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April 19, 1998

Richard Smoker, Editor in Chief
Power Press
1452 Industry Rd.
San Francisco, CA 94618



Re: Progress report on writing the guidelines and parameters for the construction of a mycological grow room.

Dear Mr. Smoker:

We are pleased to have the opportunity to discuss the status of our development of construction plans for a mycological grow room. As you are aware, the market for exotic mushrooms has increased tremendously over the past several years. Properly constructed and marketed, plans for a mycological grow room will assist your organization by filling a niche in current publications and providing a necessary resource for the horticulturist.

The attached progress report outlines Mushroom Mountain Company's status on the project. In the progress report, we include details about the intended audience, description of the work, the outline, a list of figures, and our overall appraisal of the project.

We are confident in our ability to produce the highest quality document. Should you have any questions, feel free to call the number above at any time.

Sincerely,

Bradleigh K. Bixford, Proprietor
Mushroom Mountain Co.

Attached: Progress Report



Progress Report: Construction of a Mycological Grow Room

As you are aware, our company was hired by the Power Press to design floorplans and elevations and to provide other details that will enable your company to produce a high-quality construction manual to market world wide.



The following is a progress report on the project. In it you will find a brief description of the intended audience and the proposed work, an outline for the manual with references, a list of figures, and the overall status of the project.

The overall status can be determined by breaking up the project into three major tasks and discussing what is complete and what remains to be done in each category. The three major tasks are:

- Developing floorplans with elevations
- Developing the detail drawings
- Writing the necessary text

Audience



This construction manual will assume that the purchaser understands the process of mushroom cultivation. A general overview as well as necessary text will guide the builder through the construction and will define the variables required in the grow room. Also, no more than basic construction skills will be assumed on the part of the builder.

Description of the Proposed Work

The proposed manual will provide enough details that the actual room can be built by a competent construction company. Floorplans; elevations; details of ducting, filtering, heating, cooling, and humidification systems are all included graphically and dimensioned where possible. These details are shown in the outline below.

Outline. The floorplans included will have been extensively tested and will provide near-perfect conditions. The manual will also focus on environmental conditions to consider when building the room. This way individual growers can customize the floorplans to fit their specific needs or area. Formulas to calculate air-exchange rates and ducting will also be included to aid in this area. The following is the outline for the manual:

- I. Introduction
- II. Overview of general process of mushroom cultivation
 - A. Spore collection, germination and isolation of mycelium
 - B. Preparation of the inoculum

1. Expansion of the mycelial mass on agar then grain
2. Implantation of grain spawn on substrate
- C. Fruit body initialization and development
- III. Sterile technique
 1. Sources of contamination
 - a. Immediate external environment
 - b. Culture medium
 - c. Culturing equipment
 - d. Cultivator's body and clothes
 - e. Mushroom spores of mycelium
 2. Design of sterile laboratory
 - . Schematic
 - a. Tools, accessories
- IV. Mycological grow room
 - . Structure
 0. Floorplans, elevations
 1. Insulation
 2. Sealing
 3. Drainage
 - A. Shelving and trays
 - B. Environmental control systems
 0. Air
 1. Purification
 2. Filters
 3. Fans
 4. Air exchange formula
 5. Exhaust vents
 6. Ducting formula
 7. Temperature
 - a. Heating
 - b. Cooling
 8. Humidification
 - a. Live steam
 - b. Mist
 9. Monitoring equipment
 - a. Thermostats
 - b. Humidistats
 10. Lighting
- V. Putting it all together (conclusion)

Bibliography

Here are the information sources we have been working with:

1. Atkins, F. "Buildings for Mushroom Holdings." *The Mushroom Journal* (November, 1965), 191-204.



2. Austin, Phillip R. *Encyclopedia of Cleanrooms, Bio-Cleanrooms, and Aseptic Areas*. New York: Interpharm Press, 1995
3. Bittner, C.W. "The Pathogens of Mushroom Spawn." *Mushroom Science* (December, 1972), 601-606.
4. Drake, M.G. "Insulation for the Mushroom Grower." *Mushroom Growers Association Bulletin* (March, 1961), 111-126.
5. Edwards, R.L. "Mushroom House Ventilation in Theory and Practice." *The Mushroom Journal* (August, 1973), 3-14.
6. Institute of Environmental Science. *Federal Standard 209E (Fed-Std-209E: Airborne Particulate Cleanliness-Classes in Cleanrooms and Clean Zones*. Fed-Std-209E. Washington: U.S. Government Printing Office, 1992.
7. Schroeder, M.E., Schisler, L.C., and Wuest, P.J. "A Unitized Forced Air Ventilation System for Mushroom Growing." Progress Report No. 302 (January, 1970) 1-35.
8. Shio, T., Okunishi, M., and Okumura, S. "Fundamental Studies on the Large Scale Cultivation of Edible Fungi." *Mushroom Science IX* (Part 1) (April, 1974) 17-48.
9. Sinden, J.W. "Disease Problems in Technologically Advanced Mushroom Farms." *Mushroom Science VIII* (September, 1972) 125-130.
10. Stamets, P., Chilton, J.S. *The Mushroom Cultivator: A Practical Guide to Growing Mushrooms at Home*. Olympia, Washington: Agarikon Press, 1984.
11. Tschierpe, H.J. "Environmental Factors and Mushroom Growing." *The Mushroom Journal* (Jan.-Feb., 1972) 23-30.
12. Wuest, P.J. "The Use of Steam for Phase II." *Mushroom News* (November, 1970) 18-23.

List of Figures

Here are the illustrations we are planning for the project:

1. Flowchart of the general process of mushroom cultivation
2. Schematic of a simple sterile laboratory
3. Floorplans and elevations of the mycological grow room
4. Shelving system schematic
5. Tray system schematic
6. Air purification and temperature control system detail
7. Humidification system detail

Development of Floorplans and Elevations

The task of developing floorplans and elevations has proceeded smoothly. It has been divided into two categories: completed work and work to be done in order to determine the status of the project.

Completed. We were able to make good progress in the development of the drawings and have completed both the floorplans and the elevations. We have enclosed them and await your final input. The drawings completed refer to Figure 2 and Figure 3.

Work to be done. Upon receipt of your final input, the necessary revisions will need to be made to the drawings. They will be made photo-ready and inserted into the text.

Development of the Detailed Drawings

The task of developing the detailed drawings has been divided into completed and work to be done.

Completed. This phase proceeded at a very good pace, and we have completed all the initial detailed drawings. We have enclosed them and await your final input. The corresponding figures they refer to are:

- Figure 1
- Figure 4
- Figure 5
- Figure 6
- Figure 7



Work to be done. The final revisions will be done pending your input. They will be made photo-ready to save set-up time and will be inserted into the text.

Writing the Necessary Text

The task of developing the text for the project proves the most difficult; plenty is left to be done. This task has also been divided into the same two categories as above.

Completed. We were able to finish about two-thirds of the text and have enclosed it for your review. The corresponding sections from the outline are as follows:

- Section I
- Section II
- Section IIIA

Work to be done. Section III proved to be difficult due to the technical nature of the formulas. We have found errors in our figures, and as soon as they are resolved we will send this and section IV to Mr. Smoker.

Overall Appraisal



The project has come together nicely and looks very professional though we do admit we will be unable to deliver the finished product by the April 20 deadline. Our figures for the air-exchange and lighting requirements were found to be inaccurate and will be resolved. The remaining text will be completed soon after and immediately sent to Mr. Smoker. We apologize for the tardiness and hope that the quality will more than make up for this delay.

After all final revisions of the drawings and text are completed, they will be made photo-ready and sent to Mr. Smoker. The problems we have incurred have set our final date back two weeks. We urge you to call at our office number with any problems you might have.

