442 883.9  $S divider thin wl Rm200
20008 12 rpp  89       91       458    485.5    442 883.9  $S divider thin wl Rm200
20009 12 rpp  -13      -11      955.4  990.25   442 883.9  $NW thin wl Rm200
20010 12 rpp  -13      -11      1038   1044.5   442 883.9  $NW thin wl Rm200
20011 12 rpp  -45.25   28       406.5  410.5    442 883.9  $S i wl Rm200
20012 12 rpp  -45.25   28       402.5  406.5    442 883.9  $S o wl Rm200
20013 12 rpp  66       250.25   406.5  410.5    442 883.9  $S i wl Rm200-Rm201
20014 12 rpp  66       246      402.5  406.5    442 883.9  $S o wl Rm200-Rm201
c
c
c  Floor1 Room 201
c  *****************This room contains the actual SAL hot cells**************
c  Neglected thin wall strip in NE border region There are two types of concrete in SAL-
c  Heavy Aggregate and Sump concrete. Currently only std concrete is being used for both.
c  The roof and floor .........
20101 12 rpp  250.25   266.25   457.5  481      442 883.9  $E Block Rm201
20102 12 rpp  266.25   345      464.25 469.25   442 883.9  $E wl Rm201
20103 12 rpp  250.25   266.25   613    630      442 883.9  $E Column Rm201
20104 12 rpp  253.5    263.5    854.5  864.5    442 883.9  $NE column Rm201
20105 12 rpp  263.5    307.5    857    862      442 883.9  $NE wall off of column Rm201
20106 12 rpp  265      266.5    862    1037     442 883.9  $NE wl Rm201
20107 12 rpp  263.5    266.5    1037   1335.5   442 883.9  $NE wl Rm201
20108 12 rpp  253.5    263.5    1037   1335.5   442 518.2  $NE wl Rm201
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20109 12 rpp  250.25     253.5     1037   1335.5     442 883.9  $NE wl Rm201
20110 12 rpp  246        250.25   1052.5 1335.5     442 883.9  $NE wl Rm201
20111 12 rpp  239        246      1052.5 1323      442 883.9  $NE wl Rm201
20112 12 rpp  186        250       1048.5 1052.5    442 883.9  $N o wl Rm201
20113 12 rpp  186        250       1044.5 1048.5    442 883.9  $N i wl Rm201
20114 12 rpp  -13        13       485.5  955.4     442 883.9  $W wl SAL Cell-Heavey Agg. Conc
20115 12 rpp  13         80       485.5  511.5     442 883.9  $S wl SAL Cell -Heavey Agg. Conc
20116 12 rpp  80         91       485.5  955.4     442 883.9  $E SAL wl Cell -Metal Walls and Windows, Windows ignored
20117 12 rpp  13         80       943.4  955.4     442 883.9  $E SAL wl Cell -Metal Walls
20118 12 rpp  253.5      263.5    1037   1335.5    518.2 883.9  $NE wl Rm201<--------------------------------------------------------------
Check the comps of this very cluttered wall-----
c
c
c  Floor1 Room 202/203
20201 12 rpp  -418      -159.25  406.5  410.5     442 883.9  $S i wl Rm202
20202 12 rpp  -422      -159.25  402.5  406.5     442 883.9  $S o wl Rm202
20203 12 rpp  -422      -418      406.5  1052.5    442 883.9  $W o wl Rm202-Rm203
20204 12 rpp  -418      -414      410.5  1048.5    442 883.9  $W i wl Rm202-Rm203
20205 12 rpp  -418      -397      1048.5 1052.5    442 883.9  $NW o wl Rm203
20206 12 rpp  -414      -397      1044.5 1048.5    442 883.9  $NW i wl Rm203
20207 12 rpp  -414      -178      692    696       442 883.9  $N wl Rm202
20208 12 rpp  -182      -178      598.5  692       442 883.9  $E i wl Rm202
20209 12 rpp  -178      -174      598.5  702       442 883.9  $E o wl Rm202
20210 12 rpp  -182      -178      410.5  526.5     442 883.9  $SE i wl Rm202
20211 12 rpp  -178      -174      410.5  526.5     442 883.9  $SE o wl Rm202
20212 12 rpp  -252      -248      696    702       442 883.9  $Stub Doorway wl Rm203
20213 12 rpp  -252      -248      738    747       442 883.9  $Stub Doorway wl Rm203
20214 12 rpp  -248      -178      743    747       442 883.9  $Doorway wl Rm203
20215 12 rpp  -182      -178      696    702       442 883.9  $Doorway wl Rm203
20216 12 rpp  -182      -178      738    743       442 883.9  $Doorway wl Rm203
20217 12 rpp  -178      -174      738    1044.5    442 883.9  $E o wl Rm203
20218 12 rpp  -182      -178      747    1044.5    442 883.9  $E i wl Rm203
20219 12 rpp  -361      151       1044.5 1048.5    442 883.9  $N i wl Rm203
20220 12 rpp  -361      151       1048.5 1052.5    442 883.9  $N o wl Rm203
20221 12 rpp  -414      -182      410.5  692       442 883.9  $Roomspace   202
20222 12 rpp  -414      -182      747    1044.5    442 883.9  $Roomspace   203
c
c
c  Floor1 Room 209
c  ****Neglected some layers on interior walls******************
20901 12 rpp  0        134       -15    0         442 883.9  $S wl Rm209
20902 12 rpp  134      206       -9     0         442 883.9  $S wl thin Rm209
20903 12 rpp  206      246       -15    0         442 883.9  $SE wl Rm209
20904 12 rpp  239      246       0      46.25     442 883.9  $SE wl Rm209
20905 12 rpp  239      246       85.25  377.5     442 883.9  $E wl Rm209
20906 12 rpp  66       246       377.5  402.5     442 883.9  $NE wl Rm209
20907 12 rpp  0        28        377.5  402.5     442 883.9  $NW wl Rm209
20908 12 rpp  -6       0         -15    402.5     442 883.9  $W wl Rm209
20909 12 rpp  224.5    232.5     106    114       442 883.9  $SW column Rm209
20910 12 rpp  246      250.25    -25.5  46.25     442 883.9  $SE wl Rm209
20911 12 rpp  250.25   253.5     -25.5  46.25     442 883.9  $SE wl Rm209
20912 12 rpp  253.5    256.5     -25.5  46.25     442 883.9  $SE wl Rm209
20913 12 rpp  256.5    263.5     20.5   46.25     442 518.2  $SE Block Rm209
20914 12 rpp  263.5    266.5     20.5   46.25     442 883.9  $SE o wl Rm209
20915 12 rpp  246      250.25    85.25  377.5     442 883.9  $E wl Rm209
20916 12 rpp  250.25   253.5     85.25  421.5     442 883.9  $E wl Rm209
20917 12 rpp  253.5    263.5     85.25  421.5     442 518.2  $E wl Rm209
20918 12 rpp  263.5    266.5     85.25  421.5     442 883.9  $E wl Rm209
20919 12 rpp  0        239       0      377.5     442 883.9  $Roomspace   209
20920 12 rpp  303.75   369       107.5  112.5     442 883.9  $Hallway wl stub Rm209
20921 12 rpp  253.5    263.5     85.25  421.5     518.2 883.9  $E wl Rm209
20922 12 rpp  256.5    263.5     20.5   46.25     518.2 883.9  $SE Block Rm209
c
c
c
c ///////////////Begin SouthWest Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\\
c ******************Notes for this section of Surfaces******************************************
c The origin was set as the SOUTH EAST CORNER of the inside wall of Room 301. The origin
c was placed here for simplicities sake. I am the walrus
c
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c
c  Floor1 Room 301
30101 13 rpp  -237    3     -3.5    0      442 883.9  $S wl Rm301
30102 13 rpp  0       3     0       42     442 883.9  $SE block wl Rm301
30103 13 rpp  3       21    39      42     442 883.9  $SE block wl Rm301
30104 13 rpp  21      24    0       43.75  442 883.9  $SE block wl Rm301
30105 13 rpp  3       24    -3      0      442 883.9  $SE block wl Rm301
30106 13 rpp  0       3     81.5    156.75  442 883.9  $NE block wl Rm301
30107 13 rpp  3       21    153.75  156.75  442 883.9  $NE block wl Rm301
30108 13 rpp  21      24    79.75   157.25  442 883.9  $NE block wl Rm301
30109 13 rpp  3       21    81.5    84.5    442 883.9  $NE block wl Rm301
30110 13 rpp  -266    0     112     120     442 883.9  $N wl Rm301
30111 13 rpp  -266    -237  -3.5    1       442 883.9  $SW wl Rm301
30112 13 rpp  -271    -266  -3.5    356     442 883.9  $W wl Rm301-Rm305
30113 13 rpp  -266    0     0       112     442 883.9  $Roomspace   301
c
c
c  Floor1 Room 303
30301 13 rpp  -266    0     120     127.5   442 883.9  $S i wl Rm303
30302 13 rpp  0       3     195.75  283     442 883.9  $NE block wl Rm303
30303 13 rpp  3       21    280     283     442 883.9  $NE block wl Rm303
30304 13 rpp  21      24    255.25  284.25  442 883.9  $NE block wl Rm303
30305 13 rpp  21      24    195.25  224.75  442 883.9  $NE block wl Rm303
30306 13 rpp  3       21    195.75  198.75  442 883.9  $NE block wl Rm303
30307 13 rpp  -266    0     229.5   237     442 883.9  $N i wl Rm303
30308 13 rpp  -266    0     237     240     442 883.9  $N o wl Rm303
30309 13 rpp  -266    0     127.5   229.5   442 883.9  $Roomspace   303
c
c
c  Floor1 Room 305
30501 13 rpp  -249.5  0     240     247.5   442 883.9  $S wl Rm305
30502 13 rpp  0       3     322     396.5   442 883.9  $E block wl Rm305
30503 13 rpp  3       21    393.5   396.5   442 883.9  $E block wl Rm305
30504 13 rpp  21      24    320.75  398     442 883.9  $E block wl Rm305
30505 13 rpp  3       21    325     328     442 883.9  $E block wl Rm305
30506 13 rpp  0       3     435.5   522.25  442 883.9  $NE block wl Rm305
30507 13 rpp  3       21    519.25  522.25  442 883.9  $NE block wl Rm305
30508 13 rpp  21      24    434.25  522.75  442 883.9  $NE block wl Rm305
30509 13 rpp  3       21    435.5   438.5   442 883.9  $NE block wl Rm305
30510 13 rpp  -292    0     469.5   477     442 883.9  $N wl Rm305
30511 13 rpp  -292    0     477     480     442 883.9  $N wl Rm305
30512 13 rpp  -266    0     247.5   469.5   442 883.9  $Roomspace   305 Partially Filled
c
c
c  Floor1 Room 309
30901 13 rpp  -292    0     480     487.5   442 883.9  $S wl Rm309
30902 13 rpp  0       3     561.25  636.25  442 883.9  $E block wl Rm309
30903 13 rpp  3       21    633.25  636.25  442 883.9  $E block wl Rm309
30904 13 rpp  21      24    561.75  636.75  442 883.9  $E block wl Rm309
30905 13 rpp  3       21    561.25  564.25  442 883.9  $E block wl Rm309
30906 13 rpp  -292    0     709.5   717     442 883.9  $N wl Rm309
30907 13 rpp  -292    0     717     720     442 883.9  $N wl Rm309
30908 13 rpp  -292    -271  351     356     442 883.9  $W dogleg in wl Rm305
30909 13 rpp  0       3     675.25  762.25  442 883.9  $NE block wl Rm309
30910 13 rpp  3       21    759.25  762.25  442 883.9  $NE block wl Rm309
30911 13 rpp  21      24    674.75  762.75  442 883.9  $NE block wl Rm309
30912 13 rpp  3       21    675.25  678.25  442 883.9  $NE block wl Rm309
30913 13 rpp  -292    0     487.5   709.5   442 883.9  $Roomspace   309
c
c
c  Floor1 Room 313
31301 13 rpp  -292    0     949.5   957     442 883.9  $N wl Rm313
31302 13 rpp  -292    0     957     960     442 883.9  $N wl Rm313
31303 13 rpp  -292    0     720     727.5   442 883.9  $S wl Rm313
31304 13 rpp  0       3     801.25  876     442 883.9  $E block wl Rm313
31305 13 rpp  3       21    873     876     442 883.9  $E block wl Rm313
31306 13 rpp  21      24    800.75  876.75  442 883.9  $E block wl Rm313
31307 13 rpp  3       21    801.25  804.25  442 883.9  $E block wl Rm313
31308 13 rpp  0       3     915     996.75  442 883.9  $NE block wl Rm313
31309 13 rpp  3       21    993.75  996.75  442 883.9  $NE block wl Rm313
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31310 13 rpp  21      24        972.75   996.75  442 883.9  $NE block wl Rm313
31311 13 rpp  21      24        914.25   942.75  442 883.9  $NE block wl Rm313
31312 13 rpp  3       21        915      918     442 883.9  $NE block wl Rm313
31313 13 rpp  -292    0         727.5    949.5   442 883.9  $Roomspace   313
c
c
c  Floor1 Room 317
31701 13 rpp  -292    0         960      967.5   442 883.9  $S wl Rm317
31702 13 rpp  -292    0         1069.5   1077    442 883.9  $N wl Rm317
31703 13 rpp  -292    0         1077     1080    442 883.9  $N wl Rm317
31704 13 rpp  -292    0         967.5    1069.5  442 883.9  $Roomspace   317
c
c
c  Floor1 Room 319/319A
31901 13 rpp  -292    24        1197.25  1200.25 442 883.9  $N wl Rm319
31902 13 rpp  -148.25  -145.25  1080     1197.25 442 883.9  $Dividing wl Rm319
31903 13 rpp  -295    -292      1191     1197.25 442 883.9  $W wl Rm319
31904 13 rpp  -295    -292      351      1155    442 883.9  $W wl Rm309-319
31905 13 rpp  0       3         1036     1116.5  442 883.9  $SE block wl Rm319
31906 13 rpp  3       21        1113.5   1116.5  442 883.9  $SE block wl Rm319
31907 13 rpp  21      24        1036     1118.5  442 883.9  $SE block wl Rm319
31908 13 rpp  3       21        1036     1039    442 883.9  $SE block wl Rm319
31909 13 rpp  0       3         1155.5   1197.25 442 883.9  $NE block wl Rm319
31910 13 rpp  3       21        1155.5   1158.5  442 883.9  $NE block wl Rm319
31911 13 rpp  21      24        1153.5   1197.25 442 883.9  $NE block wl Rm319
31912 13 rpp  -292    -148.25   1080     1197.25 442 883.9  $Roomspace   319A
31913 13 rpp  -145.25  0        1080     1197.25 442 883.9  $Roomspace   319
c
c
c  Floor1 Room 300
30001 13 rpp  108     743       -3.5     -.5     442 883.9  $S wl Rm300
30002 13 rpp  121.25  417       -.5      8       442 883.9  $S wl Rm300
30003 13 rpp  417     434       -.5      36.5    442 883.9  $SE Block in wl Rm300
30004 13 rpp  420.5   427       36.5     357.25  442 883.9  $E wl Rm300
30005 13 rpp  417     420.5     258.5    278.5   442 883.9  $Block in E wl Rm300
30006 13 rpp  427     433.5     260.5    276.5   442 883.9  $Block in E wl Rm300
30007 13 rpp  129.75  427       357.25   360.25  442 883.9  $N wl Rm300
30008 13 rpp  108     111       0        43      442 883.9  $SE block wl Rm300
30009 13 rpp  111     118.25    38.5     41.5    442 883.9  $SE block wl Rm300
30010 13 rpp  118.25  121.25    0        41.25   442 883.9  $SE block wl Rm300
30011 13 rpp  108     111       79       283     442 883.9  $W block wl Rm300
30012 13 rpp  111     120.5     157.75   160.75  442 883.9  $W block wl Rm300
30013 13 rpp  120.5   123.5     80.5     160.75  442 883.9  $W block wl Rm300
30014 13 rpp  111     120.5     80.5     83.5    442 883.9  $W block wl Rm300
30015 13 rpp  111     120.5     278.5    281.5   442 883.9  $W block wl Rm300
30016 13 rpp  120.5   123.5     192.5    281.5   442 883.9  $W block wl Rm300
30017 13 rpp  111     120.5     192.5    195.5   442 883.9  $W block wl Rm300
30018 13 rpp  108     111       319      342.75  442 883.9  $NW block wl Rm300
30019 13 rpp  111     136       320.5    323.5   442 883.9  $NW block wl Rm300
30020 13 rpp  136     139       320.5    357.25  442 883.9  $NW block wl Rm300
30021 13 rpp  108     111       373.25   397.75  442 883.9  $NW block wl Rm300
30022 13 rpp  111     129.75    393.25   396.25  442 883.9  $NW block wl Rm300
30023 13 rpp  129.75  132.75    360.25   396.25  442 883.9  $NW block wl Rm300
30024 13 rpp  123.5   420.5     8        320.5   442 883.9  $Roomspace   300
30025 13 rpp  139     420.5     320.5    357.25  442 883.9  $Roomspace   300
c
c
c  Flo1or1 Room 306
30601 13 rpp  424     427       360.25   598     442 883.9  $E wl Rm306
30602 13 rpp  416.5   424       498.5    518.5   442 883.9  $Block in E wl Rm306
30603 13 rpp  427     434.5     498.5    517.5   442 883.9  $Block in E wl Rm306
30604 13 rpp  108     111       433.75   523.5   442 883.9  $W block wl Rm306
30605 13 rpp  111     129.75    519      523.5   442 883.9  $W block wl Rm306
30606 13 rpp  129.75  132.75    435.25   523.5   442 883.9  $W block wl Rm306
30607 13 rpp  111     129.75    435.25   438.25  442 883.9  $W block wl Rm306
30608 13 rpp  108     111       559.5    638     442 883.9  $NW block wl Rm306
30609 13 rpp  111     129.75    633      636     442 883.9  $NW block wl Rm306
30610 13 rpp  129.75  132.75    561      636     442 883.9  $NW block wl Rm306
30611 13 rpp  111     129.75    561      564     442 883.9  $NW block wl Rm306
30612 13 rpp  132.75  424       360.25   595.75  442 883.9  $Roomspace   306 Partially Filled
```

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c
c
c  Floor1 Room    310
31001 13 rpp  424      432       598      960     442 883.9  $E wl Rm310
31002 13 rpp  132.75   340.75     595.75   600.75  442 883.9  $S wl Rm310
31003 13 rpp  275.75   280.75     600.75   636     442 883.9  $Center wl Rm310
31004 13 rpp  275.75   280.75     673.25   716.5   442 883.9  $Center wl Rm310
31005 13 rpp  132.75   424       716.5    719.5   442 883.9  $N wl Rm310
31006 13 rpp  132.75   275.75     600.75   716.5   442 883.9  $Roomspace   310
31007 13 rpp  280.75   424       600.75   716.5   442 883.9  $Roomspace   310 East
c
c
c  Floor1 Room 312
31201 13 rpp  416.5    424       739.5    757.5   442 883.9  $Block in E wl Rm312
31202 13 rpp  432      468.5     908      956     442 883.9  $NE Block Rm312
31203 13 rpp  132.75   424       957      960     442 883.9  $N wl Rm312
31204 13 rpp  108      111       672.75   763.75  442 883.9  $SW block wl Rm312
31205 13 rpp  111      129.75     759.25   762.25  442 883.9  $SW block wl Rm312
31206 13 rpp  129.75   132.75     674.75   762.25  442 883.9  $SW block wl Rm312
31207 13 rpp  111      129.75     674.75   677.75  442 883.9  $SW block wl Rm312
31208 13 rpp  108      111       799.5    823.5   442 883.9  $W block wl Rm312
31209 13 rpp  108      111       853.5    877.5   442 883.9  $W block wl Rm312
31210 13 rpp  111      129.75     873      876     442 883.9  $W block wl Rm312
31211 13 rpp  129.75   132.75     801.25   876     442 883.9  $W block wl Rm312
31212 13 rpp  111      129.75     801.25   804.25  442 883.9  $W block wl Rm312
31213 13 rpp  108      111       913.5    997.5   442 883.9  $NW block wl Rm312
31214 13 rpp  111      129.75     993      996     442 883.9  $NW block wl Rm312
31215 13 rpp  129.75   132.75     915      996     442 883.9  $NW block wl Rm312
31216 13 rpp  111      129.75     918      921     442 883.9  $NW block wl Rm312
31217 13 rpp  132.75   424       719.5    957     442 883.9  $Roomspace   312 Partially Filled
c
c
c  Floor1 Room 316
31601 13 rpp  424      427       960      1039.5  442 883.9  $SE wl Rm316
31602 13 rpp  416.5    434.5     1039.5   1057.5  442 883.9  $Block in E wl Rm316
31603 13 rpp  424      427       1057.5   1197.25 442 883.9  $E wl Rm316
31604 13 rpp  108      743       1197.25  1200.25 442 883.9  $N wl Rm316
31605 13 rpp  108      111       1033.5   1117.25 442 883.9  $W block wl Rm316
31606 13 rpp  111      129.75     1112.75  1115.75 442 883.9  $W block wl Rm316
31607 13 rpp  129.75   132.75     1035     1115.75 442 883.9  $W block wl Rm316
31608 13 rpp  111      129.75     1035     1038    442 883.9  $W block wl Rm316
31609 13 rpp  108      111       1153.25  1197.25 442 883.9  $NW block wl Rm316
31610 13 rpp  129.75   132.75     1154.75  1197.25 442 883.9  $NW block wl Rm316
31611 13 rpp  111      129.75     1154.75  1157.75 442 883.9  $NW block wl Rm316
31612 13 rpp  132.75   424       960      1197.25 442 883.9  $Roomspace   316 Partially Filled
c
c
c  Floor1 Room 401/403
40101 13 rpp  572      681.5     80.5     83.5    442 883.9  $S wl Rm403
40102 13 rpp  572      575.      83.5     236.5   442 883.9  $N wl Rm401
40103 13 rpp  427      430.25     236.5    239.5   442 883.9  $NW stub wl Rm401
40104 13 rpp  462.25   719       236.5    239.5   442 883.9  $N wl Rm401-Rm403
40105 13 rpp  719      722       -.5      41.5    442 883.9  $SE block wl Rm401
40106 13 rpp  722      740       38.5     41.5    442 883.9  $SE block wl Rm401
40107 13 rpp  740      743       -.5      43      442 883.9  $SE block wl Rm401
40108 13 rpp  719      722       83.5     155.5   442 883.9  $E block wl Rm403
40109 13 rpp  722      740       152.5    155.5   442 883.9  $E block wl Rm403
40110 13 rpp  740      743       79       157     442 883.9  $E block wl Rm403
40111 13 rpp  717.5    740       80.5     83.5    442 883.9  $E block wl Rm403
40112 13 rpp  719      722       194.5    281.5   442 883.9  $NE block wl Rm403
40113 13 rpp  722      740       278.5    281.5   442 883.9  $NE block wl Rm403
40114 13 rpp  740      743       193      283     442 883.9  $NE block wl Rm403
40115 13 rpp  722      740       194.5    197.5   442 883.9  $NE block wl Rm403
40116 13 rpp  427      572       -.5      236.5   442 883.9  $Roomspace   401
40117 13 rpp  575      719       83.5     236.5   442 883.9  $Roomspace   403
c
c
c  Floor1 Room 405
40501 13 rpp  476.75   576.25     239.5    247     442 883.9  $S thick wl Rm405
40502 13 rpp  434.5    546       498.5    501.5   442 883.9  $NW wl Rm405
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40503 13 rpp  543      546        478      498.5   442 883.9  $NW wl Rm405
40504 13 rpp  546      719        478      481     442 883.9  $N wl Rm405
40505 13 rpp  719      722        320.5    394     442 883.9  $E block wl Rm405
40506 13 rpp  722      740        391      394     442 883.9  $E block wl Rm405
40507 13 rpp  740      743        376      397     442 883.9  $E block wl Rm405
40508 13 rpp  722      740        320.5    323.5   442 883.9  $E block wl Rm405
40509 13 rpp  740      743        319      343     442 883.9  $E block wl Rm405
40510 13 rpp  719      722        436      522     442 883.9  $NE block wl Rm405
40511 13 rpp  722      740        519      522     442 883.9  $NE block wl Rm405
40512 13 rpp  740      743        433      523.5   442 883.9  $NE block wl Rm405
40513 13 rpp  722      740        433      436     442 883.9  $NE block wl Rm405
40514 13 rpp  427      719        239.5    478     442 883.9  $Roomspace   405 Partially Filled
c
c
c  Floor1 Room 409
40901 13 rpp  432      724        598      602     442 883.9  $N wl Rm409
40902 13 rpp  427      719        501.5    598     442 883.9  $Roomspace   409 Partially Filled
c
c
c  Floor1 Room 411
41101 13 rpp  432      724        956      960     442 883.9  $N wl Rm411
41102 13 rpp  719      722        561      598     442 883.9  $SE block wl Rm411
41103 13 rpp  721      724        602      634.5   442 883.9  $SE block wl Rm411
41104 13 rpp  724      740        631.5    634.5   442 883.9  $SE block wl Rm411
41105 13 rpp  739      743        634.5    636     442 883.9  $SE block wl Rm411
41106 13 rpp  740      743        559.5    634.5   442 883.9  $SE block wl Rm411
41107 13 rpp  722      740        561      564     442 883.9  $SE block wl Rm411
41108 13 rpp  721      724        673.5    873.5   442 883.9  $E block wl Rm411
41109 13 rpp  724      740        870.5    873.5   442 883.9  $E block wl Rm411
41110 13 rpp  740      743        856      873.5   442 883.9  $E block wl Rm411
41111 13 rpp  740      743        672      820     442 883.9  $E block wl Rm411
41112 13 rpp  724      740        673.5    676.5   442 883.9  $E block wl Rm411
41113 13 rpp  739      740        672      673.5   442 883.9  $E block wl Rm411
41114 13 rpp  721      724        931.5    956     442 883.9  $NE block wl Rm411
41115 13 rpp  719      722        960      996     442 883.9  $NE block wl Rm411
41116 13 rpp  722      740        993      996     442 883.9  $NE block wl Rm411
41117 13 rpp  740      743        931.5    997.5   442 883.9  $NE block wl Rm411
41118 13 rpp  724      740        931.5    934.5   442 883.9  $NE block wl Rm411
41119 13 rpp  432      721        602      956     442 883.9  $Roomspace   411 Partially Filled
c
c
c  Floor1 Room 419
41901 13 rpp  719      722        1035     1116.25 442 883.9  $E block wl Rm419
41902 13 rpp  722      740        1113.25  1116.25 442 883.9  $E block wl Rm419
41903 13 rpp  740      743        1033.5   1117.75 442 883.9  $E block wl Rm419
41904 13 rpp  722      740        1035     1038    442 883.9  $E block wl Rm419
41905 13 rpp  719      722        1155.25  1197.25 442 883.9  $NE block wl Rm419
41906 13 rpp  722      740        1155.25  1158.25 442 883.9  $NE block wl Rm419
41907 13 rpp  740      743        1153.75  1197.25 442 883.9  $NE block wl Rm419
41908 13 rpp  427      719        960      1197.25 442 883.9  $Roomspace   419
c
c
c  ///////////////Begin SouthEast Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Surfaces*****************************************
c  The origin was set as the SW outside corner of the Southwesternmost wall of Room 400
c
c
c  Floor1 Room 400
40001 14 rpp  0        635        0        3       442 883.9  $S wl Rm400-Rm501
40002 14 rpp  309.5    325.5      3        39.5    442 883.9  $SE Block in wl Rm400
40003 14 rpp  316      319        39.5     240     442 883.9  $E wl Rm400
40004 14 rpp  24       611        240      243     442 883.9  $N wl Rm400-Rm501
40005 14 rpp  0        3          196.5    286.5   442 883.9  $W wl Rm400
40006 14 rpp  0        3          82.5     160.5   442 883.9  $W wl Rm400
40007 14 rpp  0        3          3        46.5    442 883.9  $W wl Rm400
40008 14 rpp  3        21         42       45      442 883.9  $SW block wl Rm400
40009 14 rpp  21       24         3        45      442 883.9  $SW block wl Rm400
40010 14 rpp  3        21         84       87      442 883.9  $W block wl Rm400
40011 14 rpp  21       24         84       159     442 883.9  $W block wl Rm400
40012 14 rpp  3        21         156      159     442 883.9  $W block wl Rm400
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40013 14 rpp  3       21        198      201    442 883.9  $NW block wl Rm400
40014 14 rpp  21       24        198      285    442 883.9  $NW block wl Rm400
40015 14 rpp  3       21        282      285    442 883.9  $NW block wl Rm400
40016 14 rpp  24      309.5      3        240    442 883.9  $Roomspace   400 Partially Filled
c
c
c  Floor1 Room 501
50101 14 rpp  632      635        196.5    286.5  442 883.9  $E wl Rm501
50102 14 rpp  632      635        82.5     160.5  442 883.9  $E wl Rm501
50103 14 rpp  632      635        3        46.5   442 883.9  $E wl Rm501
50104 14 rpp  614      632        42       45     442 883.9  $SE block wl Rm501
50105 14 rpp  611      614        3        45     442 883.9  $SE block wl Rm501
50106 14 rpp  614      632        84       87     442 883.9  $E block wl Rm501
50107 14 rpp  611      614        84       159    442 883.9  $E block wl Rm501
50108 14 rpp  614      632        156      159    442 883.9  $E block wl Rm501
50109 14 rpp  614      632        198      201    442 883.9  $NE block wl Rm501
50110 14 rpp  611      614        198      285    442 883.9  $NE block wl Rm501
50111 14 rpp  614      632        282      285    442 883.9  $NE block wl Rm501
50112 14 rpp  325.5    611        3        240    442 883.9  $Roomspace   501 Partially Filled
c
c
c  Floor1 Room 500
50001 14 rpp  719      1038       0        3      442 883.9  $S wl Rm500
50002 14 rpp  1035     1038       3        46.5   442 883.9  $SE wl Rm500
50003 14 rpp  1035     1038       82.5     160.5  442 883.9  $E wl Rm500
50004 14 rpp  1035     1038       196.5    286.5  442 883.9  $E wl Rm500-Rm504A
50005 14 rpp  743      1035       240      243    442 883.9  $N wl Rm500
50006 14 rpp  719      722        196.5    286.5  442 883.9  $W wl Rm500
50007 14 rpp  719      722        82.5     160.5  442 883.9  $W wl Rm500
50008 14 rpp  719      722        3        46.5   442 883.9  $W wl Rm500
50009 14 rpp  722      740        39       42     442 883.9  $SW block wl Rm500
50010 14 rpp  740      743        3        42     442 883.9  $SW block wl Rm500
50011 14 rpp  722      740        84       87     442 883.9  $W block wl Rm500
50012 14 rpp  740      743        84       159    442 883.9  $W block wl Rm500
50013 14 rpp  722      740        156      159    442 883.9  $W block wl Rm500
50014 14 rpp  722      740        198      201    442 883.9  $NW block wl Rm500
50015 14 rpp  740      743        198      285    442 883.9  $NW block wl Rm500
50016 14 rpp  722      740        282      285    442 883.9  $NW block wl Rm500
50017 14 rpp  743      1035       3        240    442 883.9  $Roomspace   500
c
c
c  Floor1 Room 404
40401 14 rpp  168.5    171.5      243      363    442 883.9  $E wl Rm404
40402 14 rpp  24       168.5      360      363    442 883.9  $N wl Rm404
40403 14 rpp  0        3          377.5    400.5  442 883.9  $W wl Rm404
40404 14 rpp  0        3          322.5    347    442 883.9  $W wl Rm404
40405 14 rpp  24       168.5      243      360    442 883.9  $Roomspace   404
c
c
c  Floor1 Room 505
50501 14 rpp  309.5    325.5      263.5    279.5  442 883.9  $W column in wl Rm505
50502 14 rpp  316      319        279.5    503.5  442 883.9  $W wl Rm505-Rm507
50503 14 rpp  319      611        360      363    442 883.9  $N wl Rm505
50504 14 rpp  632      635        377.5    400.5  442 883.9  $E wl Rm505
50505 14 rpp  632      635        322.5    347    442 883.9  $E wl Rm505
50506 14 rpp  316      319        243      263.5  442 883.9  $SE wl Rm505
50507 14 rpp  325.5    611        243      360    442 883.9  $Roomspace   505 Partially Filled
c
c
c  Floor1 Room 504/504A
50401 14 rpp  719      722        322.5    347    442 883.9  $W wl Rm504
50402 14 rpp  719      722        377.5    400.5  442 883.9  $W wl Rm504
50403 14 rpp  743      1035       360      363    442 883.9  $N wl Rm504
50404 14 rpp  888      891        243      360    442 883.9  $Central wl Rm504-Rm504A
50405 14 rpp  1035     1038       322.5    526.5  442 883.9  $E wl Rm504A
50406 14 rpp  743      888        244      360    442 883.9  $Roomspace   504
50407 14 rpp  891      1035       244      360    442 883.9  $Roomspace   504
c
c
c  Floor1 Room 406
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40601 14 rpp  309.5    325.5      503.5    519.5  442 883.9  $E block in wl Rm406
40602 14 rpp  316      319        519.5    600    442 883.9  $E wl Rm406
40603 14 rpp  24       611        600      603    442 883.9  $N wl Rm406-Rm507
40604 14 rpp  0        3          562.5    640.5  442 883.9  $W wl Rm406
40605 14 rpp  0        3          436.5    526.5  442 883.9  $W wl Rm406
40606 14 rpp  3        21         324      327    442 883.9  $SW block wl Rm406
40607 14 rpp  21       24         324      399    442 883.9  $SW block wl Rm406
40608 14 rpp  3        21         396      399    442 883.9  $SW block wl Rm406
40609 14 rpp  21       24         438      525    442 883.9  $W block wl Rm406
40610 14 rpp  3        21         438      441    442 883.9  $W block wl Rm406
40611 14 rpp  3        21         522      525    442 883.9  $W block wl Rm406
40612 14 rpp  3        21         564      567    442 883.9  $NW block wl Rm406
40613 14 rpp  21       24         564      639    442 883.9  $NW block wl Rm406
40614 14 rpp  3        21         636      639    442 883.9  $NW block wl Rm406
40615 14 rpp  24       309.5      363      600    442 883.9  $Roomspace   406 Partially Filled
c
c
c  Floor1 Room 507
50701 14 rpp  632      635        562.5    640.5  442 883.9  $E wl Rm507
50702 14 rpp  632      635        436.5    526.5  442 883.9  $E wl Rm507
50703 14 rpp  614      632        324      327    442 883.9  $SE block wl Rm507
50704 14 rpp  611      614        324      399    442 883.9  $SE block wl Rm507
50705 14 rpp  614      632        396      399    442 883.9  $SE block wl Rm507
50706 14 rpp  614      632        438      441    442 883.9  $E block wl Rm507
50707 14 rpp  611      614        438      525    442 883.9  $E block wl Rm507
50708 14 rpp  614      632        522      525    442 883.9  $E block wl Rm507
50709 14 rpp  614      632        564      567    442 883.9  $NE block wl Rm507
50710 14 rpp  611      614        564      639    442 883.9  $NE block wl Rm507
50711 14 rpp  614      632        636      639    442 883.9  $NE block wl Rm507
50712 14 rpp  325.5    611        363      600    442 883.9  $Roomspace   507 Partially Filled
c
c
c  Floor1 Room 506
50601 14 rpp  719      722        562.5    640.5  442 883.9  $W wl Rm506
50602 14 rpp  719      722        436.5    526.5  442 883.9  $W wl Rm506
50603 14 rpp  743      1035       600      603    442 883.9  $N wl Rm506
50604 14 rpp  1035     1038       562.5    640.5  442 883.9  $E wl Rm506
50605 14 rpp  722      740        325      328    442 883.9  $SW block wl Rm506
50606 14 rpp  740      743        325      399    442 883.9  $SW block wl Rm506
50607 14 rpp  722      740        396      399    442 883.9  $SW block wl Rm506
50608 14 rpp  722      740        438      441    442 883.9  $W block wl Rm506
50609 14 rpp  740      743        438      525    442 883.9  $W block wl Rm506
50610 14 rpp  722      740        522      525    442 883.9  $W block wl Rm506
50611 14 rpp  722      740        564      567    442 883.9  $NW block wl Rm506
50612 14 rpp  740      743        564      639    442 883.9  $NW block wl Rm506
50613 14 rpp  722      740        636      639    442 883.9  $NW block wl Rm506
50614 14 rpp  743      1035       363      600    442 883.9  $Roomspace   506
c
c
c  Floor1 Room 410
41001 14 rpp  0        3          676.5    766.5  442 883.9  $W wl Rm410
41002 14 rpp  0        3          802.5    826.5  442 883.9  $W wl Rm410
41003 14 rpp  0        3          855.25   880.5  442 883.9  $W wl Rm410
41004 14 rpp  24       611        840      843    442 883.9  $N wl Rm410
41005 14 rpp  316      319        759.5    840    442 883.9  $E wl Rm410
41006 14 rpp  309.5    325.5      743.5    759.5  442 883.9  $E Column in wl Rm410
41007 14 rpp  316      319        603      743.5  442 883.9  $SE wl Rm410
41008 14 rpp  3        21         678      681    442 883.9  $W block wl Rm410
41009 14 rpp  21       24         678      765    442 883.9  $W block wl Rm410
41010 14 rpp  3        21         762      765    442 883.9  $W block wl Rm410
41011 14 rpp  3        21         804      807    442 883.9  $NW block wl Rm410
41012 14 rpp  21       24         804      879    442 883.9  $NW block wl Rm410
41013 14 rpp  3        21         876      879    442 883.9  $NW block wl Rm410
41014 14 rpp  24       309.5      603      840    442 883.9  $Roomspace   410 Partially Filled
c
c
c  Floor1 Room 511
51101 14 rpp  632      635        676.5    766.5  442 883.9  $E wl Rm511
51102 14 rpp  632      635        802.5    826.5  442 883.9  $E wl Rm511
51103 14 rpp  632      635        855.25   880.5  442 883.9  $E wl Rm511
```

```
51104 14 rpp  614      632        678      681    442 883.9  $E block wl Rm511
51105 14 rpp  611      614        678      765    442 883.9  $E block wl Rm511
51106 14 rpp  614      632        762      765    442 883.9  $E block wl Rm511
51107 14 rpp  614      632        804      807    442 883.9  $NE block wl Rm511
51108 14 rpp  611      614        804      879    442 883.9  $NE block wl Rm511
51109 14 rpp  614      632        876      879    442 883.9  $NE block wl Rm511
51110 14 rpp  325.5    611        603      840    442 883.9  $Roomspace   511 Partially Filled
c
c
c Floor1 Room 510
51001 14 rpp  719      722        676.5    766.5  442 883.9  $W wl Rm510
51002 14 rpp  743      1035       840      843    442 883.9  $N wl Rm510
51003 14 rpp  1035     1038       676.5    1000   442 883.9  $E wl Rm510
51004 14 rpp  722      740        678      681    442 883.9  $W block wl Rm510
51005 14 rpp  740      743        678      765    442 883.9  $W block wl Rm510
51006 14 rpp  722      740        762      765    442 883.9  $W block wl Rm510
51007 14 rpp  722      740        804      807    442 883.9  $NW block wl Rm510
51008 14 rpp  740      743        804      879    442 883.9  $NW block wl Rm510
51009 14 rpp  722      740        876      879    442 883.9  $NW block wl Rm510
51010 14 rpp  743      1035       603      840    442 883.9  $Roomspace   510
c
c
c  Floor1 Room 514
51401 14 rpp  719      722        802.5    880.5  442 883.9  $W wl Rm514
51402 14 rpp  743      1035       960      963    442 883.9  $N wl Rm514
51403 14 rpp  719      722        916.5    1000   442 883.9  $W wl Rm514
51404 14 rpp  743      1035       843      960    442 883.9  $Roomspace   514
c
c
c  Floor1 Room 515
51501 14 rpp  632      635        916.5    1000   442 883.9  $E wl Rm515
51502 14 rpp  319      611        843      960    442 883.9  $Roomspace   515
c
c
c  Floor1 Room 414
41401 14 rpp  316      319        843      960    442 883.9  $E wl Rm414
41402 14 rpp  24       611        960      963    442 883.9  $N wl Rm414
41403 14 rpp  0        3          916.5    1000   442 883.9  $W wl Rm414
41404 14 rpp  24       316        843      960    442 883.9  $Roomspace   414
c
c
c  Floor1 Room 416
41601 14 rpp  0        3          1037     1120   442 883.9  $W wl Rm416
41602 14 rpp  0        3          1156.5   1203   442 883.9  $W wl Rm416
41603 14 rpp  3        635        1200     1203   442 883.9  $N wl Rm416-Rm517
41604 14 rpp  316      319        963      1043.5 442 883.9  $E wl Rm416
41605 14 rpp  309.5    325.5      1043.5   1059.5 442 883.9  $E block Rm416
41606 14 rpp  316      319        1059.5   1200   442 883.9  $E wl Rm416
41607 14 rpp  3        21         918      921    442 883.9  $SW block wl Rm416
41608 14 rpp  21       24         918      999    442 883.9  $SW block wl Rm416
41609 14 rpp  3        21         996      999    442 883.9  $SW block wl Rm416
41610 14 rpp  3        21         1038     1041   442 883.9  $W block wl Rm416
41611 14 rpp  21       24         1038     1118   442 883.9  $W block wl Rm416
41612 14 rpp  3        21         1115     1118   442 883.9  $W block wl Rm416
41613 14 rpp  3        21         1158     1161   442 883.9  $NW block wl Rm416
41614 14 rpp  21       24         1158     1200   442 883.9  $NW block wl Rm416
41615 14 rpp  24       309.5      963      1200   442 883.9  $Roomspace   416 Partially Filled
c
c
c  Floor1 Room 517
51701 14 rpp  632      635        1156.5   1200    442 883.9  $E wl Rm517
51702 14 rpp  632      635        1037     1119.75 442 883.9  $E wl Rm517
51703 14 rpp  614      632        918      921     442 883.9  $SE block wl Rm517
51704 14 rpp  611      614        918      999     442 883.9  $SE block wl Rm517
51705 14 rpp  614      632        996      999     442 883.9  $SE block wl Rm517
51706 14 rpp  614      632        1038     1041    442 883.9  $E block wl Rm517
51707 14 rpp  611      614        1038     1118    442 883.9  $E block wl Rm517
51708 14 rpp  614      632        1115     1118    442 883.9  $E block wl Rm517
51709 14 rpp  614      632        1158     1161    442 883.9  $NE block wl Rm517
51710 14 rpp  611      614        1158     1200    442 883.9  $NE block wl Rm517
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51711 14 rpp  325.5    611       963      1200    442 883.9  $Roomspace   517 Partially Filled
c
c
c  Floor1 Room 516
51601 14 rpp  719      722       1156.5   1200    442 883.9  $W wl Rm516
51602 14 rpp  719      722       1037     1119.75 442 883.9  $W wl Rm516
51603 14 rpp  719      1038      1200     1203    442 883.9  $N wl Rm516
51604 14 rpp  1035     1038      1156.5   1200    442 883.9  $E wl Rm516
51605 14 rpp  1035     1038      1037     1119.75 442 883.9  $E wl Rm516
51606 14 rpp  722      740       918      921     442 883.9  $SW block wl Rm516
51607 14 rpp  740      743       918      999     442 883.9  $SW block wl Rm516
51608 14 rpp  722      740       996      999     442 883.9  $SW block wl Rm516
51609 14 rpp  722      740       1038     1041    442 883.9  $W block wl Rm516
51610 14 rpp  740      743       1038     1118    442 883.9  $W block wl Rm516
51611 14 rpp  722      740       1115     1118    442 883.9  $W block wl Rm516
51612 14 rpp  722      740       1158     1161    442 883.9  $NW block wl Rm516
51613 14 rpp  740      743       1158     1200    442 883.9  $NW block wl Rm516
51614 14 rpp  743      1035      963      1200    442 883.9  $Roomspace   516
c
c
c  ///////////////Begin East Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Surfaces****************************************
c  The origin was set as the inside corner of the Southwesternmost wall of the east Section.
c  There is no specific number for this area but the origin is directly west of Room 600.
c
c
c  Floor1 Room 600
60001 15 rpp  -16.5    -13.5     0        178.5   442 883.9  $W most wall, lies on boundary line
60002 15 rpp  -13.5    -4        0        178.5   442 883.9  $W wl Rm600
60003 15 rpp  -4       0         0        178.5   442 883.9  $W wl Rm600
60004 15 rpp  -16.5    -13.5     214.5    1464.5  442 883.9  $W most wl Rm600-601
60005 15 rpp  -13.5    -4        214.5    1461.5  442 883.9  $W wl Rm600-601
60006 15 rpp  -4       4         214.5    994.5   442 883.9  $W wl Rm600-601
60007 15 rpp  -16.5    580.5     -7.5     -4      442 518.2  $S wl Rm600 Exterior wl
60008 15 rpp  -16.5    577       -4       0       442 883.9  $S wl Rm600
60009 15 rpp  74       79        0        115     442 883.9  $W i wl Rm600
60010 15 rpp  74       79        153      162.5   442 883.9  $NW  wl stub Rm600
60011 15 rpp  79       205       157.5    162.5   442 883.9  $N wl Rm600
60012 15 rpp  196      201       0        157.5   442 883.9  $E wl Rm600
60013 15 rpp  79       196       0        3.5     442 883.9  $S wl Rm600
60014 15 rpp  96.5     100.5     162.5    187     442 883.9  $N  wl extension Rm600
60015 15 rpp  4        100.5     224      228     442 883.9  $NW wl Rm600
60016 15 rpp  79       196       3.5      157.5   442 883.9  $Roomspace   600
60017 15 rpp  -16.5    580.5     -7.5     -4      518.2 883.9  $S wl Rm600 Exterior wl
c
c
c  Floor1 Room 602/605/606
c   These rooms were all combined because it is difficult to distinguish between them.
c
60201 15 rpp  205      209       48.25    52.25   442 883.9  $SW Column Rm602
60202 15 rpp  241      245       48.25    52.25   442 883.9  $SW 2nd column Rm602
60203 15 rpp  284      287       48.25    204.25  442 883.9  $W wl Womens Rm/605
60204 15 rpp  287      291.5     48.25    53.25   442 883.9  $SW 3rd Column Rm602
60205 15 rpp  321.5    413.5     48.25    53.25   442 883.9  $S wl Rm605 <----------columns within wall were omitted
60206 15 rpp  325      330       53.25    64.75   442 883.9  $SW wl Rm605
60207 15 rpp  287      330       97.75    102.75  442 883.9  $SW wl Rm605
60208 15 rpp  325      330       94.75    97.75   442 883.9  $SW small wl Rm605
60209 15 rpp  400.75   405.75    46.75    48.25   442 883.9  $SE wall protrusion Rm605
60210 15 rpp  400.75   405.75    53.25    166.25  442 883.9  $E wl Rm605
60211 15 rpp  405.75   440.75    157.25   162.25  442 883.9  $E wl Rm605
60212 15 rpp  474.75   486.75    157.25   162.25  442 883.9  $E wl Rm605
60213 15 rpp  481.75   486.75    162.25   199.25  442 883.9  $E wl Rm605
60214 15 rpp  478.5    486.75    204.25   212     442 883.9  $NE wl Rm605
60215 15 rpp  449.75   486.75    199.25   204.25  442 883.9  $NE wl Rm605
60216 15 rpp  287      405.75    199.25   204.25  442 883.9  $N wl Rm605
60217 15 rpp  400.75   405.75    196.25   199.25  442 883.9  $N wl stub Rm605
60218 15 rpp  287      358       195.25   199.25  442 883.9  $NW wl fat part Rm605
60219 15 rpp  335      338       204.25   214     442 883.9  $Protrusion from N wl in Rm605 into Rm601
60220 15 rpp  486.75   560       164      169     442 883.9  $S wl Rm606
60221 15 rpp  560      573       14       252     442 883.9  $E wl Rm606-Rm202
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60222 15 rpp  478.5    560       247      252     442 883.9  $NE wl Rm606
60223 15 rpp  478.5    483.5     242      247     442 883.9  $NE wl protrusion Rm606
60224 15 rpp  366      573       0        14      442 883.9  $S wl Rm602
60225 15 rpp  400.75   405.75    14       16.75   442 883.9  $S wl protrusion Rm602
60226 15 rpp  512.75   529       14       17.75   442 883.9  $SE wl protrusion Rm602
60227 15 rpp  573      577       0        288     442 883.9  $E i wl Rm602<----------Some anomolies here----------------------------
60228 15 rpp  577      580.5     -4       259.5   442 518.2  $E o wl Rm602
60231 15 rpp  487      560       169      247     442 883.9  $Roomspace   606
60232 15 rpp  577      580.5     -4       259.5   518.2 883.9  $E o wl Rm602
c
c
c  Floor1 Room 610 Truck Lock
c   *******Note: a .5cm thick material that borders the dock was neglected**************
61001 15 rpp  580.5    1078.5    257      259.5    442 883.9  $S exterior wl Rm610
61002 15 rpp  577      1076      259.5    264.5    442 883.9  $S interior wl Rm610
61003 15 rpp  577      580.5     264.5    288      442 883.9  $SW wl Rm610
61004 15 rpp  581.5    589.5     266      274      442 883.9  $SW column Rm610
61005 15 rpp  821.5    829.5     266      274      442 883.9  $S column Rm610
61006 15 rpp  1061.5   1069.5    266      274      442 883.9  $SE column Rm610
61007 15 rpp  573      577       324      342      442 883.9  $W wl stub Rm610
61008 15 rpp  577      580.5     324      342      442 883.9  $W wl stub Rm610
61009 15 rpp  573      577       462      506.5    442 883.9  $NW wl Rm610
61010 15 rpp  577      580.5     462      509      442 883.9  $NW wl Rm610
61011 15 rpp  558.5    576.5     506.5    513.5    442 883.9  $NW Block   <------------------------------------------What is this?
61012 15 rpp  580.5    819.5     508      509      442 883.9  $N wl Rm610
61013 15 rpp  577      819.5     509      511      442 883.9  $N wl Rm610
61014 15 rpp  577      819.5     511      512      442 883.9  $N wl Rm610
61015 15 rpp  819.5    831.5     505      515      442 883.9  $N column in wl Rm610
61016 15 rpp  831.5    1060.5    508      509      442 883.9  $N wl Rm610
61017 15 rpp  831.5    1060.5    509      511      442 883.9  $N wl Rm610
61018 15 rpp  831.5    1060.5    511      512      442 883.9  $N wl Rm610
61019 15 rpp  1060.5   1070.5    506      514      442 883.9  $NW column in wl Rm610
61020 15 rpp  1071     1076      486      527      442 883.9  $NW perependicular dividing wl Rm610
61021 15 rpp  1076     1078.5    486      527      442 883.9  $NW perependicular dividing wl Rm610
61022 15 rpp  1078.5   1310.5    506      514      442 883.9  $N wl Rm610-1
61023 15 rpp  1311     1316      486      514      442 883.9  $NE i wl Rm610-1
61024 15 rpp  1316     1318.5    486      514      442 883.9  $NE o wl Rm610-1
61025 15 rpp  1311     1316      264.5    342      442 883.9  $NE i wl Rm610-1
61026 15 rpp  1316     1318.5    259.5    342      442 883.9  $NE o wl Rm610-1
61027 15 rpp  1282.5   1316      259.5    264.5    442 883.9  $SE i wl Rm610-1
61028 15 rpp  1282.5   1318.5    257      259.5    442 883.9  $SE o wl Rm610-1
61029 15 rpp  1078.5   1246.5    259.5    264.5    442 883.9  $SW i wl Rm610-1
61030 15 rpp  1078.5   1246.5    257      259.5    442 883.9  $SW o wl Rm610-1
61031 15 rpp  1079.5   1087.5    266      274      442 883.9  $SW column Rm610-1
61032 15 rpp  1301.5   1309.5    266      274      442 883.9  $SE column Rm610-1
61033 15 rpp  1079.5   1087.5    496      504      442 883.9  $NW column Rm610-1
61034 15 rpp  1301.5   1309.5    496      504      442 883.9  $NE column Rm610-1
61035 15 rpp  1071     1076      264.5    288      442 883.9  $dividing i wl Rm610-Rm610-1
61036 15 rpp  1076     1078.5    259.5    288      442 883.9  $dividing o wl Rm610-Rm610-1
61037 15 rpp  1071     1076      324      342      442 883.9  $dividing i wl Rm610-Rm610-1
61038 15 rpp  1076     1078.5    324      342      442 883.9  $dividing o wl Rm610-Rm610-1
c
c
c   Floor1 Room 603
c  **********Neglected block in SE corner, above room 606*************************
60301 15 rpp  577      1076      742.5    747.5    442 883.9  $N i wl Rm610
60302 15 rpp  577      1078.5    747.5    750      442 883.9  $N o wl Rm610
60303 15 rpp  581.5    589.5     733      741      442 883.9  $N column Rm610
60304 15 rpp  821.5    829.5     733      741      442 883.9  $N 2nd column Rm610
60305 15 rpp  941.5    949.5     733      741      442 883.9  $N 3rd column Rm610
60306 15 rpp  1061.5   1069.5    733      741      442 883.9  $N 4th column Rm610
60307 15 rpp  1071     1076      562      742.5    442 883.9  $E i wl Rm610
60308 15 rpp  1076     1078.5    562      747.5    442 883.9  $E o wl Rm610
60309 15 rpp  941.5    949.5     579.75   587.75   442 883.9  $SE column Rm610
60310 15 rpp  1061.5   1069.5    579.75   587.75   442 883.9  $SE 2n column
60311 15 rpp  573      577       753.5    1548.5   442 883.9  $E i wl Rm603
60312 15 rpp  577      580.5     750      1552     442 518.2  $E o wl Rm603
60313 15 rpp  558.5    576.5     746.5    753.5    442 883.9  $E Block in  wl Rm603
60314 15 rpp  554      572       986      994      442 883.9  $E Block next one N of 60313
60315 15 rpp  551      572       1048.5   1057.5   442 883.9  $E Block next one N of 60314
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60316 15 rpp  551      572        1285.5    1294.5  442 883.9  $E Block next one N of 60315
60317 15 rpp  551      572        1534.5    1543.5  442 883.9  $E Block next one N of 60316
60318 15 rpp  63.5     573        1544.5    1548.5  442 883.9  $N i wl Rm603
60319 15 rpp  63.5     577        1548.58   1552    442 883.9  $N o wl Rm603
60320 15 rpp  340.5    361.5      1534.5    1543.5  442 883.9  $N Block Rm603
60321 15 rpp  340.5    361.5      1285.5    1294.5  442 883.9  $Central N block S of 60320 Rm603
60322 15 rpp  360      361.5      1294.5    1339    442 883.9  $Central wl Rm603
60323 15 rpp  360      361.5      1277.5    1285.5  442 883.9  $Central wl Rm603
60324 15 rpp  360      361.5      1057.5    1217.5  442 883.9  $Central wl Rm603
60325 15 rpp  360      361.5      995       1048.5  442 883.9  $Central wl Rm603
60326 15 rpp  357.5    365.5      985       994.5   442 883.9  $Central Block in central wl Rm603
60327 15 rpp  321      326        886       994.5   442 883.9  $W wl Rm603
60328 15 rpp  232.5    321        886       891     442 883.9  $W wl Rm603
60329 15 rpp  232.5    237.5      822       850     442 883.9  $W wl Rm603
60330 15 rpp  335      338        288       324     442 883.9  $SW wl Rm603
60331 15 rpp  199.5    367.5      324       822     442 883.9  $Blank Concrete Box
60336 15 rpp  577      580.5      750       1552    518.2 883.9  $E o wl Rm603
c
c
c  Floor1 Room 601
60101 15 rpp  28.5     38.5       266       274     442 883.9  $SW column Rm601
60102 15 rpp  28.5     38.5       506       514     442 883.9  $W column Rm601
60103 15 rpp  28.5     38.5       746       754     442 883.9  $NW column Rm601
60104 15 rpp  -4       18         994.5     999.5   442 883.9  $NE wl Rm601
60105 15 rpp  54       360        994.5     999.5   442 883.9  $N wl Rm601
c
c
c  Floor1 Room 604
60401 15 rpp  -4       4          999.5     1466    442 883.9  $W wl Rm604
60403 15 rpp  -4       4          1504      1552    442 883.9  $W i wl Rm604
60404 15 rpp  4        27.5       1548.5    1552    442 883.9  $NW o  wl Rm604
60405 15 rpp  4        27.5       1544.5    1548.5  442 883.9  $NW i wl Rm604
60406 15 rpp  71.5     74.5       1442      1544.5  442 883.9  $NW Rm in Rm604
60407 15 rpp  4        33         1442      1445    442 883.9  $NW Rm in Rm604
60408 15 rpp  209.5    214.5      1099.5    1544.5  442 883.9  $E wl Rm604
60409 15 rpp  194.5    204.5      1534      1544.5  442 883.9  $NE column Rm604
60410 15 rpp  194.5    204.5      1285      1295    442 883.9  $E column Rm604
60411 15 rpp  194.5    204.5      1048      1058    442 883.9  $SE column Rm604
60412 15 rpp  209.5    214.5      1053.5    1063.5  442 883.9  $SE wl Rm604
60413 15 rpp  209.5    310.5      1048.5    1053.5  442 883.9  $SE wl Rm604
60414 15 rpp  305.5    311        1032.5    1048.5  442 883.9  $SE wl Rm604
60415 15 rpp  311      345.5      1032.5    1037.5  442 883.9  $SE wl Rm604
60416 15 rpp  340.5    361.5      1048.5    1057.5  442 883.9  $SE Block in wl next to ladder Rm604
c
c
c
c
c  ///////////////Begin Southernmost Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Surfaces****************************************
c  The origin was set as the outside corner of the Southwesternmost wall of the south west section
c  This is the Southwesternmost point of the entire section as well as that for Room 206
c
c
c  Floor1 Room 206
20601 16 rpp  0        7          0         363.5   442 518.2  $W o wl Rm206 l
20602 16 rpp  7        11.25      0         363.5   442 883.9  $W i wl Rm206
20603 16 rpp  11.25    14.5       0         363.5   442 883.9  $W i wl Rm206
20604 16 rpp  0        7          435.5     976     442 518.2  $W o wl Rm206 l
20605 16 rpp  7        11.25      435.5     976     442 883.9  $W i wl Rm206
20606 16 rpp  11.25    14.5       435.5     976     442 883.9  $W i wl Rm206
20607 16 rpp  14.5     32         900       905     442 883.9  $N hallway wl
20608 16 rpp  74       102        900       905     442 883.9  $N hallway wl
20609 16 rpp  102      107        772       905     442 883.9  $E hallway wl
20610 16 rpp  102      107        615.25    702.5   442 883.9  $E hallway wl
20611 16 rpp  98.5     404.5      610.25    615.25  442 883.9  $N wl Rm206
20612 16 rpp  404.5    414.5      608.5     616.5   442 883.9  $Column in N wl
20613 16 rpp  414.5    517        610.25    615.25  442 883.9  $N wl Rm206
20614 16 rpp  512      517        7.5       610.25  442 883.9  $E wl Rm206
20615 16 rpp  14.5     517        2.75      7.5     442 883.9  $S i wl Rm206
20616 16 rpp  14.5     517        0         2.75    442 518.2  $S o wl Rm206 l
```

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20617 16 rpp 14.5 24.5 8.5 16.5 442 883.9 $SW column
20618 16 rpp 405.5 413.5 7.5 17.5 442 883.9 $SE column
20619 16 rpp 14.5 24.5 308.5 316.5 442 883.9 $W column
20620 16 rpp 404.5 414.5 308.5 316.5 442 883.9 $E column
20621 16 rpp 15.5 23.5 607.5 617.5 442 883.9 $NW column
20622 16 rpp 0 7 0 363.5 518.2 883.9 $W o wl Rm206 u
20623 16 rpp 0 7 435.5 976 518.2 883.9 $W o wl Rm206 u
20624 16 rpp 14.5 517 0 2.75 518.2 883.9 $S o wl Rm206 u
c
c
c Floor1 Room 204/205
20401 16 rpp 107 182.5 775.25 780.25 442 883.9 $S wl Rm204
20402 16 rpp 221.75 226.75 775.25 900 442 883.9 $E wl Rm204
20403 16 rpp 107 512 900 905 442 883.9 $N wl Rm204-Rm205
20404 16 rpp 512 517 615.25 905 442 883.9 $E wl Rm205
20405 16 rpp 107 221.75 780.25 900 442 883.9 $Roomspace 204
20406 16 rpp 107 512 616.5 775.25 442 883.9 $Roomspace 205 Partially Filled
20407 16 rpp 226.75 512 775.25 900 442 883.9 $Roomspace 205
c
c
c Floor1 Room 101/102/102A
10101 16 rpp 97.5 100.5 912.5 1061 442 883.9 $W wl Rm101
10102 16 rpp 100.5 356 1058 1061 442 883.9 $N wl Rm101-102
10103 16 rpp 271 274 1049 1058 442 883.9 $Divider wl Rm101-102
10104 16 rpp 271 274 912.5 1013 442 883.9 $Divider wl Rm101-102
10105 16 rpp 391 532 1058 1061 442 883.9 $N wl Rm102-102A
10106 16 rpp 397 400 1004.5 1058 442 883.9 $Divider wl Rm102-102A
10107 16 rpp 397 400 912.5 956.5 442 883.9 $Divider wl Rm102-102A
10108 16 rpp 400 417.5 917.5 920.5 442 883.9 $SW wl block Rm102A
10109 16 rpp 414.5 417.5 912.5 917.5 442 883.9 $SW wl block Rm102A
10110 16 rpp 414.5 516.5 907.5 912.5 442 883.9 $S wl Rm102A
10111 16 rpp 97.5 400 907.5 912.5 442 883.9 $S wl Rm101-102
10112 16 rpp 74 97.5 905 918 442 883.9 $SE block Hallway
10113 16 rpp 17.5 32 905 923 442 883.9 $SW block hallway, added slight extra corner
10114 16 rpp 14.5 17.5 905 976 442 883.9 $W hallway wl
10115 16 rpp 100.5 271 912.5 1058 442 883.9 $Roomspace 101
10116 16 rpp 274 397 912.5 1058 442 883.9 $Roomspace 102
10117 16 rpp 400 523 912.5 1058 442 883.9 $Roomspace 102A Partially Filled
c
c
c ///////////////Begin Southernmost East Section of Floor1\\\\\\\\\\\\\\\\\\\\\\\\
c ******************Notes for this section of Surfaces****************************************
c The origin was placed directly on the border of this section and the section to the west -right on
c the center of the yellow line. Vertically it is hard to describe so bear with me. The origin is on
c the northern edge of the second wall N of the southernmost West to East running wall of this section.
c To clarify, hopefully, the origin is at the center of where the boundary wall intersects with the west
c to east running wall. The southern half of this section has several rooms labeled with words rather
c than numbers. I.E. Lunch Room, Men Change Room, etc.. Because they used words instead of numbers in
c the CAD blueprints the majority of the SW corner of this MCNP5 input deck will be designated with the
c room ID of 109. Concordingly the SE corner of this section will be designated with the room ID of 110.
c
c
c Floor1 Room 109
10901 17 rpp 0 2.5 0 900 442 883.9 $W o wl LR
10902 17 rpp 2.5 5.5 0 879.5 442 883.9 $W i wl LR
10903 17 rpp 5.5 619.5 297 300 442 883.9 $N wl LR
10904 17 rpp 554 558.5 284 297 442 883.9 $E wl LR
10905 17 rpp 554 558.5 3 212 442 883.9 $E wl LR
10906 17 rpp 495 500 63 211.5 442 883.9 $E wl LR
10907 17 rpp 535.5 635.5 0 3 442 518.2 $SE wl LR
10908 17 rpp 5.5 499.5 0 3 442 883.9 $SW wl LR
10909 17 rpp 0 499.5 -4.75 0 442 883.9 $S o wl LR
10910 17 rpp 0 499.5 -7.5 -4.75 442 883.9 $S o wl LR
10911 17 rpp 5.5 14.5 3 13 442 883.9 $SW column LR
10912 17 rpp 313.5 330 3 13 442 883.9 $S column LR
c First half of the Mens Change Room Below here - MCR
10913 17 rpp 5.5 15.5 300 313 442 883.9 $SW column MCR
10914 17 rpp 301.5 317.5 300 314.5 442 883.9 $S column MCR
10915 17 rpp 600.5 619.5 300 313 442 883.9 $SE column MCR
10916 17 rpp 202.5 205.5 300 524 442 883.9 $Central dividing wl MCR
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10917 17 rpp 202.5 205.5 560 606.5 442 883.9 $Central dividing wl MCR
10918 17 rpp 205.5 302 603.5 606.5 442 883.9 $N wl MCR
10919 17 rpp 302 318 597 613 442 883.9 $N column in wl MCR
10920 17 rpp 318 562 603.5 606.5 442 883.9 $N wl MCR-Rm109
10921 17 rpp 466.5 469.5 360.5 603.5 442 883.9 $E wl MCR
10922 17 rpp 469.5 616.5 360.5 363.5 442 883.9 $E wl MCR
c Room 109/109A Below here
10923 17 rpp 616.5 619.5 354 594 442 883.9 $E wl Rm109-109A
10924 17 rpp 469.5 509.5 498.5 501.5 442 883.9 $S wl Rm109
10925 17 rpp 545.5 616.5 498.5 501.5 442 883.9 $S wl Rm109
c Main lobby area - MLA
10926 17 rpp 603.5 616.5 3 13 442 883.9 $S column MLA
10927 17 rpp 703.5 731.5 0 4.5 442 518.2 $SE wl MLA
10928 17 rpp 722.5 731.5 4.5 13 442 883.9 $SE block in wl MLA
c Second half of Mens Change Room - MCR/Showers - SH/Pipe Chase - PC/Mens Bathroom - MB
10929 17 rpp 5.5 15.5 597 613 442 883.9 $W block in wl MCR
10930 17 rpp 5.5 295.5 871.5 874.5 442 883.9 $N wl MCR-PC-SH
10931 17 rpp 5.5 304.5 876.5 879.5 442 883.9 $N wl MCR-PC-SH
10932 17 rpp 111.5 114.5 762.5 871.5 442 883.9 $E wl MCR
10933 17 rpp 117.5 120.5 762.5 871.5 442 883.9 $E wl MCR
10934 17 rpp 111.5 158.5 759.5 762.5 442 883.9 $NE wl MCR- Hallway
10935 17 rpp 120.5 158.5 762.5 764.5 442 883.9 $SW i wl SH
10936 17 rpp 120.5 122.5 764.5 871.5 442 883.9 $W i wl SH
10937 17 rpp 122.5 292.5 869.5 871.5 442 883.9 $N i wl SH
10938 17 rpp 290.5 292.5 678.5 869.5 442 883.9 $E i wl SH
10939 17 rpp 204 290.5 678.5 680.5 442 883.9 $S i wl SH
10940 17 rpp 204 206 680.5 718.5 442 883.9 $SW i wl SH
10941 17 rpp 201 204 675.5 718.5 442 883.9 $SW o wl SH
10942 17 rpp 204 366 675.5 678.5 442 883.9 $S o wl SH-PC-MB
10943 17 rpp 292.5 295.5 678.5 871.5 442 883.9 $W wl PC
10944 17 rpp 316 319 678.5 908 442 883.9 $E wl PC
10945 17 rpp 320.5 360.5 678.5 680 442 883.9 $SW i wl MB
10946 17 rpp 319 320.5 678.5 905 442 883.9 $W i wl MB
10947 17 rpp 320.5 467.5 903.5 905 442 883.9 $N i wl MB
10948 17 rpp 466 467.5 729.5 903.5 442 883.9 $E i wl MB
10949 17 rpp 407.5 466 729.5 731 442 883.9 $SE wl MB
10950 17 rpp 407.5 409 678.5 729.5 442 883.9 $SE wl MB
10951 17 rpp 402 414 675.5 678.5 442 883.9 $S o wl MB
10952 17 rpp 409 412 678.5 729.5 442 883.9 $SE o wl MB
10953 17 rpp 412 467.5 726.5 729.5 442 883.9 $SE o wl MB
10954 17 rpp 467.5 470.5 678.5 908 442 883.9 $E o wl MB
10955 17 rpp 319 467.5 905 908 442 883.9 $N o wl MB
10956 17 rpp 444 624 675.5 678.5 442 883.9 $S wl MB-Rm108
10957 17 rpp 463 466 660.5 675.5 442 883.9 $S hallway wl MB
c
c Hallway above Room 109 and below Room 108
c Very small wall fragments were ignored on the block defined in this section
10958 17 rpp 463 466 606.5 624.5 442 883.9 $W Hallway wl
10959 17 rpp 540 543 606.5 623 442 883.9 $E hallway wl
10960 17 rpp 602.5 648 594 606.5 442 883.9 $Block in hallway above E wl of Rm109
10961 17 rpp 603.5 627 606.5 613 442 883.9 $Block in hallway above E wl of Rm109
10962 17 rpp 469.5 616.5 363.5 498.5 442 883.9 $Roomspace 109A
10963 17 rpp 469.5 616.5 501.5 603.5 442 883.9 $Roomspace 109 Partially Filled
c 10964 17 rpp 442 883.9 $Roomspace
c 10965 17 rpp 442 883.9 $Roomspace
10966 17 rpp 535.5 635.5 0 3 518.2 883.9 $SE wl LR u
10967 17 rpp 703.5 731.5 0 4.5 518.2 883.9 $SE wl MLA
c
c
c Floor1 Room 110/ Men B Room Women B Room/ Conf Room Women change room/ copy room
c Mens Room - MR/Pipe Chase -PC/Womens Room - WR
c small piece of wall ommitted in the south west corner of the Mens room
11001 17 rpp 726.5 734.5 13 120.5 442 883.9 $W wl MR
11002 17 rpp 734.5 741.5 117.5 120.5 442 883.9 $NW wl MR
11003 17 rpp 777.5 930.5 117.5 120.5 442 883.9 $N wl MR-WR
11004 17 rpp 785.5 844 112.5 117.5 442 883.9 $N wl MR
11005 17 rpp 841 844 3.5 112.5 442 883.9 $E wl MR
11006 17 rpp 731.5 1024 0 3.5 442 518.2 $S wl MR-PC-WR
11007 17 rpp 864.5 868 3.5 112.5 442 883.9 $W wl WR
11008 17 rpp 864.5 923.5 112.5 117.5 442 883.9 $NW wl WR

11009 17 rpp 974.5 982.5 3.5 120.5 442 883.9 $E wl WR
11010 17 rpp 966.5 974.5 117.5 120.5 442 883.9 $NE stub wl WR
11011 17 rpp 979.5 982.5 120.5 138 442 883.9 $NE stub wl WR
c Room 110/Conf Room - CR starts below here
11012 17 rpp 726.5 729.5 189.5 294 442 883.9 $W wl Rm110
11013 17 rpp 718.5 795 294 304 442 883.9 $N wl Rm110
11014 17 rpp 718.5 786 304 313 442 883.9 $N wl Rm110
11015 17 rpp 729.5 809.5 189.5 192.5 442 883.9 $SW wl Rm110
11016 17 rpp 845.5 979.5 189.5 192.5 442 883.9 $SE wl Rm110
11017 17 rpp 979.5 982.5 174 294 442 883.9 $E wl Rm110
11018 17 rpp 831.5 1335.5 294 297 442 883.9 $N wl Rm110-CR
11019 17 rpp 831.5 834 297 301 442 883.9 $N wl stub Rm110
11020 17 rpp 831.5 1023.5 301 304 442 883.9 $N wl Rm110 or S wl Rm 110c
11021 17 rpp 1020.5 1024 3.5 10 442 883.9 $S wl box CR
11022 17 rpp 1020.5 1036.5 10 13.5 442 883.9 $S wl box CR
11023 17 rpp 1033 1036.5 3.5 10 442 883.9 $S wl box CR
11024 17 rpp 1033 1325.5 0 3.5 442 883.9 $S wl CR
11025 17 rpp 1322 1325.5 3.5 10 442 883.9 $SEwl Cr
11026 17 rpp 1322 1332 10 13.5 442 883.9 $SE wl CR
11027 17 rpp 1332 1335.5 10 294 442 883.9 $E wl CR
c Room 110A - A/Room110C - C/Room 110B - B/Copy Room - copy/
11028 17 rpp 727 731 313 392 442 883.9 $W wl A
11029 17 rpp 727 731 428 434 442 883.9 $NW wl stub A
11030 17 rpp 727 1020.5 434 438 442 883.9 $N wl A-C
11031 17 rpp 856.5 860.5 346 434 442 883.9 $Dividing wl A-C
11032 17 rpp 856.5 860.5 304 310 442 883.9 $ " wl A-c stub
11033 17 rpp 1020.5 1023.5 304 338 442 883.9 $SE wl C
11034 17 rpp 1025.5 1028.5 312 338 442 883.9 $SE wl C
11035 17 rpp 1028.5 1038.5 312 315 442 883.9 $SE wl C
11036 17 rpp 1035.5 1038.5 302 312 442 883.9 $SE wl C
11037 17 rpp 1038.5 1325 302 305 442 883.9 $S wl C - WCR
11038 17 rpp 1060 1063 305 385 442 883.9 $E closet wl C
11039 17 rpp 1028.5 1060 382 385 442 883.9 $N closet wl C
11040 17 rpp 1025.5 1028.5 368 548 442 883.9 $E wl C-B
11041 17 rpp 1020.5 1023.5 368 554 442 883.9 $E wl C-B
11042 17 rpp 898.5 1020.5 542 545 442 883.9 $N wl B
11043 17 rpp 851.25 862.5 542 545 442 883.9 $NW wl stub B
11044 17 rpp 851.25 855.25 438 542 442 883.9 $W wl copy
11045 17 rpp 759 762 438 546 442 883.9 $W wl copy
c Women change room below here - WCR
11046 17 rpp 1322 1325 305 312 442 883.9 $SE corner wl WCR
11047 17 rpp 1322 1335.5 312 315 442 883.9 $SE corner wl WCR
11048 17 rpp 1332 1335.5 315 600 442 883.9 $E wl WCR
11049 17 rpp 1158.5 1332 561.5 564.5 442 883.9 $N wl WCR
11050 17 rpp 1080.5 1083.5 521.5 606.5 442 883.9 $W wl WCR
c Wall above copy room and 110B but below Room 111 and the North Eastern Womens restroom below here
11051 17 rpp 1036.5 1080.5 603.5 606.5 442 883.9 $E section hallway wl
11052 17 rpp 1020.5 1036.5 597 613 442 883.9 $Block in hallway wl
11053 17 rpp 1020.5 1023.5 590 597 442 883.9 $stub out of block in hallway wl
11054 17 rpp 734.5 1020.5 603.5 606.5 442 883.9 $central section of hallway wl
11055 17 rpp 711 734.5 594 613 442 883.9 $Block on western edge hallway wl
11056 17 rpp 690 711 594 606.5 442 883.9 $Block on western edge hallway wl
11057 17 rpp 711 714 613 623 442 883.9 $Block stub hallway wl
c Womens lounge - WL
11058 17 rpp 1175.5 1178.5 564.5 568.5 442 883.9 $Sw wl stub WL
11059 17 rpp 1175.5 1178.5 603.5 712 442 883.9 $W wl WL
11060 17 rpp 1178.5 1332 709 712 442 883.9 $N wl WL
11061 17 rpp 1330.5 1332 613.5 709 442 883.9 $E i wl WL
11062 17 rpp 1332 1335.5 610 898 442 883.9 $E o wl WL
11063 17 rpp 1322 1332 610 613.5 442 883.9 $E box in wl WL
11064 17 rpp 1320.5 1330.5 613.5 615 442 883.9 $E box in wl WL
11065 17 rpp 1322 1325.5 595 610 442 883.9 $E box in wl WL
11066 17 rpp 1320.5 1322 593.5 613.5 442 883.9 $E box in wl WL
11067 17 rpp 1325.5 1332 595 600 442 883.9 $E box in wl WL
11068 17 rpp 1322 1332 593.5 595 442 883.9 $E box in wl WL
11069 17 rpp 1330.5 1332 564.5 593.5 442 883.9 $SE wl WL
11070 17 rpp 729.5 979.5 192.5 294 442 883.9 $Roomspace 110
11071 17 rpp 731.25 856.5 313 434 442 883.9 $Roomspace 110A Partially Filled
11072 17 rpp 860.5 1020.5 304 434 442 883.9 $Roomspace 110C
11073 17 rpp 764.25 851.25 438 542 442 883.9 $Roomspace Copy Room

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11074 17 rpp  855.25   1020.5    438      542     442 883.9  $Roomspace   110B
11075 17 rpp  731.5    1024      0        3.5     518.2 883.9  $S wl MR-PC-WR u
11076 17 rpp  725.5    1335.5    -3.25    0       442   883.9  $S wl MR-PC-WR
11077 17 rpp  778      1338.75   -7.5     -3.25   442   518.2  $S o wl MR-PC-WR l
11078 17 rpp  778      1338.75   -7.5     -3.25   518.2 883.9  $S o wl MR-PC-WR l
c
c
c  Floor1 Room 111/Room 111A/NW Women Rest Room - NWW/Women change and shower room - WSR
11101 17 rpp  711      714       659      702.25  442 883.9  $SW o wl Rm111
11102 17 rpp  714      871       675.5    678.5   442 883.9  $S wl Rm111
11103 17 rpp  795      798       659      675.5   442 883.9  $S hallway wl Rm111
11104 17 rpp  795      798       606.5    623     442 883.9  $S hallway wl Rm111
11105 17 rpp  720      723       678.5    750.75  442 883.9  $W wl Rm111
11106 17 rpp  714      720       747.75   750.75  442 883.9  $W wl Rm111
11107 17 rpp  711      714       744.75   750.75  442 883.9  $W wl Rm111
11108 17 rpp  711      714       782.75   855.75  442 883.9  $W wl Rm111a
11109 17 rpp  714      723       782.25   786.5   442 883.9  $S wl Rm111a
11110 17 rpp  723      840       783.5    786.5   442 883.9  $S wl Rm111a
11111 17 rpp  840      843       764.5    910     442 883.9  $E wl Rm111a
11112 17 rpp  843      855       764.5    767.5   442 883.9  $SE wlRm111a
11113 17 rpp  855      858       678.5    908     442 883.9  $E wl Rm111
11114 17 rpp  711      714       890.75   897     442 883.9  $W wl stub Rm111a
11115 17 rpp  711      734.5     897      914.5   442 883.9  $NW block Rm111a
11116 17 rpp  734.5    835       910      914.5   442 883.9  $N wl Rm111a
11117 17 rpp  835      1335.5    910      913     442 883.9  $N wl Rm111a-S wl of Rm112A-Rm115
11118 17 rpp  907      924       675.5    678.5   442 883.9  $S stub wl NWW
11119 17 rpp  920      923       678.5    714.5   442 883.9  $SE wl NWW
11120 17 rpp  923      992       711.5    714.5   442 883.9  $SE wl NWW
11121 17 rpp  992      995       678.5    905     442 883.9  $E wl NWW
11122 17 rpp  960      1008      675.5    678.5   442 883.9  $S wl NWW
11123 17 rpp  1005     1008      678.5    898     442 883.9  $W wl WSR
11124 17 rpp  1008     1037      895      898     442 883.9  $NW wl WSR
11125 17 rpp  1034     1037      898      905     442 883.9  $NW wl WSR
11126 17 rpp  858      1323.5    905      908     442 883.9  $N wl NWW-WSR
11127 17 rpp  1323.5   1325.5    898      908     442 883.9  $NE wl WSR
11128 17 rpp  1323.5   1332      895      898     442 883.9  $NE wl WSR
11129 17 rpp  1335.5   1338.75   -3.25    900.45  442 883.9  $E i wl Exterior to the whole section
11130 17 rpp  1338.75  1343      -7.51    897.25  442 518.2  $E o wl Exterior to the whole section
11131 17 rpp  723      840       678.5    783.5   442 883.9  $Roomspace   111 Partially Filled
11132 17 rpp  714      840       786.5    910     442 883.9  $Roomspace   111A Partially Filled
11133 17 rpp  1338.75  1343      -7.51    897.25  518.2 883.9  $E o wl Exterior to the whole section
c
c
c Floor1 Room 107/108
10701 17 rpp  540      543       659      675.5   442 883.9  $S hallway wall Rm 108
10702 17 rpp  624      627       674      759     442 883.9  $E wl Rm108
10703 17 rpp  624      627       794      806.5   442 883.9  $NE wl Rm108
10704 17 rpp  483      624       799      802     442 883.9  $N wl Rm108
10705 17 rpp  480      483       678.5    1050.5  442 883.9  $W wl Rm108-Rm107-Rm106
10706 17 rpp  624      627       842      933.5   442 883.9  $E wl Rm107
10707 17 rpp  483      624       924.5    927.5   442 883.9  $N wl Rm107
10708 17 rpp  483      624       678.5    799     442 883.9  $Roomspace   108
10709 17 rpp  483      624       802      924.5   442 883.9  $Roomspace   107
c
c
c  Floor1 Room 103/104/104A/105/106
10301 17 rpp  12.5     15.5      879.5    913     442 883.9  $SW box wl Rm103
10302 17 rpp  6        9         913      1050.5  442 883.9  $W wl Rm103
10303 17 rpp  50       148.5     1050.5   1053.5  442 883.9  $N wl Rm103
10304 17 rpp  140      143       879.5    1050.5  442 883.9  $E wl Rm103
10305 17 rpp  309      439       1050.5   1053.5  442 883.9  $N wl Rm104
10306 17 rpp  183      274.5     1050.5   1053.5  442 883.9  $N wl Rm104
10307 17 rpp  261      264       879.5    1050.5  442 883.9  $W wl Rm104A
10308 17 rpp  304.5    480       910      913     442 883.9  $S wl Rm104A-Rm105
10309 17 rpp  354      357       913      1050.5  442 883.9  $E wl Rm104A
10310 17 rpp  301.5    304.5     879.5    913     442 883.9  $SE wl Rm104A
10311 17 rpp  475      627       1050.5   1053.5  442 883.9  $N wl Rm106
10312 17 rpp  624      627       968      1050.5  442 883.9  $E wl Rm106
10313 17 rpp  15.5     140       879.5    1050.5  442 883.9  $Roomspace   103
10314 17 rpp  143      261       879.5    1050.5  442 883.9  $Roomspace   104
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10315 17 rpp  264      354        913       1050.5  442 883.9  $Roomspace   104A Partially Filled
10316 17 rpp  357      480        913       1050.5  442 883.9  $Roomspace   105
10317 17 rpp  483      624        927.5     1050.5  442 883.9  $Roomspace   106
c
c
c  Floor1 Room 112/112A/113/114/115
11201 17 rpp  711      715.5      914.5     1050.75 442 883.9  $W wl Rm112
11202 17 rpp  711      792.5      1050.75   1053.75 442 883.9  $N wl Rm112
11203 17 rpp  832      835        914.5     1050.75 442 883.9  $E wl Rm112
11204 17 rpp  828      918        1050.75   1053.75 442 883.9  $N wl Rm112A
11205 17 rpp  957      960        913       1050.75 442 883.9  $E wl Rm112A
11206 17 rpp  952.5    966        1050.75   1053.75 442 883.9  $NE small wl Rm112A
11207 17 rpp  1001     1169       1050.75   1053.75 442 883.9  $N wl Rm113-Rm114
11208 17 rpp  1083.5   1086.5     913       1050.75 442 883.9  $E wl Rm113
11209 17 rpp  1210     1213       913       1050.75 442 883.9  $E wl Rm114
11210 17 rpp  1204     1217       1050.75   1053.75 442 883.9  $NE wl Rm114
11211 17 rpp  1252     1422       1050.75   1053.75 442 883.9  $N wl Rm115
11212 17 rpp  1335.75  1338.75    913       1050.75 442 883.9  $E wl Rm115
11213 17 rpp  715.5    832        914.5     1050.75 442 883.9  $Roomspace   112
11214 17 rpp  835      957        913       1050.75 442 883.9  $Roomspace   112A
11215 17 rpp  960      1083.5     913       1050.75 442 883.9  $Roomspace   113
11216 17 rpp  1086.5   1210       913       1050.75 442 883.9  $Roomspace   114
11217 17 rpp  1213     1335.75    913       1050.75 442 883.9  $Roomspace   115
c
c
c  Floor1 Room 116/117/118/119
11601 17 rpp  1335.5   1372.75    900.5     913     442 883.9  $SW Block Rm116
11602 17 rpp  1372.75  1827.5     900.5     903.5   442 883.9  $S wl Rm116-Rm119
11603 17 rpp  1463     1466       903.5     1050.75 442 883.9  $E wl Rm116
11604 17 rpp  1459     1470       1050.75   1053.75 442 883.9  $NE wl Rm116
11605 17 rpp  1505     1674       1050.75   1053.75 442 883.9  $N wl Rm117-118
11606 17 rpp  1589     1592       903.5     1050.75 442 883.9  $E wl Rm117
11607 17 rpp  1709     1722       1050.75   1053.75 442 883.9  $NE wl Rm118
11608 17 rpp  1714     1717       903.5     1050.75 442 883.9  $E wl Rm118
11609 17 rpp  1757     1827.5     1050.75   1053.75 442 883.9  $N wl Rm119
11610 17 rpp  1338.75  1827.5     897.25    900.5   442 518.2  $S o wl Rm116-119
11611 17 rpp  1338.75  1463       903.5     1050.75 442 883.9  $Roomspace   116 Partially Filled
11612 17 rpp  1466     1589       903.5     1050.75 442 883.9  $Roomspace   117
11613 17 rpp  1592     1714       903.5     1050.75 442 883.9  $Roomspace   118
11614 17 rpp  1717     1827.5     903.5     1050.75 442 883.9  $Roomspace   119
11615 17 rpp  1338.75  1827.5     897.25    900.5   518.2 883.9  $S o wl Rm116-119
c
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c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
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c
c
c
c    TAG=TAGfloor2surfaces
c
c
c  ***************************Surface Notes**********************************
c  Start of boxes used to group the surfaces.
c
c
c  All of the following surfaces are used to group
c  the cells together. This had to be done to avoid overloading the data type associated with
c  cell cards. These boxes are purely for the codes sake and in no way affects the actual geometry
c  of the model
c
c
```

```
c      Void box surrounding Second Floor
992 rpp -1000  4000 -3000  4000 883.9  1498.6 $Void
c
c
c  NW Section of Floor2
203 24 rpp  -7.25    260       -5       190      883.9  1468.1  $Cell box SW corner
204 24 rpp  -7.25    180       190      960      883.9  1468.1  $Cell box W
205 24 rpp  180      515       270      1020     883.9  1468.1  $Cell box NW corner
201 24 rpp  -10.25   1519      -85.5    1100     883.9  1468.1  $NW Section Box
206 24 rpp  180      515       190      270      883.9  1468.1  $Cell box S1
207 24 rpp  515      840       -85.5    600      883.9  1468.1  $Cell box S2
208 24 rpp  515      959.5     600      1079.75  883.9  1468.1  $Cell box N
209 24 rpp  840      1160      -85.5    600      883.9  1468.1  $Cell box SE
210 24 rpp  1160     1519      -85.5    600      883.9  1468.1  $Cell box SE2
211 24 rpp  959.5    1519      600      1079.75  883.9  1468.1  $Cell box NE
c
c
c  NE Section of Floor2
212 21 rpp  0        820.25    0        1168.25  883.9  1468.1  $Cell box NE Section
c
c
c  S Section of Floor2
213 22 rpp  -3       2343.5    -15      210.25   883.9  1468.1  $Cell box S Section
c
c
c  E Section of Floor2
214 23 rpp  -7       574       -4       1548.5   883.9  1071.9  $Cell box W Section
215 23 rpp  574      1080      255      750      883.9  1071.9  $Cell box E Section
218 23 rpp  -7       590.5     -4       1548.5   1071.9 1257.3  $Cell box 3rd Floor W Section
c
c
c
c
c  ///////////////Begin Northwest Section of the Central Section of Floor2\\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Surfaces****************************************
c  The origin was set as the SW corner of the inside wall of Room 910
c
c      Floor2 Room 910/911/hallway above these rooms
91002 24 rpp  -7.25    0         0        168      883.9  1468.1  $W wl Rm910
91003 24 rpp  -7.25    241       -5       0        883.9  1468.1  $S wl Rm910
91004 24 rpp  0        81.5      149      154      883.9  1468.1  $N wl Rm910
91005 24 rpp  117.5    133       149      154      883.9  1468.1  $NE wl Rm910
91006 24 rpp  122.75   127.75    0        149      883.9  1468.1  $E wl Rm910
91007 24 rpp  169      241       149      154      883.9  1468.1  $N wl
91008 24 rpp  211      216       154      163      883.9  1468.1  $Spur wl hallway
91009 24 rpp  211      216       237      243.5    883.9  1468.1  $N Spur wl hallway
91010 24 rpp  211      410       243.5    248.5    883.9  1468.1  $N boundary wl in hallway
91011 24 rpp  -7.25    0         204      218      883.9  1468.1  $NW block in hallway
91012 24 rpp  -10.25   -7.25     204      1082.75  883.9  1468.1  $W wl hallway-Rm912-914-916-Mech
91013 24 rpp  0        122.75    0        149      883.9  1468.1  $Roomspace  910
91014 24 rpp  127.75   241       0        149      883.9  1468.1  $Roomspace  911
c
c
c     Floor2 Room 912/914/916
91201 24 rpp  -7.25    151       218      223      883.9  1468.1  $S wl Rm912
91202 24 rpp  146      151       223      302      883.9  1468.1  $E wl Rm912
91203 24 rpp  146      151       338      354      883.9  1468.1  $NE wl Rm912
91204 24 rpp  -7.25    146       344      349      883.9  1468.1  $N wl Rm912
91205 24 rpp  146      151       390      541      883.9  1468.1  $E wl Rm 914
91206 24 rpp  -7.25    146       469      474      883.9  1468.1  $N wl Rm 914
91207 24 rpp  146      151       613      916      883.9  1468.1  $E wl Rm916-Mech
91208 24 rpp  -7.25    146       822      827      883.9  1468.1  $N wl Rm916
91209 24 rpp  -7.25    146       223      344      883.9  1468.1  $Roomspace  912
91210 24 rpp  -7.25    146       349      469      883.9  1468.1  $Roomspace  914
91211 24 rpp  -7.25    146       474      822      883.9  1468.1  $Roomspace  916
c
c
c     Floor2 Room 913/915/928/929
91301 24 rpp  211      216       299.5    539.5    883.9  1468.1  $W wl Rm913-915
91302 24 rpp  216      221.5     299.5    304.5    883.9  1468.1  $SW stub wl Rm913
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91303 24 rpp  257.5    476        299.5     304.5   883.9  1468.1  $S wl Rm913 928
91304 24 rpp  216      329        393.5     398.5   883.9  1468.1  $N wl Rm913
91305 24 rpp  329      334        304.5     534.5   883.9  1468.1  $E wl Rm913-915
91306 24 rpp  291      296        358.5     393.5   883.9  1468.1  $NE compartment Rm913
91307 24 rpp  296      329        358.5     363.5   883.9  1468.1  $NE compartment Rm913
91308 24 rpp  216      274        534.5     539.5   883.9  1468.1  $NW wl Rm915
91309 24 rpp  310      476        534.5     539.5   883.9  1468.1  $NE wl Rm915-Rm929
91310 24 rpp  391      405        539.5     542.5   883.9  1468.1  $Block in N wl Rm929
91311 24 rpp  334      471        417       422     883.9  1468.1  $N wl Rm928
91312 24 rpp  471      476        304.5     346     883.9  1468.1  $SE wl Rm928
91313 24 rpp  471      476        382       493.5   883.9  1468.1  $NE wl Rm928
91314 24 rpp  471      476        529.5     534.5   883.9  1468.1  $NE wl Rm929
91315 24 rpp  216      291        304.5     393.5   883.9  1468.1  $Roomspace   913
91316 24 rpp  216      329        398.5     534.5   883.9  1468.1  $Roomspace   915
91317 24 rpp  334      471        304.5     417     883.9  1468.1  $Roomspace   928
91318 24 rpp  334      471        422       534.5   883.9  1468.1  $Roomspace   929
c
c
c     Floor2 Room 918/919/917/921/905/923/mech room
91801 24 rpp  211      216        613.5     697.5   883.9  1468.1  $W wl Rm918
91802 24 rpp  211      216        733.5     749     883.9  1468.1  $W wl Rm918
91803 24 rpp  211      216        785       871.5   883.9  1468.1  $W wl Rm917
91804 24 rpp  211      216        907.5     993     883.9  1468.1  $W wl Rm905
91805 24 rpp  151      168.5      911       916     883.9  1468.1  $NW hallway wl
91806 24 rpp  204.5    211        911       916     883.9  1468.1  $NW hallway wl
91807 24 rpp  500      505        613.5     698     883.9  1468.1  $E wl Rm919
91808 24 rpp  500      505        734       749     883.9  1468.1  $E wl Rm 919
91809 24 rpp  500      505        785       874     883.9  1468.1  $E wl Rm 921
91810 24 rpp  500      505        910       993     883.9  1468.1  $E wl Rm 923
91811 24 rpp  216      500        739       744     883.9  1468.1  $N wl Rm919
91812 24 rpp  216      500        864       869     883.9  1468.1  $N wl Rm921
91813 24 rpp  216      500        988       993     883.9  1468.1  $N wl Rm923
91814 24 rpp  355.5    360.5      618.5     739     883.9  1468.1  $E wl Rm918
91815 24 rpp  355.5    360.5      744       864     883.9  1468.1  $E wl Rm917
91816 24 rpp  355.5    360.5      869       988     883.9  1468.1  $E wl Rm905
91817 24 rpp  381      395        817.75    827.25  883.9  1468.1  $Block Rm921
91818 24 rpp  216      500        613.5     618.5   883.9  1468.1  $S wl Rm918
91819 24 rpp  -7.25    552        1079.75   1082.75 883.9  1468.1  $N wl mech rm
91820 24 rpp  549      552        1072.75   1079.75 883.9  1468.1  $N wl mech rm
91821 24 rpp  216      355.5      618.5     739     883.9  1468.1  $Roomspace   918
91822 24 rpp  216      355.5      744       864     883.9  1468.1  $Roomspace   917
91823 24 rpp  216      355.5      869       988     883.9  1468.1  $Roomspace   905
91824 24 rpp  360.5    500        618.5     739     883.9  1468.1  $Roomspace   919
91825 24 rpp  360.5    500        744       864     883.9  1468.1  $Roomspace   921
91826 24 rpp  360.5    500        869       988     883.9  1468.1  $Roomspace   923
c
c
c     Floor2 Room 927(Conference Room)/933/935/926/937/925/939 section contains some hallway remnants
92701 24 rpp  469      474        -10.5     248.5   883.9  1468.1  $W wl Rm927
92702 24 rpp  474      481        243.5     248.5   883.9  1468.1  $NW wl stub Rm927
92703 24 rpp  474      808        -10.5     -5.5    883.9  1468.1  $S wl Rm927
92704 24 rpp  666      671        -5.5      534.5   883.9  1468.1  $E wl Rm927
92705 24 rpp  517      666        243.5     248.5   883.9  1468.1  $NE wl Rm927
92706 24 rpp  796.75   808        -5.5      7       883.9  1468.1  $SE block Rm933
92707 24 rpp  808      813        -85.5     82.5    883.9  1468.1  $SE wl Rm933
92708 24 rpp  808      813        118.5     134.5   883.9  1468.1  $NE wl Rm933
92709 24 rpp  671      808        124       129     883.9  1468.1  $N wl Rm933
92710 24 rpp  808      813        170.5     346.5   883.9  1468.1  $E wl Rm935
92711 24 rpp  795      808        235.25    256     883.9  1468.1  $NE block Rm935
92712 24 rpp  671      808        256       261     883.9  1468.1  $N wl Rm935
92713 24 rpp  808      813        382.5     479.5   883.9  1468.1  $NE wl Rm937
92714 24 rpp  671      808        388       393     883.9  1468.1  $N wl Rm937
92715 24 rpp  524      529        381       492     883.9  1468.1  $W wl Rm926
92716 24 rpp  529      666        389       394     883.9  1468.1  $N wl Rm926
92717 24 rpp  524      529        528       539.5   883.9  1468.1  $W wl Rm925
92718 24 rpp  529      718        534.5     539.5   883.9  1468.1  $N wl Rm925
92719 24 rpp  704.5    709.5      520.5     534.5   883.9  1468.1  $NE wl jog Rm939
92720 24 rpp  709.5    813        520.5     525.5   883.9  1468.1  $NE wl jog Rm939
92721 24 rpp  808      813        515.5     520.5   883.9  1468.1  $NE wl jog Rm939
92722 24 rpp  794.5    813        525.5     539.5   883.9  1468.1  $NE wl jog Rm939
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92723 24 rpp  792.5    794.5      534.5     539.5   883.9  1468.1  $NE wl jog Rm939
92724 24 rpp  405      410        202.5     243.5   883.9  1468.1  $Hallway wl W of Rm927
92725 24 rpp  410      428        202.5     207.5   883.9  1468.1  $Hallway wl W of Rm927
92726 24 rpp  464      469        202.5     207.5   883.9  1468.1  $Hallway wl W of Rm927
92727 24 rpp  381      395        248.5     251.5   883.9  1468.1  $Hallway wl W of Rm927
92728 24 rpp  474      666        -5.5      243.5   883.9  1468.1  $Roomspace   927
92729 24 rpp  529      666        248.5     389     883.9  1468.1  $Roomspace   926
92730 24 rpp  529      666        394       534.5   883.9  1468.1  $Roomspace   925
92731 24 rpp  671      808        -5.5      124     883.9  1468.1  $Roomspace   933 Room Partial Fill
92732 24 rpp  671      808        129       256     883.9  1468.1  $Roomspace   935 Room Partial Fill
92733 24 rpp  671      808        261       388     883.9  1468.1  $Roomspace   937
92734 24 rpp  671      808        393       520.5   883.9  1468.1  $Roomspace   939 Room Partial Fill
c
c
c     Floor2 Room 920/927/924/968/965/967/964
92001 24 rpp  552.5    557.5      613.5     698     883.9  1468.1  $W wl Rm920
92002 24 rpp  552.5    557.5      734       749     883.9  1468.1  $W wl Rm920
92003 24 rpp  552.5    557.5      785       874     883.9  1468.1  $W wl Rm927
92004 24 rpp  552.5    557.5      910       988     883.9  1468.1  $W wl Rm924
92005 24 rpp  557.5    706        613.5     618.5   883.9  1468.1  $S wl Rm920
92006 24 rpp  695.5    700.5      618.5     863     883.9  1468.1  $E wl Rm920
92007 24 rpp  557.5    695.5      739       744     883.9  1468.1  $N wl Rm920
92008 24 rpp  557.5    706        863       868     883.9  1468.1  $N wl Rm927
92009 24 rpp  650      655        868       1079.75 883.9  1468.1  $E wl Rm924
92010 24 rpp  546.75   650        988       993     883.9  1468.1  $N wl Rm924
92011 24 rpp  742      912        613.5     618.5   883.9  1468.1  $S wl Rm965
92012 24 rpp  907      912        618.5     697     883.9  1468.1  $E wl Rm965
92013 24 rpp  813      907        738.5     743.5   883.9  1468.1  $N wl Rm965
92014 24 rpp  907      912        733       749     883.9  1468.1  $NE wl Rm965
92015 24 rpp  907      912        785       865     883.9  1468.1  $E wl Rm967
92016 24 rpp  813      914        865       870     883.9  1468.1  $N wl Rm967
92017 24 rpp  700.5    808        791       796     883.9  1468.1  $N wl Rm968
92018 24 rpp  748      753        796       863     883.9  1468.1  $Rm N of Rm968
92019 24 rpp  742      765        863       868     883.9  1468.1  $S wl Rm964
92020 24 rpp  760      765        868       907     883.9  1468.1  $S wl Rm964
92021 24 rpp  765      808        902       907     883.9  1468.1  $S wl Rm964
92022 24 rpp  655      954.5      1050      1055    883.9  1468.1  $N wl Rm964
92023 24 rpp  646      1676       1079.75   1082.75 883.9  1468.1  $N o wl Rm964-Edge of section
92024 24 rpp  954.5    959.5      870       1079.75 883.9  1468.1  $E wl Rm964
92025 24 rpp  646      649        1072.75   1079.75 883.9  1468.1  $NE o wl fragment Rm964
92026 24 rpp  808      813        618.5     907     883.9  1468.1  $E wl Rm968
92027 24 rpp  557.5    695.5      618.5     739     883.9  1468.1  $Roomspace   920
92028 24 rpp  557.5    695.5      744       863     883.9  1468.1  $Roomspace   927
92029 24 rpp  557.5    650        868       988     883.9  1468.1  $Roomspace   924
92030 24 rpp  700.5    808        618.5     791     883.9  1468.1  $Roomspace   968
92031 24 rpp  813      907        618.5     738.5   883.9  1468.1  $Roomspace   965
92032 24 rpp  813      907        743.5     865     883.9  1468.1  $Roomspace   967
92033 24 rpp  655      954.5      907       1050    883.9  1468.1  $Roomspace   964-Conf. Room Partial Fill
c
c
c     Floor2 Room 930/932/934/936/938/941/943/945/947/949
93001 24 rpp  813      819        -85.5     -80.5   883.9  1468.1  $SW hallway wl stub W of Rm930
93002 24 rpp  854.5    1145.5     -85.5     -80.5   883.9  1468.1  $S wl Rm930
93003 24 rpp  861      866        -80.5     -5.5    883.9  1468.1  $W wl Rm930
93004 24 rpp  861      866        30.5      119.5   883.9  1468.1  $W wl Rm930
93005 24 rpp  861      866        155.5     171.5   883.9  1468.1  $W wl Rm932
93006 24 rpp  861      866        207.5     368.5   883.9  1468.1  $W wl Rm934
93007 24 rpp  861      866        404.5     420.5   883.9  1468.1  $W wl Rm936
93008 24 rpp  861      866        456.5     539.5   883.9  1468.1  $W wl Rm938
93009 24 rpp  866      1116.5     37.75     42.75   883.9  1468.1  $N wl Rm930-941
93010 24 rpp  866      1116.5     161       166     883.9  1468.1  $N wl Rm932-943
93011 24 rpp  866      1116.5     285.5     290.5   883.9  1468.1  $N wl Rm934-945
93012 24 rpp  866      1116.5     410       415     883.9  1468.1  $N wl Rm936-947
93013 24 rpp  866      1116.5     534.5     539.5   883.9  1468.1  $N wl Rm938-949
93014 24 rpp  988.75   993.75     -80.5     37.75   883.9  1468.1  $E wl Rm930
93015 24 rpp  988.75   993.75     42.75     161     883.9  1468.1  $E wl Rm932
93016 24 rpp  988.75   993.75     166       285.5   883.9  1468.1  $E wl Rm934
93017 24 rpp  988.75   993.75     290.5     410     883.9  1468.1  $E wl Rm936
93018 24 rpp  988.75   993.75     415       534.5   883.9  1468.1  $E wl Rm938
93019 24 rpp  1116.5   1121.5     -80.5     -49.5   883.9  1468.1  $E wl Rm941
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93020 24 rpp  1116.5   1121.5    -13.5     119.5   883.9  1468.1  $E wl Rm941-943
93021 24 rpp  1116.5   1121.5    155.5     171.5   883.9  1468.1  $E wl Rm943
93022 24 rpp  1116.5   1121.5    207.5     368.5   883.9  1468.1  $E wl Rm945
93023 24 rpp  1116.5   1121.5    404.5     420.5   883.9  1468.1  $E wl Rm947
93024 24 rpp  1116.5   1121.5    456.5     539.5   883.9  1468.1  $E wl Rm949
93025 24 rpp  1099.5   1116.5    -9.25     37.75   883.9  1468.1  $NE block Rm949
93026 24 rpp  1099.5   1116.5    239.5     285.5   883.9  1468.1  $NE block Rm945
93027 24 rpp  1097.5   1116.5    521.5     534.5   883.9  1468.1  $NE block Rm941
93028 24 rpp  866      988.75    -80.5     37.75   883.9  1468.1  $Roomspace   930
93029 24 rpp  866      988.75    42.75     161     883.9  1468.1  $Roomspace   932
93030 24 rpp  866      988.75    166       285.5   883.9  1468.1  $Roomspace   934
93031 24 rpp  866      988.75    290.5     410     883.9  1468.1  $Roomspace   936
93032 24 rpp  866      988.75    415       534.5   883.9  1468.1  $Roomspace   938
93033 24 rpp  993.75   1116.5    -80.5     37.75   883.9  1468.1  $Roomspace   941
93034 24 rpp  993.75   1116.5    42.75     161     883.9  1468.1  $Roomspace   943
93035 24 rpp  993.75   1116.5    166       285.5   883.9  1468.1  $Roomspace   945
93036 24 rpp  993.75   1116.5    290.5     410     883.9  1468.1  $Roomspace   947
93037 24 rpp  993.75   1116.5    415       534.5   883.9  1468.1  $Roomspace   949
c
c
c     Floor2 Room 940/942/944/946/948/954/955/956/957/958
94001 24 rpp  1181.5   1341.5    -85.5     -80.5   883.9  1468.1  $S wl Rm940
94002 24 rpp  1377.5   1510      -85.5     -80.5   883.9  1468.1  $S wl Rm954
94003 24 rpp  1205.5   1210.5    -80.5     -49.5   883.9  1468.1  $W wl Rm940
94004 24 rpp  1205.5   1210.5    -13.5     119.5   883.9  1468.1  $W wl Rm942
94005 24 rpp  1205.5   1210.5    155.5     171.5   883.9  1468.1  $W wl Rm942
94006 24 rpp  1205.5   1210.5    207.5     368.5   883.9  1468.1  $W wl Rm944
94007 24 rpp  1205.5   1210.5    404.5     420.5   883.9  1468.1  $W wl Rm946
94008 24 rpp  1205.5   1210.5    456.5     539.5   883.9  1468.1  $W wl Rm948
94009 24 rpp  1331.5   1336.5    -80.5     539.5   883.9  1468.1  $E wl Rm954-958
94010 24 rpp  1210.5   1331.5    37.75     42.75   883.9  1468.1  $N wl Rm940
94011 24 rpp  1210.5   1331.5    161       166     883.9  1468.1  $N wl Rm942
94012 24 rpp  1210.5   1331.5    285.5     290.5   883.9  1468.1  $N wl Rm944
94013 24 rpp  1210.5   1331.5    410       415     883.9  1468.1  $N wl Rm946
94014 24 rpp  1210.5   1331.5    534.5     539.5   883.9  1468.1  $N wl Rm948
94015 24 rpp  1210.5   1229      -9.25     37.75   883.9  1468.1  $NW block Rm940
94016 24 rpp  1210.5   1229      239.5     285.5   883.9  1468.1  $NW block Rm944
94017 24 rpp  1210.5   1229.5    521.5     534.5   883.9  1468.1  $NW block Rm948
94018 24 rpp  1384.5   1389.5    -80.5     -5      883.9  1468.1  $W wl Rm954
94019 24 rpp  1384.5   1389.5    31        119.5   883.9  1468.1  $W wl Rm955
94020 24 rpp  1384.5   1389.5    155.5     171.5   883.9  1468.1  $W wl Rm956
94021 24 rpp  1384.5   1389.5    207.5     368.5   883.9  1468.1  $W wl Rm957
94022 24 rpp  1384.5   1389.5    404.5     420.5   883.9  1468.1  $W wl Rm957
94023 24 rpp  1384.5   1389.5    456.5     539.5   883.9  1468.1  $W wl Rm958
94024 24 rpp  1389.5   1510      37.75     42.75   883.9  1468.1  $N wl Rm954
94025 24 rpp  1389.5   1510      161       166     883.9  1468.1  $N wl Rm955
94026 24 rpp  1389.5   1510      285.5     290.5   883.9  1468.1  $N wl Rm956
94027 24 rpp  1389.5   1510      410       415     883.9  1468.1  $N wl Rm957
94028 24 rpp  1389.5   1510      534.5     539.5   883.9  1468.1  $N wl Rm958
94029 24 rpp  1510     1515      -85.5     539.5   883.9  1468.1  $E wl Rm954-958
94030 24 rpp  1210.5   1331.5    -80.5     37.75   883.9  1468.1  $Roomspace   940
94031 24 rpp  1210.5   1331.5    42.75     161     883.9  1468.1  $Roomspace   942
94032 24 rpp  1210.5   1331.5    166       285.5   883.9  1468.1  $Roomspace   944
94033 24 rpp  1210.5   1331.5    290.5     410     883.9  1468.1  $Roomspace   946
94034 24 rpp  1210.5   1331.5    415       534.5   883.9  1468.1  $Roomspace   948
94035 24 rpp  1389.5   1510      -80.5     37.75   883.9  1468.1  $Roomspace   954
94036 24 rpp  1389.5   1510      42.75     161     883.9  1468.1  $Roomspace   955
94037 24 rpp  1389.5   1510      166       285.5   883.9  1468.1  $Roomspace   956
94038 24 rpp  1389.5   1510      290.5     410     883.9  1468.1  $Roomspace   957
94039 24 rpp  1389.5   1510      415       534.5   883.9  1468.1  $Roomspace   958
c
c
c     Floor2 Room 961/960/951/952/950 with the Elevator
c     In the NW section where the lunchroom meets the bathrooms some walls were omitted
c     for the sake of saving time. Removing these few walls decreases reflection and is
c     therefore conservative.
96101 24 rpp  964      969       613.5     697     883.9  1468.1  $W wl Rm961
96102 24 rpp  964      969       733       749     883.9  1468.1  $W wl Rm961
96103 24 rpp  964      969       785       865     883.9  1468.1  $W wl Rm960
96104 24 rpp  950      1121.5    865       870     883.9  1468.1  $N wl Rm960
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96105 24 rpp  969      1116.5     738.5     743.5   883.9  1468.1  $N wl Rm961
96106 24 rpp  969      1116.5     613.5     618.5   883.9  1468.1  $S wl Rm961
96107 24 rpp  1116.5   1121.5     613.5     823     883.9  1468.1  $E wl Rm960-961
96108 24 rpp  1102.5   1116.5     810       815     883.9  1468.1  $NE wl Rm960
96109 24 rpp  1097.5   1102.5     810       865     883.9  1468.1  $NE wl Rm960
96110 24 rpp  1097     1102       870       872.5   883.9  1468.1  $NE wl Rm960
96111 24 rpp  1116.5   1120.5     859       865     883.9  1468.1  $NE wl Rm960
96112 24 rpp  1205.5   1308       613.5     618.5   883.9  1468.1  $S wl Rm951
96113 24 rpp  1344     1354.5     613.5     618.5   883.9  1468.1  $S stub wl Rm951
96114 24 rpp  1385     1469       613.5     618.5   883.9  1468.1  $S wl Rm952
96115 24 rpp  1505     1510       613.5     618.5   883.9  1468.1  $SE wl Rm952
96116 24 rpp  1510     1514       612.5     1079.75 883.9  1468.1  $E wl Rm952-LR
96117 24 rpp  1514     1519       612.5     1079.5  883.9  1468.1  $E o wl Rm952-LR
96118 24 rpp  1437.5   1510       665.5     670.5   883.9  1468.1  $SE wl Rm952
96119 24 rpp  1437.5   1442.5     660       665.5   883.9  1468.1  $SE wl Rm952
96120 24 rpp  1437.5   1442.5     618.5     624     883.9  1468.1  $SE wl Rm952
96121 24 rpp  1474     1510       776.5     781.5   883.9  1468.1  $E partitioning wall  wl Rm952
96122 24 rpp  1474     1510       843       848     883.9  1468.1  $E partitioning wall  wl Rm952
96123 24 rpp  1474     1510       891.5     896.5   883.9  1468.1  $E partitioning wall  wl Rm952
96124 24 rpp  1275     1510       896.5     901.5   883.9  1468.1  $N wl Rm952-950
96125 24 rpp  1365.5   1370.5     630       896.5   883.9  1468.1  $Central wl Rm952/951
96126 24 rpp  1329.5   1365.5     890       896.5   883.9  1468.1  $Central wl Rm952/951
96127 24 rpp  1349.5   1365.5     630       846.5   883.9  1468.1  $Central wl Rm952/952
96128 24 rpp  1279.5   1349.5     814       819     883.9  1468.1  $Dividing wl Rm951
96129 24 rpp  1329.5   1349.5     819       846.5   883.9  1468.1  $Dividing wl Rm951   <----------------Omitted Block in NE Corner-----
----Find it and put it in
96130 24 rpp  1275     1349.5     674       679     883.9  1468.1  $Dividing wl Rm951
96131 24 rpp  1275     1280       660       674     883.9  1468.1  $Dividing wl Rm951
96132 24 rpp  1275     1280       618.5     623     883.9  1468.1  $Dividing wl Rm951
96133 24 rpp  1349.5   1390       625       630     883.9  1468.1  $Central wl Rm952/951
96134 24 rpp  1349.5   1354.5     618.5     625     883.9  1468.1  $Central wl Rm952/951
96135 24 rpp  1385     1390       618.5     625     883.9  1468.1  $Central wl Rm952/951
96136 24 rpp  1205.5   1210.5     922       1064    883.9  1468.1  $W wl LR
96137 24 rpp  1102     1510       1064      1069.5  883.9  1468.1  $N wl LR
96138 24 rpp  1097.5   1102       1060.5    1079.75 883.9  1468.1  $NW wl LR
96139 24 rpp  1001.5   1009.5     911       1027.2  883.9  1468.1  $W wl Elev
96140 24 rpp  1009.5   1097.5     1019.25   1027.25 883.9  1468.1  $N wl Elev
96141 24 rpp  1089.5   1097.5     1006      1019.25 883.9  1468.1  $NE  wl Elev
96142 24 rpp  1089.5   1097.5     911       938.5   883.9  1468.1  $SE wl Elev
96143 24 rpp  1009.5   1089.5     911       919     883.9  1468.1  $S  wl Elev
96144 24 rpp  1205.5   1210.5     618.5     834     883.9  1468.1  $W wl Rm951
96145 24 rpp  969      1116.5     618.5     738.5   883.9  1468.1  $Roomspace   961
96146 24 rpp  969      1097.5     743.5     865     883.9  1468.1  $Roomspace   960 Room Partial Fill
96147 24 rpp  1210.5   1510       922       1064    883.9  1468.1  $Roomspace   LR<---------------------Did not fill all rooms here----------
-
c
c
c
c
c
c
c  ///////////////Begin Northeast Section of Floor2\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Surfaces****************************************
c  The origin was place on the west boundary wall. The origin was placed on the south east corner of the boundary wall.
c  The origin was only moved in the x direction not the y. To accurately relocate the origin I had to delete the
c  overlying yellow line. Small wall stubs were ignored on the exterior walls.
c
c
c
c    Floor2 Room 900/Change Room - CR
c   This room contains all of the surfaces for this section
90001 21 rpp  0        148        906.25    911.25  883.9  1468.1  $S wl Rm900
90002 21 rpp  143      148        911.25    958.25  883.9  1468.1  $E wl Rm900
90003 21 rpp  143      148        994.25    1039.25 883.9  1468.1  $E wl Rm900
90004 21 rpp  474.25   479.25     795.75    808.75  883.9  1468.1  $SW wl CR
90005 21 rpp  474.25   479.25     844.75    974.75  883.9  1468.1  $W wl CR
90006 21 rpp  479.25   659.75     969.75    974.75  883.9  1468.1  $N wl CR
90007 21 rpp  654.75   659.75     841.75    969.75  883.9  1468.1  $E wl CR
90008 21 rpp  654.75   659.75     795.75    805.75  883.9  1468.1  $SE wl CR
90009 21 rpp  253      820.25     1165.25   1168.25 883.9  1468.1  $N exterior wl Rm900
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90010 21 rpp  817.25   820.25     954       1165.25 883.9  1468.1  $E wl Rm900
90011 21 rpp  817.25   820.25     342       918     883.9  1468.1  $E wl Rm900
c
c
c
c  ///////////////Begin South Section of Floor2\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Surfaces****************************************
c  The origin was place on the Southwest corner of Room 903 on the inside corner of the wall
c  All of the Roofs were placed in this section. The roof dimensions were not given in the exploded
c  drawings so instead the dimensions were taken from the 2nd floor exploded drawings. The dimensions of the
c  roofs were assumed to cover the exterior walls.
c  The roofs over the filter building and all of the stairwells were ignored.
c
c
c    Floor2 Room 903/904/South Mechanical - Mech
90301 22 rpp  -3        0         -15      463.75   883.9  1468.1  $W exterior wl Rm903
90302 22 rpp  0         2343.25   -15      -12      883.9  1468.1  $S exterior wl Rm903
90303 22 rpp  0         197.5     -12      0        883.9  1468.1  $S i wl Rm903
90304 22 rpp  197.5     202.5     -12      50.75    883.9  1468.1  $SE wl Rm903
90305 22 rpp  202.5     253.25    45.75    50.75    883.9  1468.1  $SE wl Rm903
90306 22 rpp  248.25    253.25    50.75    56.25    883.9  1468.1  $SE wl Rm903
90307 22 rpp  248.25    253.25    128.25   182.75   883.9  1468.1  $E wl Rm903
90308 22 rpp  248.25    253.25    254.75   539.25   883.9  1468.1  $E wl Rm904
90309 22 rpp  0         248.25    141.75   146.75   883.9  1468.1  $N wl Rm903
90310 22 rpp  202.5     2343.25   -12      0        883.9  1468.1  $S wl Mech
90317 22 rpp  0         197.5     0        141.75   883.9  1468.1  $Roomspace   903 Room Partial Fill
90318 22 rpp  0         248.25    146.75   290.75   883.9  1468.1  $Roomspace   904
c
c
c  ///////////////Begin Roof Section for All Roofs @ Greater than 416'9"\\\\\\\\\\\\\\\\\\\\\\\\
c
90311 24 rpp  -10.25    2339.25   -310.75    1082.75  1468.1  1498.6  $NW Section Roof 436'8"
c
c
c
90312 24 rpp  2339.25   2930      -1296      256.5    1257.3  1287.8  $HLRF Roof 429'9"
c
c
c
90313 24 rpp  -10.25    1959.8    -1552.75   -310.75  1041.4  1071.9  $S Central Roof
c
c
c
90314 24 rpp  1959.8    2336.5    -694       -310.75  1122.7  1153.2  $E Central Roof Elevated above main central roof
c
c
c
90315 24 rpp  1959.8    2339.25   -1552.75   -694     1041.4  1071.9  $SE Roof Same Delta as S main roof as observed
c
c
c
90316 24 rpp  -10.25    1834.5    -2457.5    -1552.75 1041.4  1071.9  $Southernmost Roof
c
c
c
90319 24 rpp  -686.5    -10.25    -1017.5    -367.5   952.5   983     $Western Roof/SAL Roof
c
c
c
90320 24 rpp  -279.5    -10.25    -1435      -1017.5  952.5   983     $S Western Roof/SAL Roof
c
c
c
c  ///////////////Begin Central Section of Floor2\\\\\\\\\\\\\\\\\\\\\\\\
c  ******************Notes for this section of Surfaces****************************************
c  This section was just a stairwell and was neglected.  Not including it is a conservative assumption
c  because it reduces reflection of neutrons back to the detectors on Floor1.
c
c
c  ///////////////Begin East Section of Floor2\\\\\\\\\\\\\\\\\\\\\\\\
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c  *****************Notes for this section of Surfaces***************************************
c  The origin was place on the Southwest corner of Room 609 on the inside corner of the wall
c
c  The intersection of the wall 60941 with the wall 60936 differs slightly from realty in that there is
c  small sections of the wall omitted at the junction. This omission decreases reflectivity and is therefore
c  conservative.
c
c
c     Floor2 Room 609/608/607/Topp of hot cells
c    Room 609 is used as the designation of both the small room 609 and as the
c    rest of the walls for the area
60901 23 rpp  -7       -3       -4      981.25  883.9  1071.9  $W o wl Rm609
60902 23 rpp  -3       0        0       153     883.9  1071.9  $W i wl
60903 23 rpp  0        243      150     153     883.9  1071.9  $N wl Rm
60905 23 rpp  199      241      48.5    53.5    883.9  1071.9  $SE wl Rm609
60906 23 rpp  199      202      46.25   48.25   883.9  1071.9  $SE wl Rm609
60907 23 rpp  199      202      0       13.25   883.9  1071.9  $SE wl Rm609
60908 23 rpp  -3       574      -4      0       883.9  1071.9  $S wl Rm609-607
60909 23 rpp  279.75   537.25   199     202     883.9  1071.9  $N wl Rm608
60910 23 rpp  534.25   537.25   0       199     883.9  1071.9  $E wl Rm607
60911 23 rpp  481.25   534.25   70      73.25   883.9  1071.9  $N wl Rm607
60912 23 rpp  434.75   437.75   0       15.25   883.9  1071.9  $SW wl Rm607
60913 23 rpp  434.75   437.75   45.25   53      883.9  1071.9  $W wl Rm607
60914 23 rpp  432.5    434.75   48.5    199     883.9  1071.9  $W wl Rm607
60915 23 rpp  332.5    402.5    48.5    53      883.9  1071.9  $S wl Rm608
60916 23 rpp  332.5    335.5    53      199     883.9  1071.9  $W wl Rm608
60917 23 rpp  279.75   282      53      199     883.9  1071.9  $Staircase wall <----------Check vs reality ------Started here after being
sick------------------
60918 23 rpp  356      364      2       12      883.9  1071.9  $Block S of Rm608<----------Check vs reality
60919 23 rpp  241      243      48.5    150     883.9  1071.9  $E wl Rm609
60920 23 rpp  570      574      0       288     883.9  1071.9  $E wl Rm609< Strange block here--------------------
60921 23 rpp  555.5    570      266.5   273.5   883.9  1071.9  $Block in E wl in SE Rm609
60922 23 rpp  574      1073     259.5   264.5   883.9  1071.9  $S wl in SE Rm609
60923 23 rpp  1068     1073     264.5   288     883.9  1071.9  $SE wl in SE Rm609
60924 23 rpp  1068     1073     324     342     883.9  1071.9  $E wl in SE Rm609
60925 23 rpp  1068     1073     486     527     883.9  1071.9  $NE wl in SE Rm609
60926 23 rpp  1057.5   1067.5   506     514     883.9  1071.9  $NE block in N wl in SE Rm609, ignored very small wall here
60927 23 rpp  574      1057.5   509     511     883.9  1071.9  $N wl in SE Rm609
60928 23 rpp  816.5    828.5    511     515     883.9  1071.9  $Block on N wl in SE Rm609
60929 23 rpp  816.5    828.5    505     509     883.9  1071.9  $Block on N wl in SE Rm609
60930 23 rpp  555.25   573.5    506.5   513.5   883.9  1071.9  $NW Block in N wl in SE Rm609
60931 23 rpp  570      574      462     506.5   883.9  1071.9  $NW wl in SE Rm609
60932 23 rpp  578.5    586.5    266     274     883.9  1071.9  $SW Column in SE Rm609
60933 23 rpp  818.5    826.5    266     274     883.9  1071.9  $S Column in SE Rm609
60934 23 rpp  1058.5   1066.5   266     274     883.9  1071.9  $SE Column in SE Rm609
60935 23 rpp  196.5    364.5    324     822     883.9  1071.9  $Top of hot cells   <-------No details put in, fix this later-------------
60936 23 rpp  574      1073     742.5   747.5   883.9  1071.9  $N wl in E Rm609
60937 23 rpp  1068     1073     562     742.5   883.9  1071.9  $E wl in E Rm609
60938 23 rpp  578.5    586.5    733     741     883.9  1071.9  $NW column in E Rm609
60939 23 rpp  818.5    826.5    733     741     883.9  1071.9  $N column in E Rm609<----------Ignored mezzanine and columns
within it-------------
60940 23 rpp  555.5    573.5    746.5   753.5   883.9  1071.9  $NW Block in E Rm609
60941 23 rpp  570      574      753.5   1548.5  883.9  1071.9  $E wl Rm609
60942 23 rpp  187.25   570      1544.5  1548.5  883.9  1071.9  $N wl Rm609
60943 23 rpp  187.25   191.25   994.5   1544.5  883.9  1071.9  $W wl of Mezzanine Rm609
60944 23 rpp  348.25   352.25   994.5   1544.5  883.9  1071.9  $E wl of Mezzanine Rm609
60945 23 rpp  -4       353.75   990.5   994.5   883.9  1071.9  $S wl of Mezzanine Rm609
60946 23 rpp  332      335      288     324     883.9  1071.9  $Dividing wl S of Hot cell Rm609
60947 23 rpp  25.5     35.5     266     274     883.9  1071.9  $SW Column Rm609
60948 23 rpp  25.5     35.5     506     514     883.9  1071.9  $W Column Rm609
60949 23 rpp  25.5     35.5     746     754     883.9  1071.9  $NW Column Rm609
60950 23 rpp  551      569      986     994     883.9  1071.9  $E Column Rm609
60951 23 rpp  548      569      1048.5  1057.5  883.9  1071.9  $E Column next column N of (60950)Rm609
60952 23 rpp  548      569      1285.5  1294.5  883.9  1071.9  $E Column next column N of (60951)Rm609
60953 23 rpp  548      569      1534.5  1543.5  883.9  1071.9  $E Column next column N of (60952) Rm609
60954 23 rpp  354.5    362.5    985     995     883.9  1071.9  $Column at SE Corner of Mezzanine Rm609
c 60955 23 rpp  -4       187.25   994.5   1548.5  800.1  830.6   $Roof Next to Mezzanine Rm609 Assumed 50 cm thick
60956 23 rpp  -7       -4       981.25  1548.5  883.9  1071.9  $W wl Roof Rm609
60957 23 rpp  0        199      0       150     883.9  1071.9  $Roomspace   609 Room Partial Fill
60958 23 rpp  335.5    432.5    53      199     883.9  1071.9  $Roomspace   608
```

```
60959 23 rpp  437.75     534.25     0        70      883.9  1071.9  $Roomspace   607
60960 23 rpp  434.75     534.25     73.25    199     883.9  1071.9  $Roomspace   607N
c
c
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c 333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333
c 333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333
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c 33333333333333333333333333333     Third Floor     33333333333333333333333333333333333333333333333
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c 333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333
c
c
c
c    TAG=TAGfloor3surfaces
c
c
c  ///////////////Begin East Section of Floor3\\\\\\\\\\\\\\\\\\\\\\\\
c  ********************Notes for this section of Surfaces****************************************
c  The origin was set as the SW corner of the inside wall of the main Room
c  The hot cell as well as the walkways surrounding it must be checked with real world inspection
c
c
c  The Elevation for this section was taken from Drawing H-3-12901 and H-3-305005 to be 429'9" or
c  13098.8. The 1/2" on the drawing was ommitted due to variance in actual roof height. The roof also has a
c  grade that runs a delta of approximately 6" over the span of the roof over HLRF. The highest point is
c  approximately 430' and the lowest is approximately 429'6". The floor was taken at the same elevation
c of the adjacent first floor roof-422'8", because no other alternative was found. A pending inspection will
c confirm or refute this assumption.
c
c  The CAD Drawings clearly show the top floor of HLRF E wl at 586.5cm from the SW corner. The second floor CAD
c  drawings clearly show the second floor E wl at 570cm from the same origin. I am leaving the the dimensions as shown
c  on the CAD drawings until inspection proves otherwise.
c
c
c
c     Floor3 Room 611/Top of the Hot Cells
61101 31 rpp  -3       0          0         1548.5  1071.9 1257.3  $W main wl
61102 31 rpp  0        590.5      1544.5    1548.5  1071.9 1257.3  $N main wl
61103 31 rpp  586.5    590.5      0         1544.5  1071.9 1257.3  $E main wl
61104 31 rpp  -3       590.5      -4        0       1071.9 1257.3  $S main wl
61105 31 rpp  332.25   336.25     20        226     1071.9 1257.3  $W wl Rm611
61106 31 rpp  332.25   336.25     262       324     1071.9 1257.3  $NW wl Rm611
61107 31 rpp  336.25   563.25     275       279     1071.9 1257.3  $N wl Rm611
61108 31 rpp  559.25   563.25     20        275     1071.9 1257.3  $E wl Rm611
61109 31 rpp  332.25   563.25     16        20      1071.9 1257.3  $S wl Rm611
61110 31 rpp  79.25    259        268.5     270.5   1071.9 1257.3  $S walkway wl      <-------------Check with Real World
61111 31 rpp  79.25    81.25      270.5     822     1071.9 1257.3  $E walkway wl
61112 31 rpp  81.25    353.75     820       822     1071.9 1257.3  $N Hot cell wl
61113 31 rpp  351.75   353.75     324       820     1071.9 1257.3  $E Hot cell wl
61114 31 rpp  323      351.75     324       326.5   1071.9 1257.3  $SE Hot cell wl
61115 31 rpp  129.5    287        324       326.5   1071.9 1257.3  $SW Hot cell wl
61116 31 rpp  129.5    132        326.5     820     1071.9 1257.3  $W Hot cell wl
61117 31 rpp  132      351.75     326.5     820     1071.9 1257.3  $Actual Hot Cell Top
61118 31 rpp  572.5    586.5      266.5     273.5   1071.9 1257.3  $SE Column in Wall, Placed column next to wall not in the wall
61119 31 rpp  371      379        985       995     1071.9 1257.3  $S central column main Rm
61120 31 rpp  208      218        1048      1058    1071.9 1257.3  $SW central column main Rm NW of 61119
61121 31 rpp  354      375        1048.5    1057.5  1071.9 1257.3  $S central column main Rm N of 61119
61122 31 rpp  208      218        1285      1295    1071.9 1257.3  $Next column N of 61120
61123 31 rpp  354      375        1285.5    1294.5  1071.9 1257.3  $Next column N of 61121
61124 31 rpp  208      218        1534      1544    1071.9 1257.3  $Next column N of 61122
61125 31 rpp  354      375        1534.5    1543.5  1071.9 1257.3  $Next column N of 61123
c
c
c
```

```
c
c
c
c
c
c
c  -----------BLANK LINE FOLLOWS THIS LINE--------------------

c   ================================================================================
c
c   ############################
c   #  Data definition cards    #
c   ############################
c
c  Start of Data Card ============================================================
c  ================================================================================
c
c  ############################
c  #  Material definition cards#
c  ############################
c
c
c  TAG=TAGmaterials
c  Start of Materials =============================================================
c
c  Wherever possible natural isotopic distribution were used. .66c was used preferentially
c  but if that library was not availabe then .60c, .55c, .50c was the hierarchy. These libraries
c  were all evaluated at or near room temperature. Except for Argon the current library is .59c.
c  same evaluation temp as the others.
c
c
c  Standard material definitions were taken from PNNL - 15870 Materials List
c
c    Calculated Density -0.001205
m1    6000.66c        0.000151     $ C   Air
      7014.66c        0.784437     $ N
      8016.66c        0.210750     $ O
     18000.59c        0.004671     $ Ar
c
c
c    Calculated Density -1.53 g/cc
m2    14000.60c       1            $ Si  Dirt (Sand)
      8016.66c        2            $ O
c
c
c    Calculated Density -2.3
m3    1001.66c        -0.022100        $ H  Concrete (Ordinary)
      6000.66c        -0.002484        $ C
      8016.66c        -0.574930        $ O
      11023.66c       -0.015208        $ Na
      12000.66c       -0.001266        $ Mg
      13027.66c       -0.019953        $ Al
      14000.60c       -0.304627        $ Si
      19000.66c       -0.010045        $ K
      20000.66c       -0.042951        $ Ca
      26000.55c       -0.006435        $ Fe
c
c
c    Calculated Density -0.29 g/cc
m4    20000.66c       1          $ Ca   Drywall (Sheet Rock Brand)
      16000.66c       1          $ S
      8016.66c        6          $ O
      1001.66c        4          $ H
c
c
c    Calculated Density 0.00359833
m5    26000.55c       0.00263792    $ Fe   Metal walls
      24000.50c       0.000689167   $ Cr
      28000.50c       0.00027125    $ Ni
c
```

```
c     Calculated Density
c     A full office has the density of -0.04855
c     A half full office has the density of -0.02427
m6    6000.66c           -0.0215754    $ C    Office filler
      1001.66c           -0.00301979   $ H
      8016.66c           -0.0239544    $ O
c
c
c     Calculated Density  -0.05514 .020240g/cc
m7    13027.66c          -0.0009904701 $ Al   Lab room sparsley filled
      5010.66c           -0.0036647    $ B
      11023.66c          -0.0040609    $ Na
      8016.66c           -0.31452      $ O
      14000.60c          -0.037341     $ Si
      26000.55c          -0.26313      $ Fe
      24000.50c          -0.064005     $ Cr
      28000.50c          -0.028447     $ Ni
      82000.50c          -0.0032121    $ Pb
      6000.66c           -0.23157      $ C
      1001.66c           -0.032412     $ H
      7014.66c           -0.016642     $ N
c
c
c     The density for a full lab is -0.10907 .03928g/cc
m8    13027.66c          -0.0010014    $ Al  Lab room fully filled
      5010.66c           -0.0037051    $ B
      11023.66c          -0.0041057    $ Na
      8016.66c           -0.31567      $ O
      14000.60c          -0.037752     $ Si
      26000.55c          -0.26603      $ Fe
      24000.50c          -0.06471      $ Cr
      28000.50c          -0.02876      $ Ni
      82000.50c          -0.0032475    $ Pb
      6000.66c           -0.23413      $ C
      1001.66c           -0.032769     $ H
      7014.66c           -0.0081198    $ N
c
c
c     Calculated Density -0.06
m9    6000.66c           -0.026664     $ C 8" inch wood walls
      1001.66c           -0.003732     $ H
      8016.66c           -0.029604     $ O
c
c
c     Calculated Density -0.12
m10   6000.66c           -0.053328     $ C 4" inch wood walls
      1001.66c           -0.007464     $ H
      8016.66c           -0.059208     $ O
c
c
c      Calculated Density -2.6467 g/cc
m12   13027.66c          -0.03177      $ Al  1st Floor Deck/Basement1 Ceiling
      20000.66c          -0.04112      $ Ca
      26000.55c          -0.0616       $ Fe
      1001.66c           -0.00934      $ H
      8016.66c           -0.49712      $ O
      14000.60c          -0.31491      $ Si
      11023.66c          -0.0271       $ Na
      24000.50c          -0.0118       $ Cr
      28000.50c          -0.00524      $ Ni
c
c
c      Calculated Density -7.92  g/cc
m13   24000.50c            0.202087    $ Cr  SS-304
      25055.66c            0.020133    $ Mn
      26000.55c            0.688268    $ Fe
      28000.50c            0.089514    $ Ni
c
c
c     Calculated Density -0.539
```

```
m14   13027.66c            -0.034        $ Al  Cinder Block
      20000.66c            -0.044        $ Ca
      26000.55c            -0.014        $ Fe
      1001.66c             -0.01         $ H
      8016.66c             -0.532        $ O
      14000.60c            -0.337        $ Si
      11023.66c            -0.029        $ Na
c
c
c     Calculated Density  -0.4751
m15   13027.66c            -0.00454      $ Al  Exterior walls
      5010.66c             -0.0168       $ B
      8016.66c             -0.2429       $ O
      14000.60c            -0.1712       $ N
      11023.66c            -0.01861      $ Na
      26000.55c            -0.404        $ Fe
      24000.50c            -0.09828      $ Cr
      28000.50c            -0.04368      $ Ni
c
c
c     Optimaly moderated Pu and H20 Solution Ref: NCS99
c      Calculated Density 32 g/l 239Pu in H2O
m16   94239.66c            8.0614E-05   $ Pu 239
      8016.66c             3.3374E-02   $ O
      1001.66c             6.6748E-02   $ H
c
c
c     Water Calculated Density of 1 g/cc
m17   8016.66c             1   $ O
      1001.66c             2   $ H
c
c
c     Fe Represnting a cask containing a criticallity accident
c      Calculated Density -7.874 g/cc
m18   26000.55c                1            $ Fe
c
c
c      Calculated Density .9300 g/cc
m19   1001.66c                 -0.143716     $ H Polyethylene (Standard)
      6000.66c                 -0.856284     $ C
c
c
c
c
c
c
c
c   Translation Cards Begin Below Here
c
c   Sections are grouped by floor and the first numerical digit is the floor number with the exception
c   of the Basement floor being numbered as 4. For the translations in the y direction I used the elevational
c   drawing H-4-50013. It is very hard to read precisely. The decision was made to align the first floor inset
c   of the exterior walls of the first Basement floor. If the afore mentioned drawing is closely examined this
c   can be verified. Floors 1 and 2 were aligned with their exterior walls flush.
c
c
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
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BBBBBBBBBBBBBBBBBBBBBBBBB
c BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB     Basement 1
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
c
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
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c
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c
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BBBBBBBBBBBBBBBBBBBBBBBB
c
c  Moving West section of B1 left in relation to the SW section
tr41  -252      121       0
c
c
c  Moving Southeast Section of B1 in relation to the SW section
tr42  1228.5    5.5       0
c
c
c Moving East Section of B1 in relation to the SW section
tr43  2362      0         0
c
c
c Moving NorthEast Section of B1 in relation to the SW section
tr44  1228.5    1288.5    0
c
c
c Moving North Central Section of B1 in relation to the SW section
tr45  869.5     1830.5    0
c
c
c Moving NorthWest Section of B1 in relation to the SW section
tr46  4.5       1288.5    0
c
c
c Moving South Section of B1 in relation to the SW section
tr47  514.6     -877.5    0
c
c
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 111111111111111111111111111111     First Floor     11111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c 1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
c
c Moving NorthEast section of F1 right in relation to the NorthWest section
tr11  1202.5    1530.5    0
c
c
c Moving West Section of F1 in relation to the NorthWest section
tr12  -264.5    132.5     0
c
c
c Moving Southwest Section of F1 in relation to the NorthWest section
tr13  375.5     243.5     0
c
c
c Moving Southeast Section of F1 in relation to the NorthWest section
tr14  1202.5    240.5     0
c
c
c Moving East Section of F1 in relation to the NorthWest section
tr15  2335.5    2         0
c
c
c Moving South Southwest Section of F1 in relation to the NorthWest section
tr16  -25.5     -905      0
c
c
c Moving South Southeast Section of F1 in relation to the NorthWest section
tr17  491.5     -897.5    0
c
```

```
c
c
c   Moving Northwest Section of F1 in relation to the Origin of the lower floors
tr18  0         1552.5     0
c
c
c
c
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222     Second Floor    222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c 22222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222
c
c
c Moving NorthEast section of F2 right in relation to the NorthWest section
tr21  1519       1220.25   0
c
c
c Moving South Section of F2 in relation to the NorthWest section
tr22  -7.25      1010      0
c
c
c Moving East Section of F2 in relation to the NorthWest section
tr23  2347       13.75     0
c
c
c Moving Northwest Section of F2 in relation to the Origin of the lower floors
tr24  0          1305.75   0
c
c
c
c
c 33333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333
c 33333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333
c 33333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333
c 33333333333333333333333333333333     Third Floor     333333333333333333333333333333333333333333333333333333333
c 33333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333
c 33333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333
c 33333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333
c
c
c Moving East section of F3 right in relation to the Second Floor
tr31  2343       13.75     0
c
c
c
c
c
c
c  ====================================================================================
c
c   ##################################
c   # Source Term Definition cards#
c   ##################################
c
c  Start of Source Definition ===============================================================
c
c
c
c   TAG=TAGsourcedef
c  -----------------------------------------------------------------------------------------------------------------
c
c   Basement Accident Loacations
c
c  S Section
c  sdef pos  1334.6  -847.5  202.5    ERG=D1   RAD=D2 WGT=3.94E15   $  LR Mezzanine
c
```

```
c
c  SE Section
c  sdef pos  1753.5  680.5  50    ERG=D1   RAD=D2 WGT=3.94E15    $  Pu Sphere in Rm34 B1
c  sdef pos  2882    40     50    ERG=D1   RAD=D2 WGT=3.94E15    $  Rm40c
c
c
c  W Section
c  sdef pos  -202   171  50    ERG=D1   RAD=D2 WGT=3.94E15      $  Pu Sphere in SW corner of Rm23B in cell 425 2321
c
c  sdef pos  -202   474  50    ERG=D1   RAD=D2 WGT=3.94E15      $  Pu Sphere in W of Rm23 in cell 425 2322
c
c  sdef pos  -92    921  50    ERG=D1   RAD=D2 WGT=3.94E15      $  Pu Sphere in E of Rm32 (Under SAL) in cell 426
c
c  sdef pos  -382   1141  50    ERG=D1   RAD=D2 WGT=3.94E15      $  Pu Sphere in NW of Rm32 (Under SAL)
c
c
c NW Section
c  sdef pos  44.5    2577  50    ERG=D1   RAD=D2 WGT=3.94E15     $  NW corner of NW section B1 Rm45
c
c  sdef pos  1144.5  1028.5  50    ERG=D1   RAD=D2 WGT=3.94E15   $  SE corner of NW section B1 -Center of B1
c
c  sdef pos  44.5  2338.5  50    ERG=D1   RAD=D2 WGT=3.94E15     $  NW corner B1
c
c
c N Central Section
c   Source in N of B1
c  sdef pos  1314.5  2300.5   50    ERG=D1   RAD=D2 WGT=3.94E15  $  N B1 center of Rm90
c
c
c NE Section
c   Source in E Central B1 in Rm 48
c  sdef pos  2303.5   1228.5  50    ERG=D1   RAD=D2 WGT=3.94E15  $  E Edge central B1 Rm48
c
c  Source in NE B1 N of Rm52
c  sdef pos  2178.5   2288.5  50    ERG=D1   RAD=D2 WGT=3.94E15 $ NE Corner B1
c
c   ----------------------------------------------------------------------------------------------------------
c
c  First Floor Accident Locations  Rm203, LR, Rm327A, Rm528, Truck Lock, Rm119, Rm410
c
c  sdef pos  -634.5   1132.5  492    ERG=D1   RAD=D2 WGT=3.94E15    $ Rm203
c
c
c  sdef pos  541.5    -847.5  492    ERG=D1   RAD=D2 WGT=3.94E15    $ LR
c
c
c  sdef pos  40       2332.5  492    ERG=D1   RAD=D2 WGT=3.94E15    $ Rm327A
c
c
sdef pos  2277.5   2340.5  492    ERG=D1   RAD=D2 WGT=3.94E15    $  Rm528
c
c
c  sdef pos  3355.5   402  492    ERG=D1   RAD=D2 WGT=3.94E15    $  Truck Lock
c
c
c  sdef pos  2261.5   27.5        492    ERG=D1   RAD=D2 WGT=3.94E15    $  Rm119
c
c
c  sdef pos  1367.5   960.5       492    ERG=D1   RAD=D2 WGT=3.94E15    $  Rm410
c
c
c  Second Floor Accident Locations
c
c  sdef pos  2875     1520    1072 ERG=D1   RAD=D2 WGT=3.94E15    $  Above Rm 603
c
c
c  sdef pos  44.5     2350    884 ERG=D1   RAD=D2 WGT=3.94E15    $  Above Rm 327 in Rm903 cell202
c
c
c
```

```
c
sp1 -3 0.966 2.842
c
c
si2 0   19.539
c
c
c
c  DXTRAN Spheres
c  461  276.1  273.5  412.2   11.45 12  $B1 N Column Rm22
c  462  1549.6 993.7  412.2   11.45 12   $B1 Next(2nd) Column moving E
c  463  1247.6  513.5  412.2  11.45 12    $B1 W Column above(4516) 2nd column above origin
c  464  1912.4  1425.3   863.6  11.45 12  $F1 W wl Rm516 Placed at the NW corner
c  465  1896.6   165.35  863.6  11.45 12 $F1 N wl Rm115 Placed Approx. where observed
c  466  474.4   1430.15  863.6  11.45 12 $F1 W block wl Rm316
c  467  2715.85  216.35  863.6  11.45 12 $F1 N wl Rm605
c  468  2706.1  1127.4   863.6   11.45 12 $F1 Central wl Rm603  Placed Approx. where observed
c
c
c
c DXT:N
c       276.1    273.5    412.2   13   30  $  461
c       1549.6   993.7    412.2   13   30  $  462
c       1247.6   513.5    412.2   13   30  $  463
c       1912.4   1425.3   863.6   13   30  $  464
c       1817     161.5    863.6   13   30  $  465
c       474.4    1430.15  863.6   13   30  $  466
c       2715.85  216.35   863.6   13   30  $  467
c       2706.1   1127.4   863.6   13   30  $  468
c
c
c
c
c
c
c
c   461    rcc  272.7  263.35   412.2   0 20.3 0  5.7  $B1 N Column Rm22
c   462 42 rcc  317.7   977.85  412.2   0 20.3 0   5.7  $B1 Next(2nd) Column moving E
c   462         1546.2  983.55  412.2
c   463 42 rcc  15.7  497.85   412.2    0 20.3 0   5.7    $B1 W Column above(4516) 2nd column above origin
c   463       1244.2   503.35    412.2
c   464 14 rcc  713.3   1174.65  863.6 0 20.3 0  5.7   $F1 W wl Rm516 Placed at the NW corner
c   464         1915.8    1415.15   863.6
c   465 17 rcc  1315.25  1059.45  863.6  20.3 0 0 5.7  $F1 N wl Rm115 Placed Approx. where observed
c   465         1806.75   161.95   863.6
c   466 13 rcc  102.3  1420  863.6  0 20.3 0 5.7 $F1 W block wl Rm316
c   466         477.8   1663.5   863.6
c   467 15 rcc  390.5  209.95   863.6  20.3 0 0 5.7  $F1 N wl Rm605
c   467         2726    211.95   863.6
c   468 15 rcc  367.2  1115.25  863.6  0 20.3 0 5.7  $F1 Central wl Rm603  Placed Approx. where observed
c   468         2702.7    1117.25    863.6
c
c
c
nps 100000000
c
c
cut:N  0  .000004
c
c
c SD2 934.875 934.875 934.875 934.875 934.875 934.875 934.875 934.875
c
c
c   729.7   729.7   729.7   729.7   729.7   729.7   729.7   729.7
c
c
F4:N      (461) (462) (463)
        (464) (465) (466)
        (467) (468)
c
```

```
FC4  461=B1 Rm22, 462=B1 N of Rm34, 463=W of Rm35, 464=F1 W of Rm516,
     465=F1 N of Rm115, 466=F1 W of Rm316, 467=F1 N of Rm605, 468=F1 E of 604
c
c
c
E4  4E-6  20
```

```
MCNP Input  Modeled by Bryce Greenfield
c  Listing for NIST 3" dry sphere; detailed src, sphere & detectors, Table 24
c
c 3456789012345678911234567892123456789312345678941234567895123456789612345678971234567 8
c
c
c
c  Cell Records
c  Fission Chamber Except Spaces, +Z
1  6 -21.45 -1 2 -3 imp:n=1 $1,Pt
2  5 -2.581 1 -4 6 -5 imp:n=1 $2,Al reduced for smearing
3  5 -2.7 7 -1 6 -2 imp:n=1 $3,Al
4  8 -2.2 8 -9 10 -6 imp:n=1 $4,KEL-F
5  5 -2.7 11 -12 13 -10 imp:n=1 $5,Al
6  5 -2.7 14 -15 17 -16 imp:n=1 $6,Al
7  5 -2.7 -18 19 -13 imp:n=1 $7,Al
8  8 -2.2 20 -21 22 -19 imp:n=1 $8,KEL-F
9  8 -2.2 23 -21 19 -24 imp:n=1 $9,KEL-F
10 8 -2.2 25 -4 3 -26 imp:n=1 $10,KEL-F
11 8 -2.2 27 -4 26 -28 imp:n=1 $11,KEL-F
12 5 -2.7 36 -27 26 -29 imp:n=1 $12,Al
13 5 -2.7 30 -36 31 -32 imp:n=1 $13,Al
14 8 -2.2 33 -27 34 -35 imp:n=1 $14,KEL-F
15 8 -2.046 27 -4 37 -35 imp:n=1 $15,KEL-F reduced for smearing
16 5 -2.7 -27 29 -34 imp:n=1 $16,Al
17 5 -2.7 38 -39 40 -41 imp:n=1 $21,Al
18 5 -2.7 -39 42 -43 imp:n=1 $22,Al
19 5 -2.7 4 -38 46 -42 imp:n=1 $24,Al
20 5 -2.7 -4 46 -47 imp:n=1 $25,Al
c  Fission Chamber Except Spaces, -Z
21 6 -21.45 -51 53 -52 imp:n=1 $1,Pt
22 5 -2.581 51 -54 55 -56 imp:n=1 $2,Al reduced for smearing
23 5 -2.7 57 -51 52 -56 imp:n=1 $3,Al
24 8 -2.2 58 -59 56 -60 imp:n=1 $4,KEL-F
25 5 -2.7 61 -62 60 -63 imp:n=1 $5,Al
26 5 -2.7 64 -65 66 -67 imp:n=1 $6,Al
27 5 -2.7 -68 63 -69 imp:n=1 $7,Al
28 8 -2.2 70 -71 69 -72 imp:n=1 $8,KEL-F
29 8 -2.2 73 -71 74 -69 imp:n=1 $9,KEL-F
30 8 -2.2 75 -54 76 -53 imp:n=1 $10,KEL-F
31 8 -2.2 77 -54 78 -76 imp:n=1 $11,KEL-F
32 5 -2.7 86 -77 79 -76 imp:n=1 $12,Al
33 5 -2.7 80 -86 82 -81 imp:n=1 $13,Al
34 8 -2.2 83 -77 85 -84 imp:n=1 $14,KEL-F
35 8 -2.046 77 -54 85 -87 imp:n=1 $15,KEL-F reduced for smearing
36 5 -2.7 -77 84 -79 imp:n=1 $16,Al
37 5 -2.7 88 -89 91 -90 imp:n=1 $21,Al
38 5 -2.7 -89 93 -92 imp:n=1 $22,Al
39 5 -2.7 54 -88 92 -96 imp:n=1 $24,Al
```

```
40 5 -2.7 -54 97 -96 imp:n=1 $25,Al
c  Source, sphere, supports
51 7 -1.85 -101 102 -103 imp:n=1 $Cf
52 11 -2.0 -104 103 -105 imp:n=1 $A
53 5 -2.7 104 -106 102 -105 imp:n=1 $B
54 5 -2.7 -106 107 -102 imp:n=1 $C
55 2 -7.92 108 -109 107 -105 imp:n=1 $D
56 2 -7.92 -109 110 -107 imp:n=1 $E
57 2 -7.92 111 -109 105 -112 imp:n=1 $F
58 2 -7.92 -109 112 -113 imp:n=1 $G
59 2 -7.92 -114 113 -115 imp:n=1 $H
60 2 -7.92 116 -109 113 -117 imp:n=1 $I
61 2 -7.92 114 -118 120 -119 imp:n=1 $J
62 2 -7.92 121 -106 119 -122 imp:n=1 $K
63 2 -7.92 123 -106 122 -124 imp:n=1 $L
64 2 -7.92 123 -125 124 -126 imp:n=1 $M
65 2 -7.92 123 -127 126 -128 imp:n=1 $N
66 2 -7.92 -127 128 -129 imp:n=1 $O
67 2 -7.92 -104 129 -130 imp:n=1 $P
68 2 -2.1 -131 -146 130 imp:n=1 $Q Chain
69 1 -0.001185 114 -121 119 -115 imp:n=1 $R, water or air
70 1 -0.001185 -121 115 -122 imp:n=1 $S, water or air
71 1 -0.001185 -123 122 -124 imp:n=1 $T, water or air
72 5 -2.7 141 -142 145 -146 imp:n=1 $U stem support ring
75 5 -2.7 38 -152 154 -146 imp:n=1 $stem,+Z
76 5 -2.7 38 -151 154 -146 imp:n=1 $stem,-Z
79 2 -7.92 158 -159 -124 imp:n=1 $SS shell
c  Spaces
c  air cells above water line
105 1 -0.001185 -141 129 -146 (131:-130) 104 151 152 imp:n=1 $ around src shaft above O
106 1 -0.001185 -141 124 -129 (125:126) 127 151 152 imp:n=1 $ around src shaft below P
107 1 -0.001185 -123 124 -128 imp:n=1 $ just above T in central tube
108 1 -0.001185 -149 141 124 -146 (-141:142:-145) imp:n=1 $ away from src shaft
c
c  air cells below water line
109 1 -0.001185 148 -124 96 -46 -149 159
                imp:n=1 $ outside SS sphere, inside detector Zs
110 1 -0.001185 148 -124 46 -149 (38:43) (-40:39:43)
               (152:-38:-154) imp:n=1 $ beyond +Z detector
c  inner face
111 1 -0.001185 148 -124 -149 -96 (38:-93) (90:39:-93)
               (151:-38:-154) imp:n=1 $ beyond -Z detector
c  inner face
c  water or air cells inside sphere but outside source+holder
112 1 -0.001185 -116 114 113 -117 imp:n=1 $ annular recess at top of src capsule
113 1 -0.001185 -158 -120 (109:-110:117) (114:-113) imp:n=1 $ below src holder
114 1 -0.001185 -158 120 -124 (118:119) 106 imp:n=1 $ at src holder elevations
c  air in source capsule
115 1 -0.001185 -104 101 102 -103 imp:n=1 $ gap immediately around Cf
116 1 -0.001185 -108 106 107 -105 imp:n=1 $ gap immediately inside src capsule wall D
117 1 -0.001185 -111 105 -112 imp:n=1 $ gap inside of F in source capsule
c  P-10 gas in +Z detector
121 0 -4 47 -19 (-20:-22) imp:n=1 $ before collector B
122 0 -4 12 24 -10 imp:n=1 $ gap outboard of Item 5
123 0 -11 8 13 -10 (-14:-17:16) imp:n=1 $ around Item 6
124 0 -8 13 -2 (-7:-6) imp:n=1 $ between collector B and Pt plate
125 0 -4 27 28 -37 imp:n=1 $ gap outboard of Item 12
126 0 -36 25 26 -29 (-30:-31:32) imp:n=1 $ around Item 13
127 0 -25 3 -29 imp:n=1 $ before collector B
128 0 -4 34 -41 (-33:35) imp:n=1 $ between collector B and Pt plate
c P-10 gas in -Z detector
131 0 -4 69 -97 (-20:72) imp:n=1 $ before collector B
132 0 -4 12 60 -74 imp:n=1 $ gap outboard of Item 5
133 0 -11 8 60 -63 (-14:-66:67) imp:n=1 $ around Item 6
134 0 -8 52 -63 (-7:56) imp:n=1 $ between collector B and Pt plate
135 0 -4 27 87 -78 imp:n=1 $ gap outboard of Item 12
136 0 -36 25 79 -76 (-30:-82:81) imp:n=1 $ around Item 13
137 0 -25 79 -53 imp:n=1 $ before collector B
138 0 -4 91 -84 (-33:-85) imp:n=1 $ between collector B and Pt plate
c
```

```
199 0 149:-148:146 imp:n=0 $ external to model

c
c  Surface Records
c  Fission Chamber +Z
1  cz 0.953
2  pz 7.606
3  pz 7.634
4  cz 1.194
5  pz 7.634
6  pz 7.558
7  cz 0.921
8  cz 1.021
9  cz 1.194
10 pz 7.507
11 cz 1.119
12 cz 1.157
13 pz 7.126
14 cz 1.081
15 cz 1.119
16 pz 7.471
17 pz 7.253
18 cz 1.157
19 pz 7.113
20 cz 0.882
21 cz 1.194
22 pz 7.075
23 cz 1.157
24 pz 7.329
25 cz 0.858
26 pz 7.710
27 cz 1.150
28 pz 7.837
29 pz 8.091
30 cz 1.074
31 pz 7.746
32 pz 7.964
33 cz 0.874
34 pz 8.104
35 pz 8.142
36 cz 1.112
37 pz 7.888
38 cz 1.245
39 cz 1.786
40 pz 8.435
41 pz 8.529
42 pz 8.529
43 pz 8.583
46 pz 7.005
47 pz 7.056
c  Fission Chamber -Z
51 cz 0.953
52 pz -7.606
53 pz -7.634
54 cz 1.194
55 pz -7.634
56 pz -7.558
57 cz 0.921
58 cz 1.021
59 cz 1.194
60 pz -7.507
61 cz 1.119
62 cz 1.157
63 pz -7.126
64 cz 1.081
65 cz 1.119
66 pz -7.471
67 pz -7.253
68 cz 1.157
69 pz -7.113
```

70 cz 0.882
71 cz 1.194
72 pz -7.075
73 cz 1.157
74 pz -7.329
75 cz 0.858
76 pz -7.710
77 cz 1.150
78 pz -7.837
79 pz -8.091
80 cz 1.074
81 pz -7.746
82 pz -7.964
83 cz 0.874
84 pz -8.104
85 pz -8.142
86 cz 1.112
87 pz -7.888
88 cz 1.245
89 cz 1.786
90 pz -8.435
91 pz -8.529
92 pz -8.529
93 pz -8.583
96 pz -7.005
97 pz -7.056
c
c source, holder
101 cy 0.1
102 py -0.04
103 py 0.04
104 cy 0.127
105 py 0.506
106 cy 0.318
107 py -0.154
108 cy 0.330
109 cy 0.381
110 py -0.205
111 cy 0.152
112 py 0.563
113 py 0.608
114 cy 0.114
115 py 2.289
116 cy 0.277
117 py 0.659
c Holder
118 cy 0.366
119 py 2.108
120 py 1.613
121 cy 0.254
122 py 2.616
123 cy 0.3
124 py 3.753
125 cy 1.27
126 py 3.879
127 cy 0.445
128 py 4.133
129 py 4.260
130 py 4.895
131 cy 0.159
132 py 79.0
c
141 cy 7.858
142 cy 8.493
143 cy 14.446
144 cy 20.010
145 py 11.43
146 py 11.667
148 py -11.667
149 cy 11.667

```
151 c/y 0 -7.62 0.21
152 c/y 0 7.62 0.21
154 py 0.0
c
157 cz 0.635
158 so 3.810
159 so 3.851

c
c  Data Records
c  Source
sdef erg=d1 pos=0 0 0 cel=51 rad=d2 ext=d3 axs=0 1 0
sp1 -3 1.175 1.04
si2 0 0.099
sp2 -21 1
si3 0.0399
c  Materials
c
c  Air 0.001185 g/cc
m1     7014.50c 3.8466e-5
      8016.50c   1.0348e-5
      18000   2.3223e-7
c
c  SS304, 7.92 g/cc
m2    6012.50c 1.5884e-4
     25055.50c 8.6816e-4
     15031.50c 3.4647e-5
     16032.50c 2.2309e-5
     14000.50c 6.3683e-4
     24000.50c 1.7428e-2
     28000.50c 7.5171e-3
     7014.50c  1.7026e-4
     26000.55c 5.9994e-2
c
c  water, 0.9972 g/cc
m4     1001.50c 6.6669e-1
      8016.50c 3.3334e-1
mt4 lwtr.01t
c
c  Al 6061, 2.70 g/cc
m5 14000.50c 3.4736e-4
     26000.55c  1.0190e-4
     29000.50c  7.0365e-5
     25055.50c  2.2197e-5
     12000.50c  6.6899e-4
     24000.50c  6.0978e-5
     29000.50c  3.1082e-5
     22000.50c  2.5469e-5
     13027.50c  5.8639e-2
c
c  Pt, 21.45 g/cc
m6    78000.35c 6.6217e-2
c
c  Cf2O2SO4, 1.85 g/cc
m7    98252 3.5243e-3
      8016.50c 1.0573e-2
      16032 1.7622e-3
c
c  KEL-F, 2.2 g/cc
m8    6012.50c 2.2750e-2
     9019.50c 3.4125e-2
      17000.50c 1.1375e-2
c
c  Al powder, 2.0 g/cc
m11   13027.50c 6.0552e-2
c
c  fissionable deposits
m21   92235.50c 1.0
m22   94239.55c 1.0
m23   92238.50c 1.0
```

```
m24   93237.55c 1.0
c
c  Tallies
fc2 Fission Rate Tallies. The deposit is inside Surface 157
f2:n (3 53) (2 52)
sd2 2.53354 6.42400 2.53354 3.17291
fs2 -157
fm2 (1 21 -6) (1 22 -6) (1 23 -6) (1 24 -6)
c
c
mode n
nps 822222222
ctme 1260.0
print


Plutonium Containing Optimaly moderated H20 Sollution Minimum Accidents of Concern for RPL
c   3 Scenarios included in this deck. 1) Bare Sphere 2) Water Reflected Sphere
c   3) Iron Reflected Sphere.
c
c  Modeled by Bryce Greenfield 12-10-2008
c
c
c
c Scenario 1: A Bare Sphere
c Cell cards
c 1      1          .10020       (-1)             imp:n,p=1
c 2      0                       (1 -2)           imp:n,p=1
c 3      2          -0.001205    (2 -3)           imp:n,p=1
c 4      0                       (3)              imp:n,p=0
c
c
c
c Scenario 2: A Water Reflected Sphere
c Cell cards
c 1      1        .10020       (-1)      imp:n,p=1
c 2      3        -1           (1 -4)    imp:n,p=1
c 3      2        -0.001205    (2 -3)    imp:n,p=1
c 4      0                     (4 -2)    imp:n,p=1
c 5      0                     (3)       imp:n,p=0
c
c
c  Scenario 3: Fe Shielded Sphere
c Cell cards
c
c 1      1        .10020       (-1)      imp:n,p=1
c 2      4        -7.874       (1 -4)    imp:n,p=1
c 3      2        -0.001205    (2 -3)    imp:n,p=1
c 4      0                     (4 -2)    imp:n,p=1
c 5      0                     (3)       imp:n,p=0
c
c
c
c Blank line Follows

c  Scenario 1: A Bare Sphere
c Surface cards
c 1 so 19.54   $  H20 and Pu Sphere
c 2 so 219.04  $ .50 cm less than 2m
c 3 so 220.04  $ .50 cm greater than 2m
c
c
c Scenario 2: A Water Reflected Sphere
c c
c c Surface cards
c 1 so 19.54   $  H20 and Pu Sphere
c 2 so 219.04  $ .50 cm less than 2m
c 3 so 220.04  $ .50 cm greater than 2m
c 4 so 25.54   $  Water Reflector
c
```

```
c
c c Scenario 3: A Metal Shielded Sphere
c c
c c Surface cards
c 1 so 19.54   $  H20 and Pu Sphere
c 2 so 219.04  $ .50 cm less than 2m
c 3 so 220.04  $ .50 cm greater than 2m
c 4 so 31.54   $  Fe Reflector
c
c
c
c
c
c Blank line Follows

c Data cards
c
c
c Materials Cards
c
c
c     Optimaly moderated Pu and H20 Solution Ref: NCS99
c     Calculated Density 32 g/l 239Pu in H2O
m1    plib=04p nlib=50m pnlib=24u
     94239.60c           8.0614E-05   $ Pu 239
     1001.50m            .0666657     $ H
     8016               .0333343     $ O
c
c
mpn1
     82208
     1001.50m
     8016
c
c
c
c     Air   0.001205 g/cc
m2    6012              -0.000124    $ C
     7014              -0.755268    $ N
     8016              -0.231781    $ O
     18000              -0.012827    $ Ar
c
c
mpn2  6012
     8016
     8016
     8016
c
c
c     Water Calculated Density of 1 g/cc
m3    1001              .666657     $ H
     8016              .333343     $ O
mt3 lwtr.01t
mpn3
     1002
     8016
c
c
c     Fe Represnting a cask containing a criticallity accident
c     Calculated Density -7.874 g/cc
m4    26056              1          $ Fe
c
mpn4
     26056
c
c
phys:p 3j 1
c
c
MODE N P
```

```
c
c Criticality Control Cards
c kcode 2000 1.0 50 250
c ksrc 0 0 0
c
sdef pos  0 0 0    ERG=D1   RAD=D2
c
sp1 -3 0.966 2.842
c
si2 0   19.539
c
c
c  This is an Average Energy Deposited over a cell Tally
F6:N 3
SD6 7.28905E+02
c
F16:P 3
SD16 7.28905E+02
```

```
Calibration Analyses of the low field (80mrem/hr) NCD for building 325
c Detectors are calibrated in a neutron tank using a Cf-252 source. This source
c was born on 9-27-95 with an initial activity of .688Ci. Decay correct it is
c .0208Ci as of 1-19-2008.
c
c  Modeled by Bryce Greenfield 1-19-2008
c
c
c Cell cards
c
2      2         -0.001205      (-2 8 9 10)          imp:n=1
3      3         -.93           (-6 5)               imp:n=1
4      4         -7.84          (-3 2 4)             imp:n=1
5      5         1.7487e-5      (-5)                 imp:n=1
6      6         -3.35          (-7 3 4)             imp:n=1
7      2         -0.001205      (7 -999 6 5 11)      imp:n=1
8      2         -0.001205      (-4)                 imp:n=1
9      4         -7.84          (-8)                 imp:n=1
10     3         -.93           (-9 8)               imp:n=1
11     4         -7.84          (-10)                imp:n=1
c 12     3         -.93           (-12)                imp:n=1
13     33        -1.17          (-11)                imp:n=1
c 14     3         -.93           (-13)                imp:n=1
c 15     3         -.93           (-14)                imp:n=1
c 16     3         -.93           (-15)                imp:n=1
c 17     3         -.93           (-16)                imp:n=1
c
c
999    0                        (999)                imp:n=0
c
c
c Blank line Follows-----------------------------------------------------------------------------

c
c Surface cards
c
2  RCC 0  0      0          0 0      998      15.24     $  Counting well 10m deep
3  RCC 0  0      -.5        0 0      1000.5   17.24     $  Counting well wall assumed .5cm thick
4  RCC 0  0      998        0 0      2        15.24     $  Opening at the top of the well
5  RCC 0  -11.16  1013      0 22.32   0       .635      $  BF3 tube .5"X8" .635X20.32cm
6  RCC 0  -10.15  1013      0 20.32   0       5.715     $  Polyethylene Moderating collar around BF3 tube 2.25"X8" 5.715X20.32cm
7  RCC 0  0      -100       0 0      1100     100       $  Structural concrete
8  RCC 0  0      844.5      0 0      5.715    1.27      $  0.5"X2.25" Metal Source Holder
9  RCC 0  0      824.18     0 0      26.035   10.16     $  4"X2.75" Poly Colimator
10 RCC 0  0      820.18     0 0      4        15        $  Metal Support Plate
11 RPP   -13  13  -13  13     1002.285  1007.28         $  Lucite Slab
c 11 RCC 0  0      1002.285   0 0      2.54     13        $  Poly thermalizer slab
c 12 RPP -20   20   -20    20     1020    1026            $  Reflector Box top
```

```
c 13 RPP -20   20   14     20     1002    1020                  $  Reflector Box
c 14 RPP -20   -14  -14    14     1002    1020                  $  Reflector Box
c 15 RPP 14    20   -14    14     1002    1020                  $  Reflector Box
c 16 RPP -20   20   -20    -14    1002    1020                  $  Reflector Box
c
c
c
999  RPP     -500    500    -500    500  -400   2000 $ Void Box surrounding model
c
c Blank line Follows---------------------------------------------------------------------------

c Data cards
c
c
c Materials Cards
c
c
c     Air   0.001205 g/cc
m2    6012               -0.000124    $ C
      7014              -0.755268    $ N
      8016              -0.231781    $ O
      18000              -0.012827    $ Ar
c
c
c     Polyethylene .93 g/cc
m3     1001              -0.143716    $H
       6012             -0.856284    $C
MT3   POLY.60t
c
c      Lucite 1.19g/cc
m33      1001    -0.080538
        6012    -0.599848
        8016    -0.319614
c
c
c
c     Fe Represnting a cask containing a criticallity accident
c     Calculated Density -7.874 g/cc
m4    26056              1           $ Fe
c
c
c
c     Boron-10 Trifluoride Fill Gas Assumed Pressure of .70atm~70kPa, .001963g/cc
m5    5010.60c           .250         $B-10
      9019.60c          .750         $F
c
c
c
c
c
c     High Density Barritic Concrete rho=3.35g/cc
m6    1001               -0.003585    $ H
      8016              -0.311622    $ O
      12000              -0.001195    $ C
      13027              -0.004183    $ Al
      14000              -0.010457    $ Si
      16000              -0.107858    $ S
      20000              -0.050194    $ Ca
      26000              -0.047505    $ Fe
      56138.60c          -0.463400    $ Ba
c
c
MODE N
c
sdef pos  0 0 847  ERG=D1
c
c  Watt fission spectrum with spontaneous fission coefficients for Cf-252 from MCNP5 manual
sp1 -3  1.025    2.926
c
c
```

```
nps   5000000
c
c
c  This is a current tally over the surface of the poly collar
c F2:N  (6.1)
c 6.2 6.3)
c  .4eV is the Cd cutoff
c  4eV is a rough thermal cutoff where the Cd threshold becomes negligable
c
c E2    4E-6  20
c
c F12:N  (5.1)
c E12   4E-6  20
c 5.2 5.3)
c Surface area of BF3 tube
c SD2 162.14 5.067 5.067
c
c Surface area of the Poly collar 934.875
c SD2  935
c
c Cell Flux Tally over poly collar
c  729.7  102.6  102.6
F4:N  3
SD4  2059.26
E4    1.00E-07 1.00E-06 1.00E-05 1.00E-04 1.00E-03 1.00E-02
      1.00E-01 5.00E-01 1.00E+00 2.00E+00 3.00E+00 4.00E+00
      5.00E+00 6.00E+00
c    Cell Flux Tally over poly collar
F14:N  3
SD14  2059.26
E14    4E-6  20
F1:N 11.5
C1 0 1
E1    4E-6  20
```

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