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Who needs a plan review?

TOP

The MDA web site contains guidance for industry. The actual plan review requirements are found in both the Michigan Food Law and the 1999 FDA Model Food Code.

The food code requires the submission of plans and specifies what shall be submitted:

FC 8-201.11 When Plans Are Required.
A PERMIT applicant or PERMIT HOLDER shall submit to the REGULATORY AUTHORITY properly prepared plans and specifications for review and approval before:
(A) The construction of a FOOD ESTABLISHMENT;
(B) The conversion of an existing structure for use as a FOOD ESTABLISHMENT; or
(C) The remodeling of a FOOD ESTABLISHMENT or a change of type of FOOD ESTABLISHMENT or FOOD operation as specified under ¶ 8-302.14(C) if the REGULATORY AUTHORITY determines that plans and specifications are necessary to ensure compliance with this Code.

FC 8-201.12 Contents of the Plans and Specifications.
The plans and specifications for a FOOD ESTABLISHMENT, including a FOOD ESTABLISHMENT specified under § 8-201.13, shall include, as required by the REGULATORY AUTHORITY based on the type of operation, type of FOOD preparation, and FOODS prepared, the following information to demonstrate conformance with Code provisions:
(A) Intended menu;
(B) Anticipated volume of FOOD to be stored, prepared, and sold or served;
(C) Proposed layout, mechanical schematics, construction materials, and finish schedules;
(D) Proposed EQUIPMENT types, manufacturers, model numbers, locations, dimensions, performance capacities, and installation specifications;
(E) Evidence that standard procedures that ensure compliance with the requirements of this Code are developed or are being developed; and
(F) Other information that may be required by the REGULATORY AUTHORITY for the proper review of the proposed construction, conversion or modification, and procedures for operating a FOOD ESTABLISHMENT.

The food law provides additional detail on the need for a transmittal letter and fees. Michigan's plan review application form meets the requirement for a transmittal letter.

Section 6105 (3) also allows an agency to reject incomplete plans. Getting complete plans is often difficult, but is a very important step to assuring compliance with the food code.

FL 289.6105 Plans and specifications; transmittal letter; fees; rejection.
Sec. 6105. (1) A person seeking approval of plans and specifications for a food establishment shall submit a transmittal letter with the plans and specifications. The letter shall identify and summarize the plans or projects and shall indicate the owner, operator, or designated agent.
(2) An applicant shall submit any required fees, as authorized by section 2444 of the public health code, MCL 333.2444, or this act.
(3) The director may reject the plans for a proposed food establishment if any of the information required by the food code is not included, is incomplete, or is inaccurate.

The food law provides exemptions for establishments that are not required to submit plans:

FL 289.6103 Plan review exemption.
Sec. 6103. (1) The following food establishments are exempt from the requirement for plan review and approval specified in section 8-201.11 of the food code:
(a) A temporary food establishment.

(b) A retail grocery.
(2) The plan review exemption for a retail grocery in subsection (1) does not apply to the operation of a food service establishment within a retail grocery. For purposes of this section, a deli within a retail grocery is not considered a food service establishment unless it provides seating for the customers.

Several additional food law sections cover the requirements for review, approval and plan changes. Either the review must be completed or additional material must be requested within 30 business days or the plans are considered complete and adequate (although the applicant still must comply with the food code at the pre-opening inspection).

FL 289.6107 Plans and specifications; review by director; revisions and modifications; approval; expiration; location.
Sec. 6107. (1) Upon receipt of plans and specifications, the director shall review the plans and specifications as soon as practicable to determine their completeness and adequacy. If a submission of complete plans and specifications is not reviewed within 30 business days of receipt, the plans and specifications will be considered complete and adequate. Thereafter, construction may proceed without the director's authorization. Approval of the plans and specifications by operation of law does not relieve the license applicant or license holder from compliance with other provisions of this act.
(2) If the director determines that plans and specifications are incomplete or inadequate, or both, he or she shall notify the license applicant or license holder in writing and shall request the submission of revised plans and specifications with appropriate corrections or additions. The director shall not approve the plans and specifications until he or she determines that the plans and specifications are complete and adequate and that the food establishment is designed in accordance with the food code and this act.
(3) Upon a determination by the director that the plans and specifications are complete and adequate, the director shall mark the plans and specifications showing approval and the date of approval, shall notify the license applicant or license holder in writing of the approval, and shall authorize construction, conversion, alteration, or remodeling of the food establishment.
(4) Approval of plans and specifications by the director and authorization for construction pursuant to the food code, this act, and rules promulgated under this act expire if construction, conversion, alteration, or remodeling has not commenced within 1 year from the date of approval or has been interrupted for 1 year or more since the date of approval. A license applicant or license holder may apply in writing to the director for an extension of the approval and construction authorization before the approval expires. The request for extension shall identify the project for which the approval and construction authorization were originally granted and the reason for requesting the extension. The director may require modification of the plans and specifications to incorporate updated food sanitation practices or requirements, where applicable, unless the license applicant or license holder has entered into binding agreements or contractual

obligations which cannot be canceled or modified without substantial loss to the license applicant or license holder as determined by the director.
(5) The approved plans and specifications shall be located on-site during construction and shall be available for inspection by the director.

FL 289.6111 Approved plans and specifications; submission of changes; as-built plans.
Sec. 6111. (1) A license applicant or license holder shall submit in writing to the director a change in approved plans and specifications. Written approval must be obtained before construction under the approved plans and specifications.
(2) Upon request of the director, a license applicant or license holder shall submit as-built plans, clearly showing the work as constructed.

A stop work order may be issued if a facility is being constructed without the required plans being submitted, or if the approved plans are not being followed.

FL 289.6113 Rescission of construction authorization.
Sec. 6113. (1) The director may rescind his or her authorization for construction, conversion, alteration, or remodeling of a food establishment if he or she determines that the license applicant or license holder is not undertaking construction in accordance with approved plans and specifications. The director shall notify the license applicant or license holder before rescission of construction authorization, advise him or her of required corrective action, and afford him or her the opportunity to take any required corrective action.
(2) The director shall order the license applicant or license holder in writing to cease construction, alteration, conversion, or remodeling activities if the applicant or license holder does any of the following:
(a) Fails to submit required plans and specifications for the construction, alteration, extensive remodeling, or conversion to use as a food establishment.
(b) Fails to construct, alter, extensively remodel, or convert a food establishment in accordance with plans and specifications approved by the director.
(c) Fails to take corrective action as required pursuant to this section.

Food service establishments must have a preopening inspection.

FL 289.6115 Preopening inspection.
Sec. 6115. (1) After completion of the construction, alteration, conversion, or remodeling and before the opening of a food service establishment, the license applicant or license holder shall notify the director of the completion, shall submit an application for a license to operate the food service establishment, and shall arrange for a preopening inspection.
(2) During the preopening inspection, the director shall determine whether the food establishment was constructed, altered, converted, or remodeled in accordance with the approved plans and specifications.

(3) Local health departments may specify when requests for preopening inspections are to be submitted.

If necessary, the food law provides the authority for regulatory staff to enforce the state mechanical code.

FL 289.6117 Exhaust ventilation; design, construction, and installation.
Sec. 6117. Exhaust ventilation shall be designed, constructed, and installed in compliance with applicable state law.

Plan Review Materials

TOP

The following materials may be used in conducting a food establishment plan review. This includes fixed and mobile food service establishments, special transitory food units, grocery stores and convenience stores. The documents listed are designed to determine compliance with the food code. These documents may not be suitable when evaluating plans for establishments governed under other laws (i.e.- a processing plant which must meet portions of the Code of Federal Regulations).

- Submittal instructions / flow chart sheet
- Application form
- Worksheet
- Manual
- Reviewer's checklist
- Inadequate plans form letter
- Stop work form letter
- Approval form letter
- Smoke test form
- File Checksheet
- Tracking database or log
- Smoke test guidelines
- NSF Listings-Food Equipment, current edition or view on-line at www.nsf.org. UL & ETL listings books make a more complete library
- Michigan's current mechanical & plumbing codes.
- Michigan's Safe Drinking Water Act
- Michigan Criteria for Subsurface Sewage Disposal.

MDA Excel formula calculator

Much of the above material can be found on the: PLAN REVIEW FOR REGULATOR'S PAGE.

Scale ruler

- Scale rulers may be purchased where engineering supplies are sold, or at blueprint copying shops. Be sure to buy a ruler that will read commonly used scales, such as 1/4" = 1 foot.

Calculator

Smoke candles and instructions for use

Steps in the Plan Review Process

TOP

These steps provide a guide to conducting a correct and thorough plan review that will result in a food establishment that complies with Michigan's food law. The steps combine the legally required steps, Michigan Department of Agriculture's (MDA) plan review materials and tools, plus the practical functionality of receiving and maintaining facility information in an orderly fashion. This model can be adapted as needed to fit a particular agency's operations.

Step 1 Provide Materials to Applicant

- Plan submittal instructions / flow chart
- Application
- Worksheet
- Manual
- Fee Schedule
- Advise how long the review process usually takes.

Step 2 Receive Plans (office staff)

- Receive plans, fee & provide customer receipt as needed.
- Mark received and put a date on all items (plans, worksheet, application, etc.).
- Give the plan a number.
- Enter number and plan information into database or log.
- Make a file for the establishment plan review.
- Staple file review check sheet to the inside front cover.
- Give file and plans to plan reviewer.

Step 3 Determine Site Suitability Concerns (reviewer)

- **Review -** Review available files if facility is or previously was a food establishment. For proposed remodeling are their existing violations that may affect the proposal being made?
- **Coordinate-** Discuss the site's potential problems with environmental contamination, safe on-site water supply and adequate on-site sewage disposal with appropriate local health department (LHD), or Department of Environmental Quality (DEQ) staff. Discuss structural, mechanical and

plumbing concerns for existing buildings with local building officials. Are there concerns that should be brought to the applicant's attention? Should the program staff for other agencies also contact the applicant to receive or to supply additional information? Review the water supply and sewage disposal section of the completed worksheet to determine if necessary approvals are being sought.

Step 4 Check Plans for Completeness (reviewer)

- Make completeness check within a few business days of receiving plans.
- Reviewer looks over plans for major missing elements.
- Use plan submittal instructions sheet as a guide.
- Check worksheet for missing information. Make a list of numbers where needed information is missing.
- Send "inadequate plans" letter, if needed, as soon as possible. If plans are complete, skip to step 7.

Note: Read Food Law Section 6107. Complete plans not reviewed within 30 business days of receipt are automatically considered complete and adequate. By quickly advising an applicant of missing material, you help avoid the applicant having a time crunch due to a long review time and you keep the 30 business day clock from starting.

Step 5 Receive Missing Information (office staff)

- Office staff receive information.
- Mark received and put a date on all items.
- Information given to plan reviewer.

Step 6 Verify Plans are Complete (reviewer)

- Make completeness check within a few business days of receiving requested information.
- Send "inadequate plans" letter, if needed, to request any information still missing.
- Document when plans are complete and ready for review. Use file check sheet and reviewer's checklist.

Note: Plans must now be reviewed and a response made within 30 business days.

Step 7 Review Plans (reviewer)

- Determine if submitted information is in compliance with FDA 1999 model food code.
- Determine food, dish and waste flow patterns through a personal meeting or phone consultation with the applicant or their appropriate representative. Document results of this meeting or discussion.
- Use reviewer's checklist to avoid missing items.

- Items that are reviewed from looking at the worksheet are listed in a table that begins on the front of the checklist.
- Items that are reviewed from looking at the plans and specification sheets are listed in a table beginning on the back of the checklist.
- When an item has been reviewed and found to:
  - Meet the applicable food code requirements, check the "SAT." column.
  - Be not applicable to the proposal check the "NA" column.
  - Have inadequate information for review check the "NEED MORE INFO" column.
  - Explain why a certain column was checked or write any related notes in the comments column.
- Open the excel formula calculator on your computer. You must have microsoft excel to run this program.
  - Calculate the formulas to determine if there is adequate: dry storage space, refrigerated storage space, hot water heater size and ventilation system air volumes (exhaust & make-up air). The tabs along the bottom open various formula pages.
  - Enter data in appropriate locations. Follow instructions on each sheet.
  - Enter comments in appropriate locations on the spreadsheets.
  - Document in comment areas whether your data interpretation shows whether proposal is acceptable or not and why.
  - Print, sign & date each excel page. Place in review file.
- Confirm with appropriate agency staff or applicant that permits have been issued or inspections made to confirm approved water supply and sewage disposal. Place copy of permits or approval documents (i.e. type II water supply sanitary survey, water sample results) in plan review file.
- Variances granted should be properly approved and documented. See FC 8-103 for variance procedures.
- Review the plan review manual as needed for technical assistance.
- Check with knowledgeable peers when you have questions. These include:
  - Other knowledgeable reviewer's from your agency.
- Plan review staff from another agency.
- MDA Plan Review Specialist. Phone 517-373-1060.

Step 8 Respond to Applicant (reviewer)

- Compile items not marked "SAT" or marked "NEED MORE INFO" from the reviewer's checklist.
- Write approval letter if plans are in substantial compliance with code. If there are a few items on non-compliance, address them in the letter.
- When there are substantial items of non-compliance or the detailed review shows that additional information is needed request additional information and/or revised plans.
- Update file check sheet and office database / log.
- Mark plans approved (include date).

Step 8a Receive Response (office staff)

- Skip this step if plan approval letter sent in step 8.
- Receive revised plans and additional information requested.
- Mark received and put a date on all items.
- Write plan approval letter when all items requested have been received and comply with the food code.

Step 9 Conduct Construction Inspections As Desired (reviewer)

- Document visits and information discussed in plan review file.

Step 10 Prior to Opening Inspection Activities

- Receive license application & fee. Receipt license fees.
- Receive written final mechanical system approval (or verify on-site during pre-opening inspection from inspector's approval tag).
- Mark received and put a date on materials.
- Schedule pre-opening inspection.

Step 11 Conduct Pre-Opening Inspection (reviewer)

- Conduct pre-opening inspection to verify facility is in compliance with approved plans and the food code.
- Document inspection results approval / disapproval on routine inspection form. Conduct follow-up pre-opening inspection(s) as needed. Document on separate routine inspection forms.
- Sign and process license application.
- Schedule next inspection.

Step 12 Quality Control (reviewer/supervisor)

- Verify that all items on file check sheet are properly completed.
- Complete any inadequate documentation by properly completing file notes on oral discussions (phone calls), verifying notes and forms in the file are legible, properly signed and dated.
- Verify that for every document, there is a response document or documentation of oral discussion.
- Put file documents in order- either chronologically or in order of file check sheet.
- File plans in a manner that makes them easily retrievable. You may discard plans that were:
  - not legally required and not used during the review
  - earlier plan versions when updated plans are submitted (be sure not to discard notes which have been written on the plans)
- Complete plan review database / log.
- Have supervisor review file for quality and completeness as required.

Purge files occasionally per approved record retention schedule.

Introduction to Blueprint Reading

TOP

In food establishment plan review, the term "blueprints" typically refers to plans prepared by a professional architect, engineer or food establishment design professional. The food code does not require professionally designed plans, so most types of facilities may have owner prepared plans. Blueprints vary in their composition, since the customer and regulatory requirements control what's included. The abbreviations and symbols used also vary between architects, engineers and software programs. Blueprints also have many similarities and with a little practice, a reviewer can gain expertise in locating and understanding the information needed to conduct a food establishment plan review.

Legends & Symbols

TOP

Blueprints generally contain the following sections, called an "Index of Drawings":

T **Title Sheet** - Identifies architect, contractor & owner.

C or L **Civil/Site/Landscaping Drawings** - Shows location of water and sewer, easements, terrain and exterior buildings.

A **Architectural Sheets** - Contains finishes, interior and exterior wall construction, hardware schedule and doors.

S **Structural Sheets** - Indicates the material inside the walls that holds the building up, such as: framing construction, I-beams, trusses, joists, etc.

M **Mechanical Sheets** - Shows the exhaust and make-up air, heating and air conditioning system, duct sizes, fans and roof penetrations.

P **Plumbing Sheets** - Shows hot and cold water lines, sewer lines, plumbing fixtures and water heater.

E **Electrical Sheets** - Shows light fixture locations.

EQ **Equipment Plan** - Equipment list and location.

FS **Food Service Equipment Plan** - Like EQ but only shows food service equipment.

SP **Specification Sheets** - Shows detailed information about equipment and materials.

R **Refrigeration Sheets** - Shows refrigeration equipment.

When a number follows the abbreviation, the number refers to the page number within that section. For example, EQ3, refers to the 3rd page in the equipment section.

Each section may contain a table of symbols and abbreviations. For example the plumbing section contains the plumbing symbols and abbreviations. A typical table is shown below.

DESIGNATION	ITEM
W	WASTE LINE
V	VENT LINE ABOVE SLAB
C.W.	COLD WATER LINE ABOVE SLAB
C.W.	COLD WATER LINE UNDER SLAB
H.W.	HOT WATER LINE
G	GAS LINE
UP	LINE UP (END OF RUN)
DN.	LINE DOWN (END OF RUN)
	LINE UP (IN PIPE RUN)
	LINE DOWN (IN PIPE RUN)
T	TEMPERED WATER LINE
	GATE VALVE
	GAS VALVE
CD	CONDENSATE DRAIN ABOVE SLAB
	PVC UNDERGROUND CONDUIT FOR SYRUP AND REGISTER CABLES
C.	WATER CLOSET
C.O.	CLEANOUT (FLOOR)
C.O.	CLEANOUT (WALL)
F.D.	FLOOR DRAIN
F.S.	FLOOR SINK
F.P.H.B.	FROST PROOF HOSE BIBB
H.D.	HUB DRAIN
H.S.	HAND SINK
L.	LAVATORY
M.S.	MOP SINK
U.	URINAL
V.T.R.	VENT THRU ROOF
W.H.	WATER HEATER

PLUMBING LEGEND

N1 12

Above slab means above the ground floor.

All sewer lines have cleanouts (c.o.) so that blockages can be removed. Water supply lines do <u>not</u> have cleanouts.

A floor drain is typically finished level to the floor with a grate and can be walked over. A floor sink is typically a small sink, sunk level with the floor- usually below a 3 compartment dishwashing sink. A floor sink can receive larger volumes of water without overflowing.

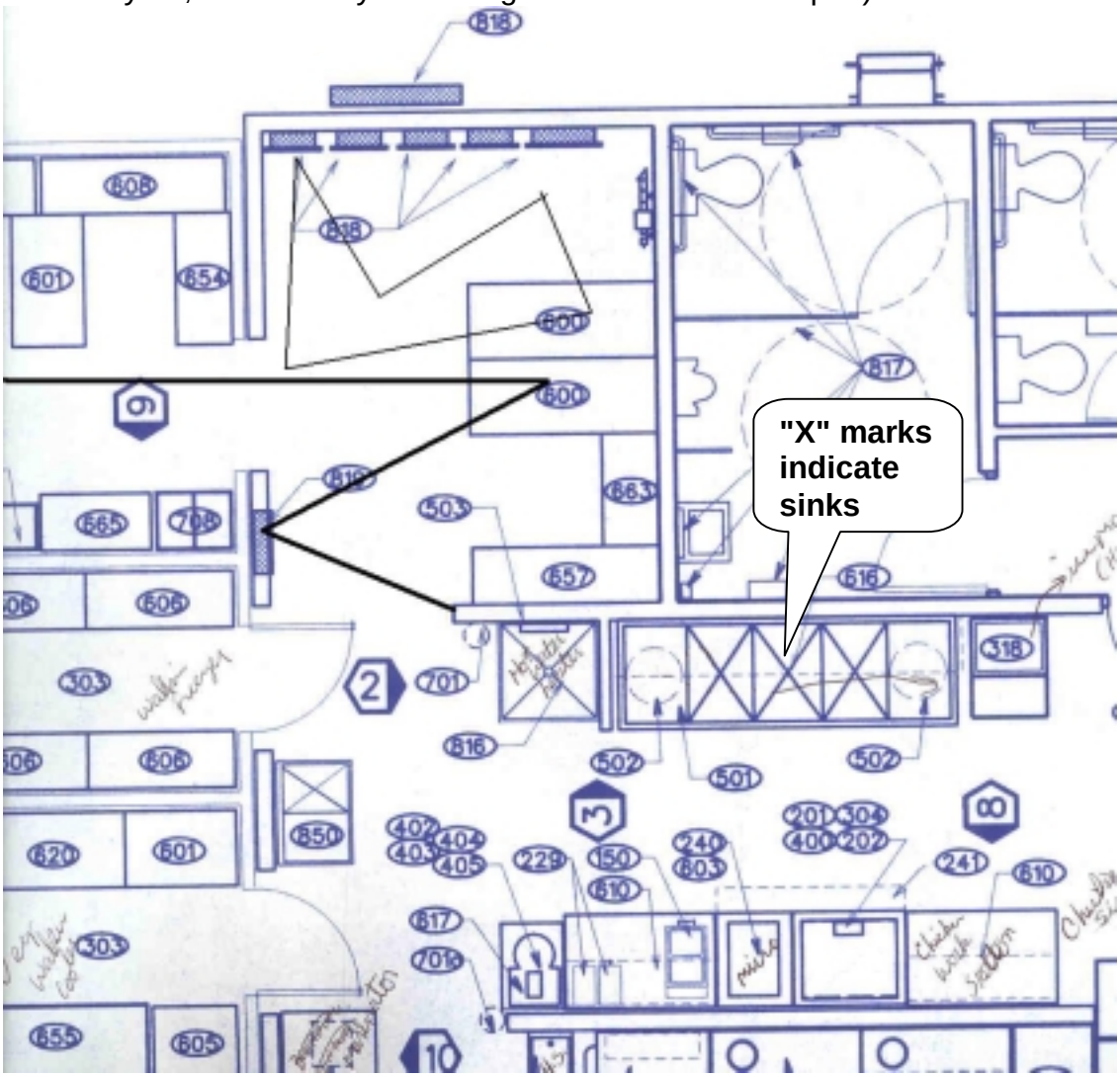
A hub drain (H.D.) is merely a drain pipe that extends above the floor. A hub drain is typically used to drain equipment, such as an ice maker.

Lavatories (L) are typically sinks found in bathrooms. Handsinks (H.S.) are designated handwashing sinks in food preparation areas.

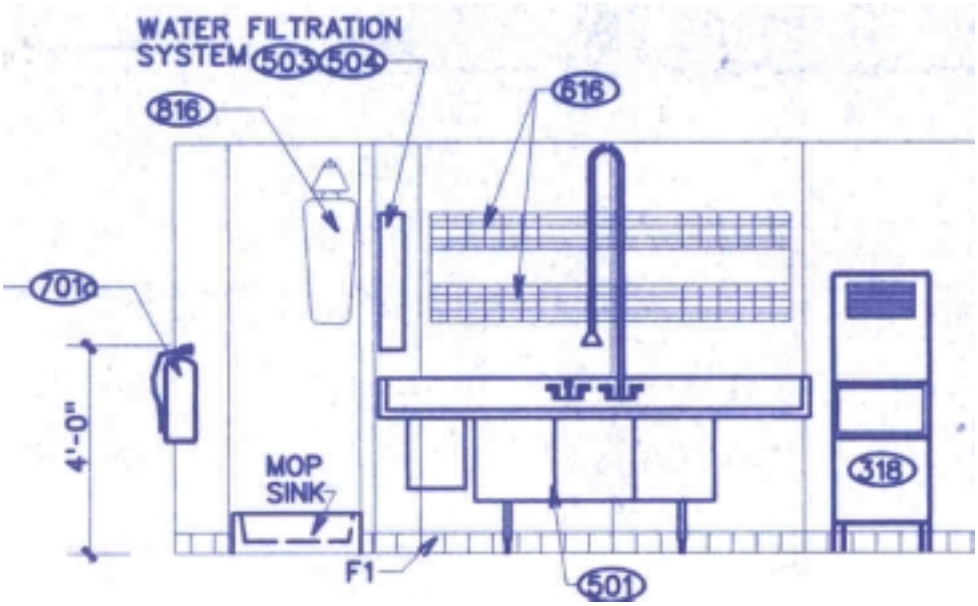
Layout [TOP](#)

When reading a plan start with the food equipment layout sheet. The reviewer can use the layout sheet, submitted menu and consultations with the applicant to determine the flow of food items, dishes and solid waste throughout the facility. From this analysis, potential problems with cross-contamination and inadequate equipment can be identified. Review the section on food flow in part 1 of the plan review reference manual.

The layout shows the arrangement of equipment within the facility. Some plans may show an enlarged side view, or elevation, of certain areas. Note hexagon-shaped boxes with numbers inside. The dark side of the box points to the area of the kitchen that has an elevation drawing. For example, box 3 points to the 3 compartment sink / mop sink area. (Note: When there are 2 numbers in a box, separated by a line, one number indicates the sheet number and the 2nd number indicates the drawing number. Since this elevation was found on the same sheet as the layout, there is only a drawing number in this example.)



Partial Layout



Elevation # 3

Elevation drawings are helpful in visualizing how the equipment will be placed, but they are not typically required as they are expensive for an applicant to have drawn and applicant's that prepare their own plans do not usually have the expertise to draw an elevation view. Typically, only plans for schools and chain facilities contain elevations for anything besides the ventilation hoods and equipment. A reviewer usually works from the layout and the specification (cut) sheets.

The number inside each of the ovals identifies the equipment on the equipment schedule. Look for the equipment schedule, which is typically near the layout sheets. Using the schedule below, identify several items from the above drawing.

Equipment Schedule **TOP**

Equipment schedules often contain useful information, such as whether a piece of cooking equipment is gas or electric (useful in determining the need for ventilation) and which pieces of equipment are supplied with hot water (useful in calculating hot water requirements).

Exercise **TOP**

Review the equipment schedule below and answer the following questions:

- How many handsinks are proposed?
- Which items would use hot water?

- What question might a reviewer have about the 3 compartment sink?

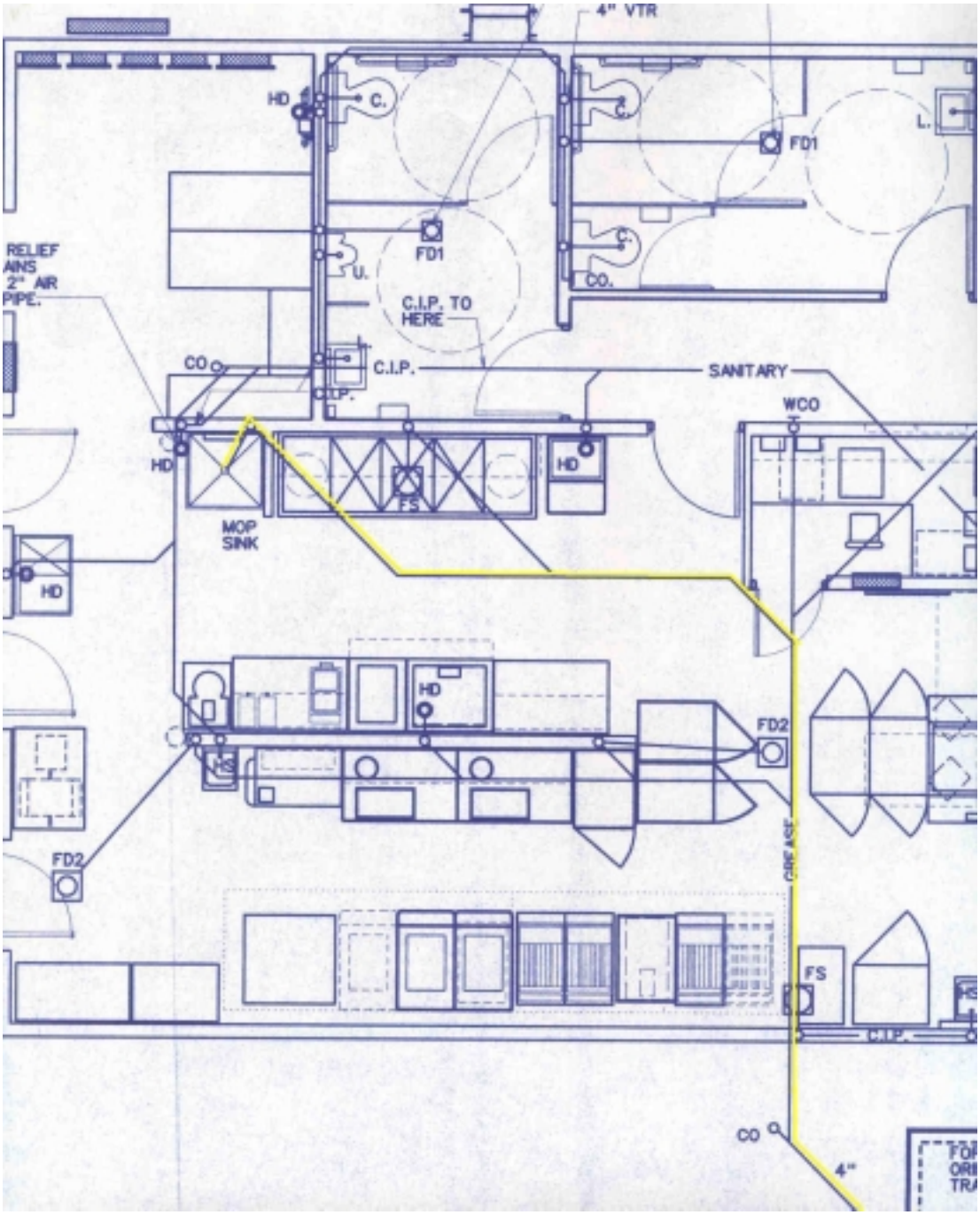
	REFRIGERATION						
300	1		1 DOOR FREEZER (SPLIT DOOR)	DELFIELD 6125SH	115V/9.5A/3HP		
302	2		UNDERCOUNTER REFRIGERATOR	DELFIELD 406-CA	115V/4.2A		
303	1		WALK-IN COOLER/FREEZER	I.C.S. /KOLPAK	208V/3Ø/(2) 18.3A		
304	1		UNDERCOUNTER FREEZER	DELFIELD *407-CA	115V/12A/1Ø		
317	1		ICE MAKER FOR *102	CORNELIUS IRC-630	115V/12A		
318	1		ICE MACHINE W/ICE BIN	HOSHIZAKI *KM500MRE BIN *B-300	115V/12.5A		
	PREPARATION						
400	1		OVEN TABLE	AP WYOTT			
402	1		MIXER TABLE	AP WYOTT			
403	1		FOOD CUTTER W/MOGO ATTACH.	BRICKER PRODUCTS *B-12-45	115V/14.8A/1HP		
404	1		MIXER	BLAKESLEE	115V/8.2A/½HP		
405	1		MIXER TIMER	FAST MT. 200	115V/.75A		
406	1		MARINATOR	QUALITY QMM-4	115V/4.6A		
407	2		SINGLE BREADER W/BACKSPLASH	AYR-KING	115V/4.2A		
	WASHING AND CLEANING						
500	2		HANDSINK	INOVATORS INTERNATIOAL WALL SINK			½
501	1		3 COMPARTMENT SINK	METCRAFT W/POWER SOAK	208V/19A/1Ø		H
502	1		TRASH CONTAINER	CONTINENTAL MFG./F.S.S.			
503	1		WATER FILTRATION SYSTEM	SELECTO			½

Exercise Answers:

From just this small sample equipment schedule, a reviewer can determine that:

1. The plan should show 2 handsinks labeled "500".
2. The handsinks and 3 compartment sink are hot water users, and will need to be included in the hot water calculations.
3. The 3 compartment sink is stated to have a power soak unit. Was a specification sheet submitted on this device? How will it be used? Will it interfere with proper dishwashing? Why does the facility need this device? These are all questions that a reviewer may wish to ask to gain a better understanding of how the processes, menu and equipment combine.

Plumbing [TOP](#)

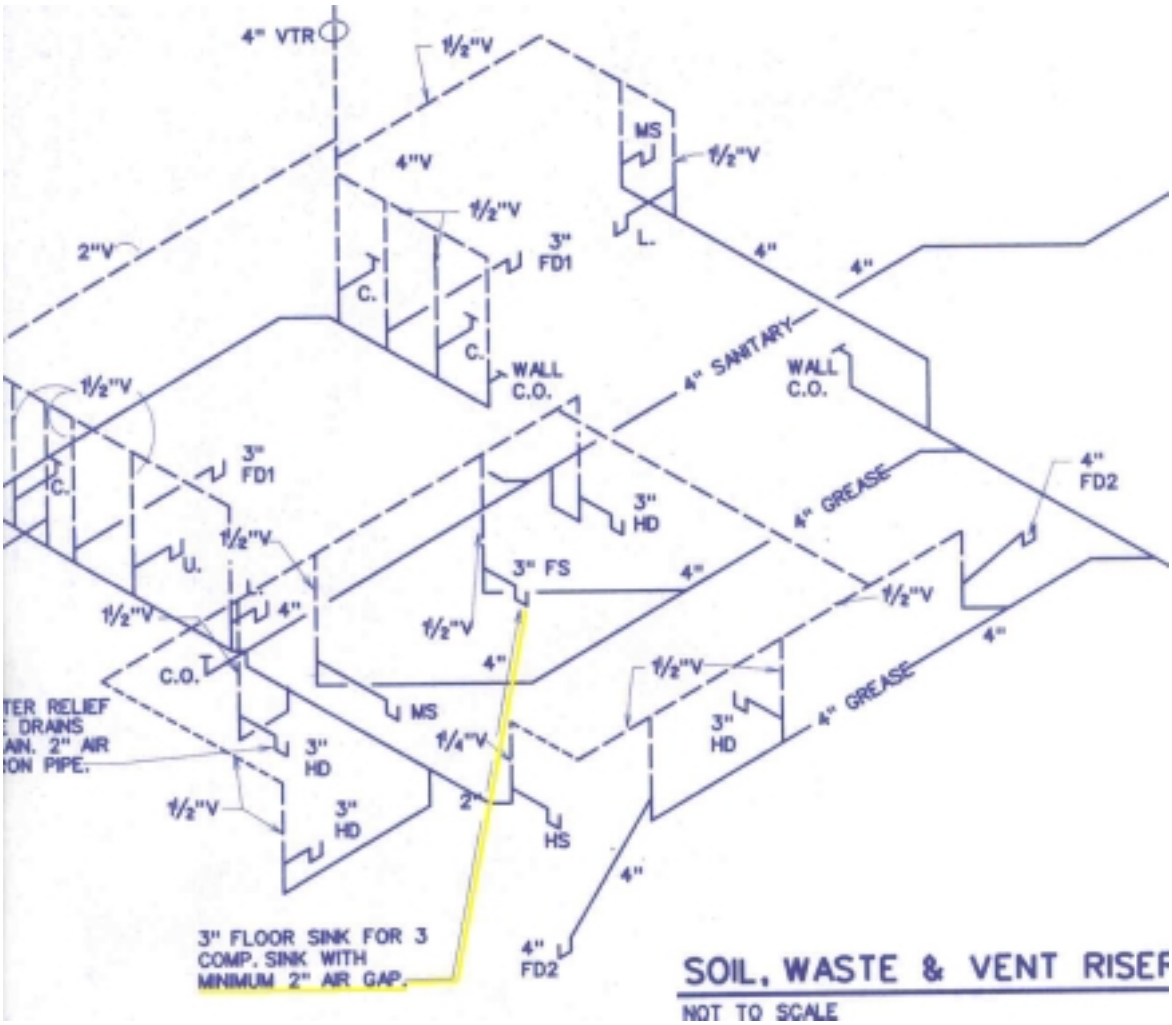


Partial Plumbing Plan

Review the plumbing legend to become familiar with the symbols and abbreviations. The above diagram is from a plumbing (P) sheet. Follow the sewer line from the mop sink until it leaves the building. Notice that there are 2 sets of sewer lines. One is labeled "sanitary" and collects all the general drains. The other is labeled "grease" and collects waste from all fixtures that could

produce grease waste. The grease line is routed through a grease trap that is just visible at the lower right corner of the drawing. Michigan's plumbing code requires a grease trap for grease-laden waste and this is enforced by the plumbing inspector.

To the right of the mop sink is a 3 compartment sink with a floor sink beneath it. The concern here, that is the responsibility of food plan reviewer, is to determine: 1. Whether food will be washed or processed in any of the sink compartments and 2. If food will be placed in a sink compartment, is that compartment air-gapped from the sewer? It's not shown on the elevation #3 drawing whether the sink has an air-gapped drain. However, within the plumbing sheets is a 3 dimensional diagram of the plumbing system. View this 3D diagram and note the information on the sink. When viewing this diagram, the plumbing lines above the floor (vent lines) are dotted lines and plumbing lines below the floor are solid lines. Note the 3D drawing is not to scale.



3 Dimensional View of Plumbing

With any plan, review the plumbing sheets for the following:

1. Identify all equipment that has potential cross-connections. Be sure to look at both the water supply and drainage side. Determine if the necessary cross-connection control devices, air gaps or air breaks are proposed. The plumbing cross-connections table in the worksheet should also be reviewed.
2. Review location and specifications for the hot water heater(s).
3. Identify all equipment and areas that need to have a drain. Verify that a suitable drain is proposed. For example, is there a floor drain in close proximity to walk-in refrigerator doors for mop water, near built-in cooking kettles for drainage and near the dishmachine for water drainage? Will condenser water from the walk-in refrigerator be routed to an interior drain or to the exterior where it may create a nuisance or water source for pests?

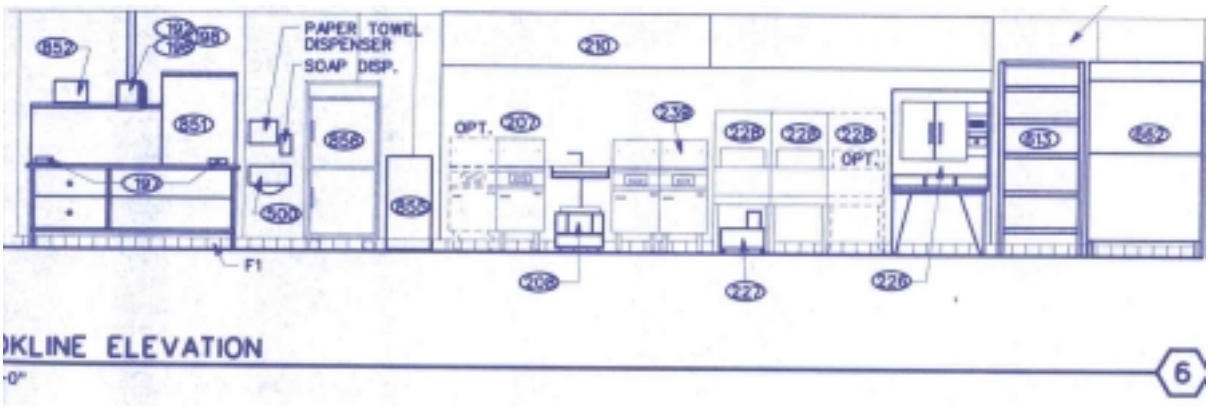
Mechanical Plan **TOP**

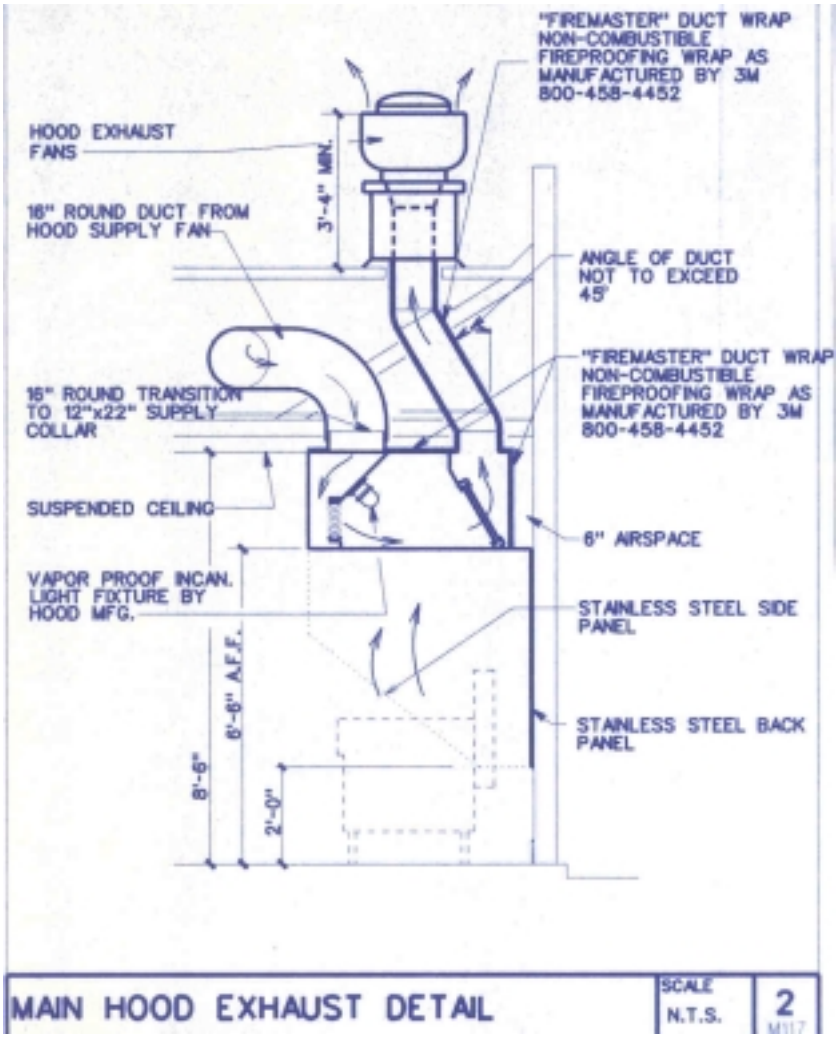
Mechanical plans typically show and describe:

- An overhead and side (elevation) view of the proposed exhaust hoods and the cooking equipment to be placed under the hoods.
- The exhaust ductwork and roof fan location(s).
- The make-up air equipment, ducts and air inlet location(s).
- An air balance schedule detailing the inlet and exhaust volumes proposed.
- Possibly the general building's heating, ventilation and air conditioning (HVAC) system may be shown.

The next 3 graphics show the same proposed cooking ventilation system. First a front view, then a side view and finally an air balance schedule.

The drawing below shows an elevation view of the exhaust hood (#210) and the equipment proposed to be placed under the hood. Note that the hood is actually 2 hoods joined together. This often means there will be an exhaust fan for each hood.





Side elevation view of the exhaust system.

Items to note:

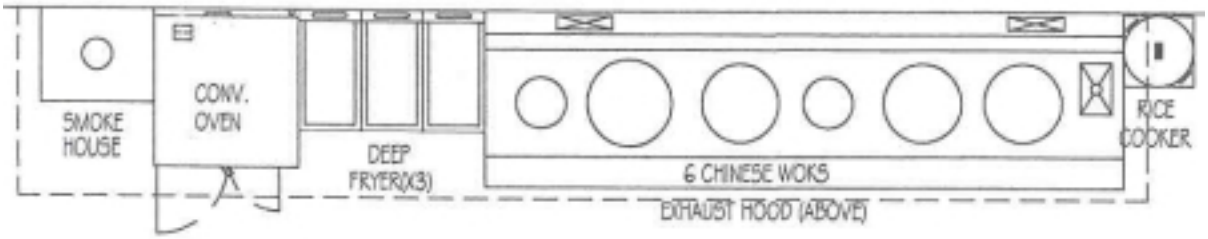
- Location of exhaust fan on roof does not indicate a nuisance exhaust problem.
- Most make-up air is brought in through the front edge of hood, instead of through ceiling grates. This is known as a compensating hood.
- Shielded light.
- Stainless steel back and side panels.

The air balance schedule shown lists all the supply and exhaust air for the entire building. The "CFM Outside Air" column indicates that some make-up air is being introduced through the heating and cooling system (#1-3, totaling 3500 cfm). The rest of the make-up air is being introduced directly into the compensating hood (#6, 4380 cfm). The compensating hood, as shown on the front elevation view above, is actually 2 hoods joined together, with one exhaust fan for each hood (CFM Exhaust Air # 4 & 5, totaling 5363 cfm). There is another separate hood (#7, 1375 cfm). Note that the difference between the outside and exhaust air is a positive 742 cfm. Intake and exhaust air should balance fairly closely.

AIR BALANCE SCHEDULE

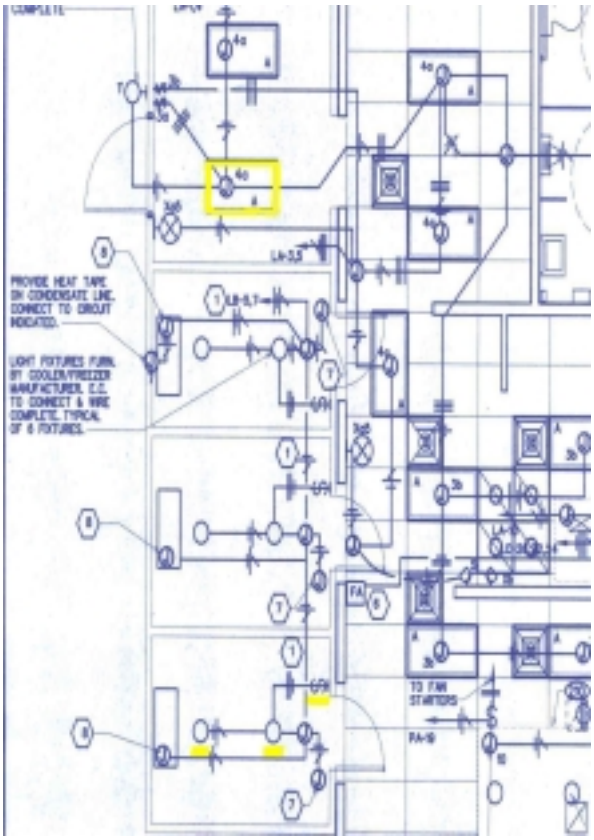
ITEM	DESCRIPTION	CFM SUPPLY AIR	CFM RETURN AIR	CFM OUTSIDE AIR	CFM EXHAUST AIR	CFM PRESSURE DIFFERENC
1	HEAT & COOL UNIT	4600	3500	1 100	—	+1 100
2	HEAT & COOL UNIT	4000	2800	1200	—	+1200
3	HEAT & COOL UNIT	4000	2800	1200	—	+1200
4	HOOD EXHAUST FAN	—	—	—	2613	-2613
5	HOOD EXHAUST FAN	—	—	—	2750	-2750
6	SUPPLY FAN	4380	—	4380	—	+4380
7	HOOD EXHAUST FAN	—	—	—	1375	-1375
8	TOILET ROOM EXHAUST	—	—	—	400	-400
TOTAL		16,980	9100	7880	7138	+742

The drawing below shows a layout view of a proposed exhaust hood and the equipment to be vented. Note that the rice cooker is not proposed to be fully under the hood. The reviewer would need to make a determination as to whether this piece of cooking equipment requires ventilation.



Lighting Plan

TOP



Note the highlighted rectangle in the upper center. This is a light fixture. The electrical legend states that the "A" inside the rectangle indicates a "lay-in" fixture. This is the typical fixture that lays in a drop ceiling. The pattern and location of the lights can be seen from this drawing. The shielding method is not shown.

The "J" inside the circles indicates a junction box where wiring comes together.

Note the walk-in refrigerator at the lower left. Just inside the door is an "S" on its side. This indicates a light switch. The line from the switch leads to 2 circles, which are the light fixtures. A note on the left indicates that the walk-in fixtures are to be provided by others. The rectangle at the back of the unit is likely a refrigeration condenser and not a light.

Conducting the Plan Review

top

Introduction

To avoid becoming overloaded with all the information presented in a set of plans, develop a systematic, consistent method for plan review. This helps a reviewer conduct reviews in a more efficient and complete manner. This section will provide a suggested format for reviewing plans and provide some practice to help develop or improve plan review skills.

Tip: Reviewing plans is much like doing an inspection. The challenge is to visualize the 2 dimensional plans as a 3 dimensional working kitchen. This is why a reviewer must carefully assess information supplied and ask questions to understand how employees will prepare food within the facility.

Getting Started

top

Tip: First, make sure that you have complete plans. Use the MDA plan reviewer's checklist or submission instruction sheet to review whether all required material has been submitted. **A plan reviewer's job is to verify that the proposal complies with the food code and law**. This can't be done if the plans aren't complete.

TIP: To make reviewing large sets of plans easier, remove and use the sheets that contain most of the information needed. Most information relevant to a food establishment plan review is found in the following sections:

Probable Sections	Remove the sheets that show:
C (Civil)	Building layout on the property, location of the water lines, sewer lines and garbage storage
A (Architectural)	Interior wall finishes
M (Mechanical)	Ventilation systems over cooking equipment
P (Plumbing)	Hot and cold water lines, water heater, plumbing fixtures and cross-connection control devices
E (Electrical)	Lighting location and shielding
EQ, FS (Equipment or Food Service)	Food equipment and food area layout
SP (Specifications)	Food equipment
R (Refrigeration)	Food refrigeration equipment

Refer back to the sheets not removed as needed.

Tip: Look at the application form for information on hours of operation, size of facility, type of operations (outdoor cooking, catering, etc.) and proposed opening date. The application will also indicate other design, construction and equipment professionals that are working with the owner.

Plan review steps:

1. Review the menu.
2. Review the worksheet information in detail. Refer to the plans and specifications as needed.
3. Calculate dry storage, refrigeration, hot water and ventilation needs, as applicable.
4. Finally, review the plans and complete reviewing any additional specification sheets.
5. Consult with the owner, by phone or in person, as needed.

Tip: Document the review on the reviewer's checklist, noting whether each item complies with the food code, is not applicable, or whether more information is needed. Make detailed notes on questions or missing information. When information is found at a later time, note the location of the information and that the item is now satisfactory. This document becomes the official reviewer's record, which is used:

- To write additional correspondence,
- As a later reference, or
- By an auditor

Owner Consultation **top**

An owner consultation is optional, but often very worthwhile. Discuss with the owner where the employee workstations are and how the food will flow through the facility. Make a copy of the layout or use a clear acetate cover sheet and draw in workstations along with food, dish and waste flow patterns. **Note:** This can get messy, so drawing these items on the original plan is not advised.

- Are their likely to be changes to the proposal as the owner hires a chef or works with an equipment supplier, who may recommend changes to equipment, layout or menu?
- Is the owner new to the food business and learning as they go, or are they experienced and have a firm idea of what they are proposing?
- Discuss estimated review time frames and answer any questions the owner has on the process and requirements.
- Discuss any complications with the water supply, sewage disposal or other possible problem areas.
- Document conversations or advise the owner if it is necessary for them to submit written details on information discussed.

MENU **top**

Tip: Plan review is a good time to work with a facility on any necessary consumer advisories (FC 3-603.11, FL 289.6149), before the facility prints menus.

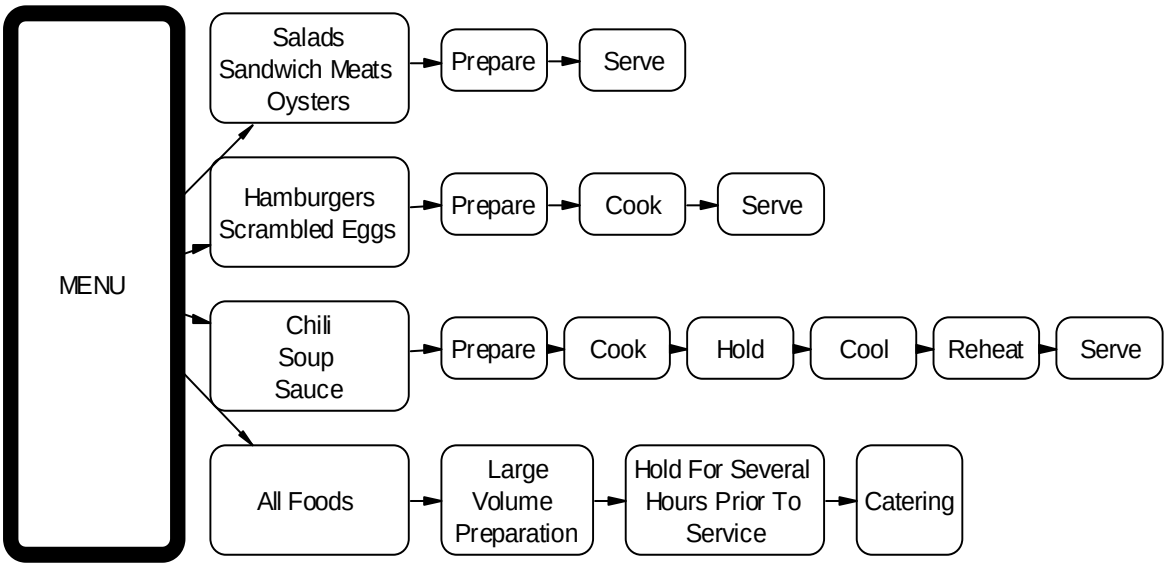
The plan review process should focus on the food and what will happen to the food. The source and quantity of food to be served should be reviewed along with preparation and post-preparation operations and the proposed storage practices.

Special attention should be given to the review of complex food processes involving:

- Multiple ingredients being mixed or assembled
- Potentially hazardous foods
- Preparing or holding foods several hours prior to service
- Cooling and reheating
- Multiple step processing (passing through the temperature danger zone more than once)

Tip: Use both the menu and worksheet information on food preparation processes to determine the types of complex or hazardous food preparation processes. Use the layout to determine whether the proposed facilities support the menu. For example, are there adequate preparation tables and sinks for the processing of raw meats, seafood and produce, without causing cross-contamination? Does a catering facility have large enough refrigerators to store large containers and platters of food prior to transport?

Review the menu to determine the style(s) of food preparation. Some of the most typical formats are shown below.



Exercise top

Review this catering facility menu. Characterize and list the food processes and hazards involved with this menu.

Breakfast

Scrambled Eggs
Bagels or Toast
Peameal Bacon
3-Cheese Omelets
Hashbrowns
Jams & Peanut butter
Breakfast Sausage
Assorted Cereals

Main Course

Homemade Lasagna	Meatballs in our own savory sauce
Chicken wings w/blue cheese dip	Fried Rice
Roasted parisian potatoes	Spring vegetable mix
Roast Beef w/mushroom gravy	Roast Turkey w/gravy & stuffing
Baked Ham w/Pineapple sauce	Pita w/grilled veggies
Mashed or Roasted Potatoes	Peas, Green Beans, or Corn Niblets

Cold Platters

Assorted finger sandwiches	Cold cuts and cheeses
Kaisers and Dinner Rolls	Cheese, Crackers and Breadsticks
Veggie and dips	Nachos and salsa

Salads

Potato, Macaroni	Chef, Ceasar
Greek	Tortellini

Misc

Dessert Platters	Citrus and fruit punch
Potato chips & Dip	Homemade cookies
Jello moulds	Fresh fruit
Coffee or Tea	Bottled Water
Soft Drinks	Fresh Juice
Specialty Cakes	Hot and cold hors d'oeuvres

Interested in items not shown? We can accommodate almost any request.

Exercise Answers

Without having the worksheet to detail preparation processes, the layout to show proposed equipment and an owner consultation to answer questions, you can only guess. But some general impressions can be made, which include:

- The menu is extensive and varied, which indicates a need for enough preparation, cooking and storage room for a complex operation.
- All of the food processes shown in the flow diagram above can be found in the menu. The note at the bottom "We can accommodate almost any request" indicates that the facility is willing to add even more menu items.
- Many items appear to be potentially hazardous and be made on-site with multiple preparation steps involved (i.e. "homemade lasagna, mushroom gravy, our own savory sauce")
- Baked items indicate a possible on-site bakery operation.
- Catering operations typically serve off-site using single service items. An adequate dry storage area for these items must be available.
- Be sure to evaluate transport vehicles, insulated or powered transport boxes and temperature monitoring systems.

WORKSHEET

top

Complete the reviewer's checklist as the worksheet is reviewed.

The purpose of the worksheet is to provide information that is not included in plans or is often missing from plans. Pages 1-6 provide information that the owner should know about the proposed operation. Any existing standard

operating procedures (SOP's) are asked to be submitted so the reviewer can evaluate the adequacy of policies and SOP's in relation to the complexity of the menu. Applicants do not automatically need to develop SOP's that do not exist. By reviewing how complex the proposed operation is and where the potential uncontrolled hazards are, the reviewer can determine whether any new SOP's need to be developed.

Pages 7-11 provide information on the physical facilities. Unless their is an agency policy that states otherwise, applicants may reference where the information is located in the plans, and not duplicate information in the worksheet. For example, if an equivalent room finish schedule is provided in the plans, the applicant may just reference the page and section number.

Most of the information necessary to compute the various formulas is summarized on pages 10-11. Other information that may be needed includes:

- Hours of operation (see application) to determine the number of meal periods each day and
- Information on whether the facility has a drive-through window, which is found in the worksheet's insect and rodent control section.

This information is necessary to run the dry storage and refrigeration formulas that are based on seating.

Tip: MDA offers a Microsoft excel spreadsheet calculator that can be used to easily calculate and document hot water, dry storage, refrigeration and ventilation needs. Microsoft excel software is necessary to operate the calculator.

Tip: While the hot water, dry storage and refrigeration formulas found in the plan review reference manual are not referenced in the food code, it is appropriate to require that adequacy of dry storage space, refrigeration space (FC 3-305.11 & .12) and hot water heater size (FC 5-103.11 (B)) be based on reliable estimates. When the facility can not supply reliable actual use data to support their proposal, the use of recognized formulas is appropriate. The ventilation system size is based on the Michigan Mechanical Code. Food law section 6117 provides the ability for MDA or a delegated local health department to enforce the state mechanical code as necessary.

SPECIFICATIONS **top**

Specification sheets are commonly known as "cut" sheets. They typically provide photos or drawings and technical information on equipment. Cut sheets also indicate any approvals from such organizations as NSF or UL. On a plan layout, a top down view of the equipment is drawn in and either labeled or given a number which can be looked up in the equipment schedule.

The food code (8-201.12) requires that the following information on equipment be provided:

- ***Type** - Is it a slicer, broiler or soft-serve dispenser? Is an oven conventional, convection or some combination of technologies?
- ***Manufacturer**
- ***Model Number**
- ***Dimensions** - Depending on the equipment both interior and exterior dimensions may be needed.
- ***Performance Capacity** - What is the energy usage? kW means it's electric and BTU means it's gas-fired. What is the maximum temperature of ovens? Can a refrigerator maintain the proper temperature in a 95ºF kitchen?
- **Location** - This is typically shown on the layout.
- **Installation Specifications** - Will the equipment be installed on legs or wheels; have a fixed or flexible utility connection; be sealed in place or moveable?

*These items are typically shown on a manufacturer's cut sheet. Installation directions and options may be listed, but exactly how the owner will install is information that must come from the owner.

Tip: Compare the information provided on the plans with the cut sheets provided to verify they match. Occasionally, a facility may supply a standard cut sheet packet that does not reflect specific equipment substitutions that are shown on the plans. For example, if the cut sheet is for a different model dishmachine than is indicated on the plans, the reviewer may use the wrong gallons per hour of hot water usage in making calculations, or may believe the dishmachine will have hot water sanitization, when in fact a chemical sanitizing machine is scheduled to be installed. A chemical sanitizing machine may require a larger drainboard area for air-drying dishes, since it rinses at a lower temperature.

Specification sheet samples:
Stellar Countertop Steamer
Delfield Refrigerated Display Case

PLANS **top**

Complete the reviewer's checklist as the plan sheets are reviewed.

Tip: Locate the handsinks and employee workstations. Are their enough properly located handsinks?

Mechanical Plan
The food code requires that a mechanical plan be submitted during plan review. The plan reviewer should strive to receive a copy of the mechanical plan that is supplied to the building permit authority. Building department's typically require that a commercial cooking exhaust plan be designed by an engineer or be listed

by Underwriter's Laboratory (UL), as complying with standard 710. Should the building department waive their requirement for a plan to be submitted, the food code provision for submission of a mechanical plan to the reviewing health agency still applies. Plans for schools are required to be prepared by an architect or engineer.

A state or local mechanical inspector will oversee the installation of all cooking equipment exhaust systems, except that:

- Schools are exempt from mechanical permits and inspections. MDA recommends that the reviewing agency obtain from the design engineer what standard the cooking equipment exhaust system was designed to and verification that the system was installed in compliance with that standard.
- Mobile food units of any type (mobile or STFU license) are not covered by the Michigan Mechanical Code. MDA recommends that the reviewing health agency oversee the design, construction, installation and performance testing of these systems. Typically these systems are relatively simple with make-up air being brought in through a screened opening.
- Equipment considered portable (typically any countertop, electric cooking appliance that can be easily moved) is not regulated by policy of the Michigan Department of Consumer and Industry Services (MDCIS).

Tip: When reviewing a mechanical plan, exhaust fans are usually labeled "EF" and make-up air is typically labeled "MUA". Air flow is measured in cubic feet per minute (CFM).

Review mechanical sheets for the following:

- Identify equipment that does not need venting and make recommendations to the building department, as needed. Require venting of equipment that is not proposed to be vented, as needed (FC 4-301.14). See MDA equipment ventilation recommendations for guidance.
- Is hood designed to prevent grease or condensation from dripping onto the food? (FC 4-204.11, 6-304.11)
- Are filters removable or designed to be cleaned in place (FC 4-202.18)?
- Is the exhaust fan discharge located to not create a public health hazard or nuisance? (FC 6-501.14)
- Are the following items related to the exhaust hood in compliance with the food code: materials, design, installation, location? (FC 4-101.11, 4-202.16, 4-402.11-12, 6-201.17)

Will the surfaces behind and below the cooking equipment be suitable for a high heat, heavy equipment area? See finish schedule section of plan review manual for guidance.

Plumbing Plan

Review the plumbing sheets for the following:

1. Identify all equipment that has potential cross-connections. Be sure to look at both the water supply and drainage side. Determine if the necessary cross-

connection control devices, air gaps or air breaks are proposed. The plumbing cross-connections table in the worksheet should also be reviewed.

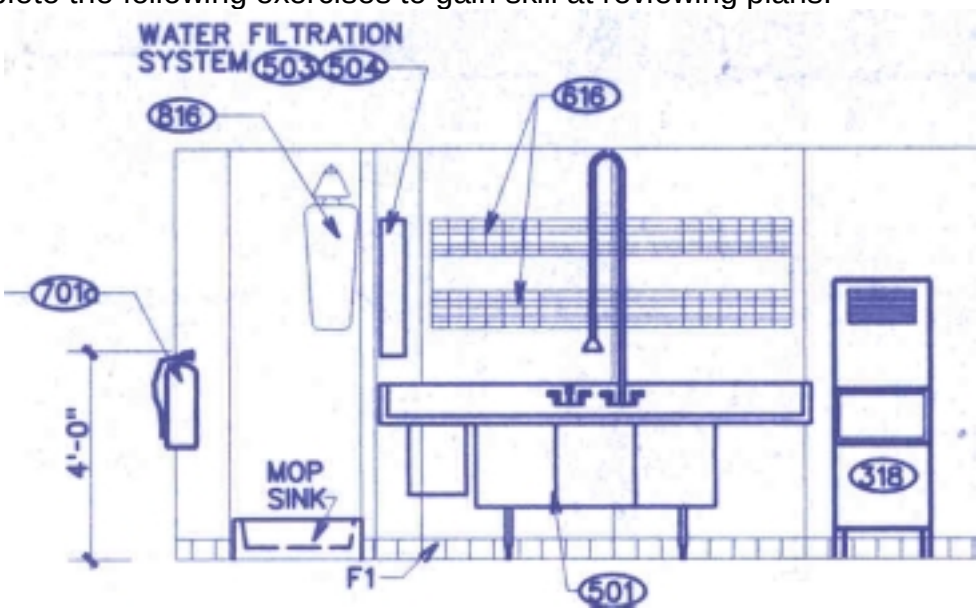
2. Review location and specifications for the hot water heater(s). Are any hot water utilizing fixtures an excessive distance from the water heater?
3. Identify all equipment and areas that need to have a drain. Verify that a suitable drain is proposed. For example, is there a floor drain in close proximity to walk-in refrigerator doors for mop water, near built-in cooking kettles for drainage and near the dishmachine for water drainage? Will condenser water from the walk-in refrigerator be routed to an interior drain or to the exterior where it may create a nuisance or water source for pests?

Lighting

Review the lighting plan for the following:

1. Identify all lights.
2. Verify lights are shielded as required.
3. Verify that adequate lighting is proposed to provide for the minumum lighting levels required in the food code. This is a professional judgement item. Experienced plan reviewers have a good sense regarding the amount of lights needed to obtain adequate lighting in various areas. Even a novice reviewer should be able to look for more lighting proposed in areas where the foot-candle requirements are higher. Walk-in refrigeration units and dry storage rooms will have shelves and food added that will block light. One light by the door is usually insufficient to light an entire walk-in.

Complete the following exercises to gain skill at reviewing plans.



Exercise 1: top

Write down all the questions that would be considered during the plan review, from reviewing this drawing. The numbers in the drawing represent:

F1 - quarry tile coving

318 - ice maker

501 - 3 compartment sink
616 - wire shelving
701 - fire extinguisher
816 - Instantaneous water heater

Exercise Answer:

From this one picture, numerous questions can be developed and some can be answered. Note that the majority of plan review related food code sections are in food code chapters 4-6.

Mop Sink (FC 5-205.13)
Drawing shows mop sink present and of acceptable design, although specific construction materials not indicated.

Mop Storage (FC 6-501.16)
Drawing shows a wall area above mop sink that could be used for mop storage, but does not indicate a storage rack. Make a note to find mop storage information elsewhere on the plans or ask owner.

Overhead Spray Rinse (OHSR) (FC 5-202.11(A), plumbing code)
Is OHSR air-gapped? The drawing shows an air gap.

How will dish pre-scrapping be done? (FC 4-603.12)
The left end of the 3-compartment sink shows a chute extending down from the drainboard. This indicates a garbage can would be placed here to pre-scrape dishes.

3 Compartment Sink

Provided as required? (4-301.12)
Shown on plan.

Are drainboards present and adequately sized? (FC 4-301.13)
Shown on plans. Sizing would be evaluated based on facility type and menu. Will dishwashing be continuous or completed in batches a few times per day? Is there a dishmachine for plates and utensils, with only the pots and pans being washed in the sink?

What is the direction of flow for dishes?
Since the pre-scrapping garbage can is shown on the left, the soiled dishes would be placed on the left drainboard and wash-rinse-sanitize would go to the right, with the clean items placed on the right drainboard to air-dry. Reviewing a layout sheet will provide some indication as to whether the natural flow of soiled dishes will tend to reverse the proposed flow? If yes, this may be a poor design

that will cause continuous contamination of sanitized items or surfaces. **(FC 4-904.12)**

Are the sink compartments large enough to wash the largest item? (FC 4-301.12)
The worksheet will show exact sink compartment sizes and the largest item to be washed should be indicated.

Will any sink compartments be used for food? (FC 5-202.11(A), plumbing code)
If yes, then those compartments must be air-gapped from sewer. How the sewer lines are connected is not shown in this drawing. See the plumbing plan or worksheet for this information.

Does the 3 compartment sink construction and materials comply with the food code? (FC 4-101.11, 4-201.11, 4-202.16)
Is the unit certified or classified by an ANSI accredited organization (i.e. NSF)? Refer to the equipment specification sheet. If yes, it complies with the food code (**FC 4-205.10**)**.** If not, an evaluation of the equipment specifications will be needed.

Is there a potential cross-contamination problem? (FC 3-305.11)
The mop sink is on the dirty dish end and the ice machine is on the clean end of the 3-compartment sink, which would not indicate a cross-contamination potential. The layout would be used to evaluate for adequate aisle width and potential conflict with other operations that may be across the aisle.

Are the wall and floor coving materials acceptable for this type of wet area? (FC 6-101.11, 6-201.11, 6-201.13) Refer to the finish schedule on the plan or in the worksheet to determine the wall covering proposed for this area. The proposed quarry tile coving is acceptable.

Ice Machine

Is the ice machine drain air-gapped? (FC 5-202.11(A), plumbing code)
Refer to the plumbing plan or worksheet for this information.

Does the ice machine construction comply with the food code? (FC 4-101.11, 4-201.11, 4-202.16, 4-204.17, 4-204.18, 4-402.12)
Is the unit certified or classified by an ANSI accredited organization (i.e. NSF)? Refer to the equipment specification sheet. If yes, it complies with the food code (FC 4-205.10). If not, an evaluation of the equipment specifications will be needed.

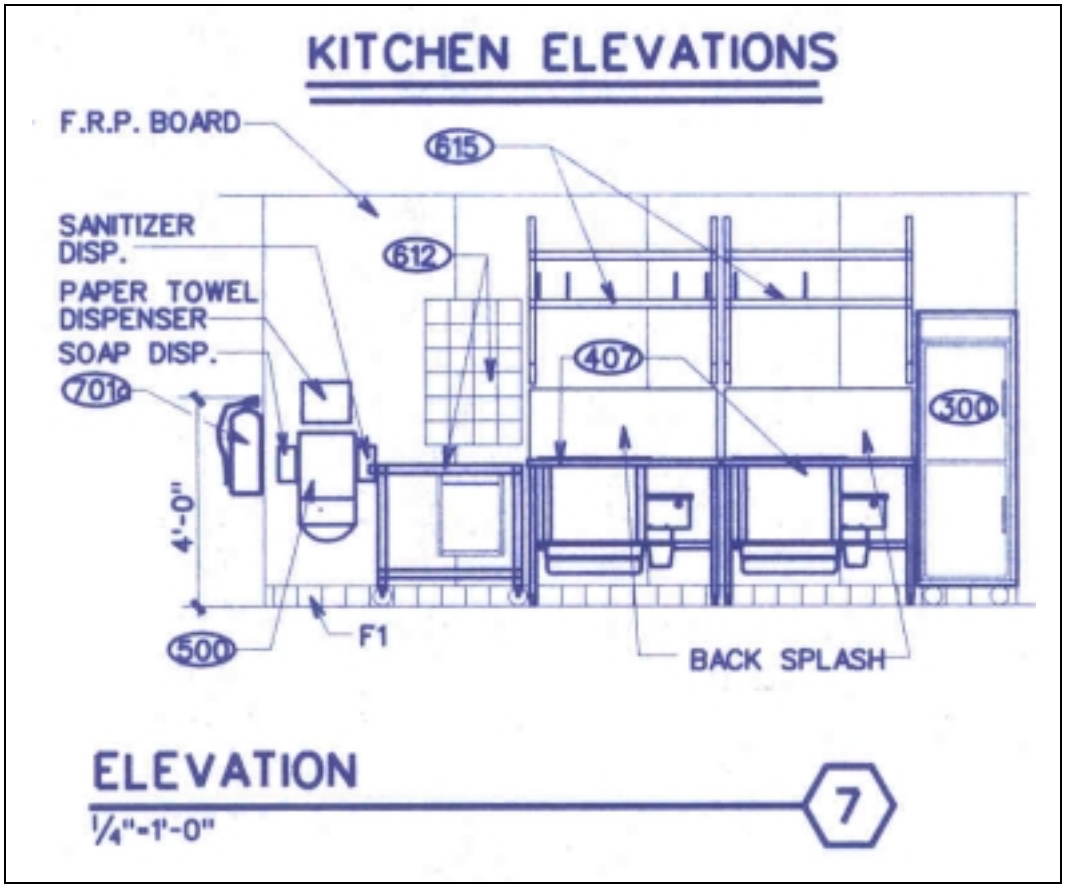
Shelving Over Sink
Is the shelving constructed of approved materials? (FC 4-101.111)

Review specification sheet.

What items will be stored on the shelving? (FC 3-305.14, 7-201.11)
The shelves would be an inappropriate location to store food or single service items, and chemical storage would be inappropriate if food will be placed in the sinks. How will the soaps and sanitizers to be used at the 3-compartment sink be stored? Some facilities may plan to store small gallon containers at the sink and some may have an injection system, where larger containers inject pre-measured amounts through hoses to the various sink compartments. Ask how this will be done, so that storage can be evaluated.

Instantaneous Hot Water Heater (FC 5-103.11(B))
Is this the only water heater proposed for the facility? Instantaneous units are typically unable to supply enough hot water on a continuous basis to supply an entire facility.

Will a sanitizer test kit (FC 4-302.14) and thermometer (4-302.13) be provided for 3-compartment sink to check water temperatures and sanitizer concentration?
Plans rarely carry this level of detail, but these items need to be present at the pre-opening. Advising the owner of items like this prior to the pre-opening is advisable.



Exercise 2: top

Write down all the questions that would be considered during the plan review, from reviewing the above drawing. The relevant numbers in the drawing represent:

F1 - Quarry tile coving
300 - Delfield, 1 door freezer
407 - Breader with backsplash
500 - Handsink
612 - Sandwich wrapping work station
615 - Storage Shelves

Exercise Answers

Handsink (FC 5-203.11)

Provided as required? Handsink is shown on plans in a convenient area near the workstation. **Note:** This facility breads and fries chicken. Employees often get flour on their arms well above their wrists during this process. This knowledge may be gained through a consultation with the owner or by talking with an inspector that is familiar with this type of operation. An oversized handsink and foot-operated controls may be advisable to allow thorough hand washing and to avoid contaminating conventional faucets.

Soap, Disposable Towel, Handwash Sign (FC 6-3)

Provided as required? Soap and disposable towel shown on plans next to handsink, including a hand sanitizer that is recommended, but not required. A handwash sign is not shown. Advise owner of signage requirement if information is not found elsewhere on plans.

Are the wall and floor coving materials acceptable for this type of area? (FC 6-101.11, 6-201.11, 6-201.13) The FRP with an arrow pointing to the wall indicates that this wall is to be covered with fiberglass reinforced polyester (FRP) board. Quarry tile is proposed for the coving. The plan review manual, finish schedule section, indicates these are acceptable materials for these areas.

Is there a potential cross-contamination problem? (FC 3-305.11) The sandwich wrapping station may be subject to splash from the handwash sink and raw chicken contamination from the breading machines. Review the plan review manual, handwashing section, to determine if a splash guard on the handsink is necessary. Review the worksheet or consult with the owner about how the breading operation may affect wrapping station. Do these operations happen simultaneously? Do different employees perform these tasks? Are there any policies or procedures in place that describe how these tasks will be done safely? Consult with a supervisor or another experienced plan reviewer when unsure

how to determine the level of risk presented by a food preparation operation, such as breading raw chicken.

Does the construction of the equipment shown comply with the food code? (FC 4-101.11, 4-201.11, 4-202.16, 4-204.17, 4-204.18, 4-402.12)
Is the equipment certified or classified by an ANSI accredited organization (i.e. NSF)? Refer to the equipment specification sheets. If yes, it complies with the food code **(FC 4-205.10)**. If not, an evaluation of the equipment specifications will be needed.

Will the equipment be sealed in place or be moveable for cleaning? (FC 4-402.12)
The diagram shows some equipment on wheels and some on legs. Look for equipment installation instructions on the plans.

What items will be stored on the shelving? (FC 3-305.14, 7-201.11)
The shelves would be an inappropriate location to store chemicals since open food is processed below.

Web-Assisted Plan Review

top

Increasingly, the internet is an excellent source for high quality food establishment plan review resources. Do you need to know how many gallons per hour a certain dishmachine uses? Do you need to look up the specifications for a piece of cooking equipment? Do you need information on a new model of backflow preventer? All this information can be easily found on the web.

Equipment Listing Organizations

top

NSF International is the original organization that developed standards for food equipment. Many others now evaluate and list equipment, but typically the equipment is evaluated as meeting a certain NSF standard.

Food Service Equipment Standards	- Can't remember what standard covers dishmachines? Look it up here.
Food Equipment Listings	- Look up specific equipment listings.
Meat & Poultry Processing Equipment Listings	- Look up specific equipment listings.
Non-Food Compounds Products Listings	- Look up sanitizers and other

Regulators- mailings, complaints, etc.

proposed products to determine if they have been reviewed.
- Request copies of documents, get on mailing lists, register complaints about misuse of certification labels, etc.

NSF Exercise top

Use the food equipment listings link to determine the hot water, final rinse, gallons per hours usage for a:
Hobart, Model AM-14, Single Tank Door, Hot Water Sanitizing Dishmachine

Click here for exercise answer

Underwriter's Laboratory has historically listed equipment for compliance with electrical and other safety standards. They do list some food equipment and list conventional and ventless exhaust hoods.

UL's EPH Classification Marking under the Food Service Equipment Program

UL uses this mark to: "Confirm that a product has been evaluated by UL and found to comply with the requirements of a given sanitation standard. As an option, manufacturers may also apply a supplemental "Blue Sanitation Mark" to their products."

UL Food Safety Services

UL Standard 710 - Listed Exhaust Hoods &
UL Standard 197, supplement SB Listed Ventless (Recirculating) Exhaust Hoods

Michigan Mechanical Code accepts cooking equipment exhaust systems that are UL710 listed and installed per UL guide instructions as complying with the mechanical code. MDA recommends that ventless hoods listed under UL197SB need not be vented to the outside.

To look up listing details on a specific manufacturer's hood or to locate all listed hoods, click on the certifications directory.

UL On-Line Certifications Directory

- Use "Company Name / Location" to look up a specific manufacturer.
- Use "UL File Number", if provided, to go directly to the specific listing.
- Use "UL Category Code / Guide Information" to look up all listed hoods within a category.

Tip: Use category Code, instead of company name search to get better results.

UL Standard	Category Code	Search Results
710	YXZR	Exhaust hoods with exhaust dampers
710	YYCW	Exhaust hoods without exhaust dampers
710	YYMZ	Grease Extractors for Exhaust Ducts
197SB	KNKG	Commercial, With Integral Recirculating Systems
197SB	KNLZ	Commercial, With Integral Systems for Limiting the Emission of Grease-Laden Air
197SB	YZCT	Hoods, Recirculating Systems, For Use With Specified Commercial Cooking Appliances

Ventless Hood Exercise **top**

A plan review contains a proposal for a deep fat fryer to be installed without ventilation. The fryer is manufactured by Giles Manufacturing, Model WOG-20MP-VH. Use the UL Certification Directory to determine if this unit is approved for installation without ventilation.

Click here for the exercise answer

Directory of ETL Listed Products

Environmental Testing Laboratory (ETL) uses this mark to designate products that have been listed as meeting various NSF standards.

Directory of CSA Listed Products

CSA International uses this mark to designate products that have been listed as meeting various U.S. standards.

Equipment Manufacturers **top**

Many equipment manufacturers show pictures of their products as well as provide specification sheets. When trying to find information on a product that can't be read from a poorly copied specification sheet, try looking it up.

Food Service Equipment Links- This equipment yellow page site provides contact information and web site addresses for numerous companies.
Direct links to a random selection of other firms are listed below:

Armstrong Ceiling & Floors	Hobart
BKI	Holman Cooking Equip.
Blodgett	Moffat
Colburn Treat	Panasonic

Exercise **top**
An Armstrong ceramaguard 605 ceiling tile is being used in a food preparation area. Locate the specification sheet and determine if the manufacturer recommends this tile for use in a food preparation area.
Hint: Click on commercial ceilings, browse by product category and look under special performance ceilings.

Explore a few of these sites to become familiar with finding product information and specifications.

Cross-Connection Devices **top**

Use the following links to connect to these manufacturers and obtain product information on everything from backflow preventers to yard hydrants. Michigan Department of Environmental Quality, Drinking Water and Radiological Protection Division maintains a list of approved backflow protection devices in it's cross-connection rules manual. Refer to the manual for the approved list. Not all devices from the manufacturer's linked below sell approved devices.

Ames
Febco
Murdock
Woodford

Cla-Val (Clayton)
Hide-Drant Corporation
Watts
Backflow.com
Links to more Mfgrs.

Conbraco
Merrill
Wilkins

Do you know what an ASSE 1022 approved device is?

Click here to view the American Society of Sanitary Engineers (ASSE) standard numbers and which devices each standard covers.

Other Web Resources **top**

MDA Plan Review Resources
A.O. Smith Hot Water Heaters
FDA Plan Review Guide
Michigan Mechanical Inspector Jurisdiction List

NSF Exercise Answer

Type the following in the search boxes:

Product Search: am-14
Manufacturer: Hobart

On the results page, be sure to scroll down to the: Single Tank Door, Hot Water Sanitizing machine listing. Usage Answer: 89.7 gph. Review the water usages for the variations of model AM-14 listed.

Click the back button to return to the exercise.

Ventless Hood Exercise Answer
Yes, the unit is listed for use without a ducted ventilation system. Information can be found by using category code, entering KNKG, and then clicking on Giles Enterprises. The information below would be shown.

Commercial, With Integral Recirculating Systems

Guide Information

This is the UL File #.

GILES ENTERPRISES INC E143926
2750 GUNTER PARK DR W
MONTGOMERY, AL 36121 USA
Deep fat fryers, Models CF-200VH, -400-VH, -500-VH , WOG-20MP-VH, WOG-D-VH, -MP-VH.

Click the back button to return to the exercise.

Last updated: 6/17/02

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