



## An Urban Bloc Modular Shipping Container Concept Out of the Barrel Tap Room, Campbell, CA

Urban Bloc is a custom fabricator of office, retail, and food service spaces built from freight shipping containers. At its San Leandro, California facility, Urban Bloc expertly transforms the containers from empty metal boxes into finished, code-compliant commercial spaces. Designed as a “plug-and-play” solution, each unit arrives fully permitted and ready to connect to utilities at its permanent location. Recently, Urban Bloc constructed a 40-ft container with a full-service kitchen and bar, which will be lifted onto the rooftop of a two-story building and serve as the event space for the Out of the Barrel Tap Room.

Oakland’s East Bay Restaurant Supply referred the Urban Bloc design team to Frontier Energy’s Food Service Technology Center (FSTC) for guidance on energy efficient and kitchen electrification options. The FSTC team helped Urban Bloc find electrical cooking equipment that could be used in this container. Considering the constraints of the electrical panel size (capacity of 200 Amperes) and lack of access to a natural gas connection, the FSTC team faced two unique challenges identifying equipment for this container:

1. Specifying a line of electric cooking equipment that would not exceed the container’s electrical load capacity, and
2. Meeting the end user’s cooking performance, utility, demand, and food quality needs.

Once the electrical service requirements for the “must have” non-cooking equipment (i.e. lights, refrigeration, kitchen exhaust, convenience plugs, etc.) were determined, the FSTC team set about developing a high-production and high-

efficiency cooking equipment schedule to meet the expected service demands of the event space. Underneath the 10-foot exhaust hood, the proposed cookline consists of a 14” fryer, a 4-element induction countertop range, a 24” griddle, and a 3-pan mini-combination oven. The range, griddle, and combi oven pieces all have unique attributes ([Table 1](#)) that will ensure this kitchen will be as energy efficient and productive as possible ([Table 2](#)).

**Table 1: Out of the Barrel Tap Room Event Space Container – Efficient Equipment Features**

Equipment Category	Cooking Energy Efficiency	Features
Griddle	87%	Uniform cooking surface
Induction Range	88%	Heats up faster than natural gas burners
Mini-Combination Oven	70% Convection Mode	Advanced automation features

**Table 2: Out of the Barrel Tap Room Event Space Container – All-Electric Cooking Equipment Performance**

Equipment Category	Production Capacity (lb food per hour)
Fryer	61
Griddle	25
Induction Range	200
Mini-Combination Oven	21

The container's total connected electrical load, expressed in kilovolt-amperes, consists of 73% from cooking appliances and 27% from other equipment. The FSTC team applied the National Electric Code (NEC) demand factor multipliers to all the connected loads and load categories (Dedicated, Motor, Continuous, General and Kitchen) of the specified equipment to calculate the total system demand and corresponding demand amperage (Table 3). The resulting total demand amperage was 140.1A at 120/208V, 3-phase, 4-wire. This is sufficiently less than the container's electrical panel capacity of 200A (or 160A if using a standard-duty, 80%-capacity supply or main circuit breaker), leaving an ample margin of safety.

**Table 3: Out of the Barrel Tap Room Event Space Container – Electrical Loads**

Main Equipment Category	Demand Load Type	Connected Load Kilovolt-Amperes (KVA)	NEC Demand Factor (%)	Demand Kilovolt-Amperes (KVA)
Cooking Equipment	Kitchen	46.4	70	32.5
Receptacle Plug Loads	General	9.0	100	9.0
Refrigeration and Misc.	Dedicated	5.0	100	5.0
Kitchen Ventilation	Motor	2.5	125/100	2.9
Lighting and Misc.	Continuous	0.9	125	1.1
Total Demand KVA				50.5
Total Demand Amperes @ 120/208V 3-Ph 4-Wire				140.1

